Economic Instruments in Solid Waste Management

Case Study Bulgaria

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List of Abbreviations

BGN Bulgarian Lev
DCM Decree of Council of Ministers
EMEPA Enterprise for Management of Environmental Protection Activities
EPR Extended Producer Responsibility
EU European Union
FMCG Fast Moving Consumer Goods
GDP Gross Domestic Product
IPPC Integrated Pollution Prevention and Control
MW Municipal Waste
OPE Operational Programme Environment
PP Polypropylene
PET Polypropylene terephtalate
RO Recovery Organization
RWC Recyclable Waste Collection
SN State Newspaper
WM Waste Management
WMA Waste Management Act
Executive Summary

Extended Producer Responsibility (EPR) for packaging waste has been in existence in Bulgaria since 2004. Driven by the need to align national legislation and waste management practices to EU requirements, Bulgaria’s experience in implementing EPR offers fascinating insights as to how these systems can be implemented.

Bulgaria has a relatively well developed municipal waste collection system and presently about 98% of the population is provided with collection services. The services are financed through the municipal waste tax. The private sector is largely involved in the collection of municipal waste and its market share exceeds 80%. The contracting of services is based on tenders with usual contract duration of 4 – 10 years. Landfilling is still the major disposal option for municipal waste collected. Sorting facilities and MBT plants are presently under construction in some of the biggest municipalities.

The first attempts for establishment of more efficient recycling practices started in 2001 with the implementation of the Bulgarian – German Twinning project on packaging waste.

As a result an Implementation Programme for Directive 94/62/EC was developed and approved by the Bulgarian government in the beginning of 2003. The requirements of Directive 94/62/EC as amended have been transposed into Bulgarian legislation via Bulgarian Waste Management Act1 and Regulation on packaging and packaging waste2. Within the frame of negotiations for accession to the EU, the Bulgarian Government agreed a transitional period for achievement of recycling and recovery targets until 2014.

The established system for collection of recyclable waste succeeds to achieve the growing recycling and recovery targets over the last years. In 2010, 321,196 tonnes of packaging waste has been generated in Bulgaria, which corresponds to 43 kg. per capita. The country has achieved 62 % material recycling of the total packaging waste generated, while 47 % were required by law.

Nevertheless, the separation at source and collection of recyclable waste from households is not sufficiently developed in comparison to other Central and Western European countries, while the recycling of packaging waste from large industrial and commercial outlets is a well-established practice.

The key characteristics of the EPR system are summarized below:

- Recycling and recovery targets for packaging waste are defined in the national legislation.
- Every producer or importer whose products are sold in packaging is required to contribute to or provide for achievement of these recycling and recovery targets. The producers or the importers of the packed goods have the possibility to undertake their responsibilities in two ways: i) individually, through the establishment of take back or deposit systems for used packaging in the place of sale of the respective products or ii) collectively, by transferring their responsibility for the achievement of recycling and recovery targets to an approved by the competent authorities Compliance Scheme (Recovery Organization).
- Product taxes on packaging put on the market in Bulgaria have been introduced since March 2004. The product taxes are defined in BGN per kilogram of packaging material and are due by producers and importers of packed goods on Bulgarian market. The companies achieving the recycling and recovery targets individually and the producers and importers of packed goods who sign a contract with a Recovery Organization (RO) are relieved from the obligation to pay product tax to the state. In this sense the product tax shall be considered as a kind of penalty imposed on the obliged companies for non-achievement of recycling and recovery targets for packaging waste.
- The Recovery Organization is the main element for implementing the EPR system. The RO is responsible for the organization of separate collection system and for the achievement of packaging waste recycling and recovery targets on behalf of the producers and importers of packed goods against payment of remuneration/fee. In the implementation of these duties the RO interacts with various stakeholders such as producers and importers of packed goods, state and local authorities, waste management companies, recycling plants and citizens using the separate waste collection services.
- In order to operate on the Bulgarian market, all Recovery organizations shall hold a special permit issued by the MOEW. In order to obtain it, the RO shall submit to MOEW a Program and preliminary contracts signed with municipalities, waste collection

2 Approved with DCM No 41 of 26.02.2004, promulgated SN No 19 of 09.03.2004, last amended SN No 53/10.06.2008
The major source of financing of EPR schemes are licensing fees charged by the recovery organizations to the producers and importers of packed goods and the revenues from the sold recyclable materials.

The mechanism for invoicing of fees to the clients is closely linked with the established reporting requirements, including annual forecasts, monthly and annual reports.

The present licensing fees for packaging placed on the market in Bulgaria are higher than in the neighbour countries, but still below the levels set in countries like Austria, Belgium and Germany where the recycling of packaging waste is well established.

The RO submits an annual report for the achievement of recycling and recovery targets to the Ministry of Environment and Water. The report is verified by an independent certified auditor based on the International Auditing Standard and agreed upon procedures.

The municipal administrations are responsible for organizing the separate collection of recyclable waste from the households on their territory. For that purpose they should sign a contract with a recovery organization or organize the services by themselves. The selection of the system for collection and sorting of the packaging waste is subject of negotiations between the Recovery Organization and the municipality, whereas the municipalities are responsible for taking the final decision.

At present the ROs cover the full costs for collection of packaging waste and no additional financing is provided from municipalities.

The recyclable waste collection from households is based on different colour separate collection containers. Container bring systems are established in almost all municipal centres and other large settlements providing services to more than 5.5 million residents at present. In parallel to the separate collection with containers, buy-back (recycling) centres continue to operate in almost all towns with population exceeding 10,000 residents. The recyclable waste is delivered to buy-back centres sorted and against payment. If in the past buy-back centres were used by almost all residents in the service area, presently the major suppliers of materials are the individual collectors.

The Ministry of Environment and Water is the national competent institution in charge with packaging waste management. The key responsibilities and functions of the Ministry include: i) development of national legislation and policy in the field, ii) issuing of permits to Recovery Organizations, implementation of control over their activities, approval of their annual reports; iii) registration, permitting and control of waste collection, sorting, recycling, recovery and disposal activities and control; iv) control over the companies’ proper reporting of packaging placed on the market by the producers and importers of packed goods, etc.

Over the last years there is a discussion about the results and the efficiency of the established extended producer responsibility system in Bulgaria. From the formal point of view, the system is achieving its initial objectives and guarantees the recycling of waste to levels that are comparable with other EU countries. Nevertheless, almost eight years after the start of the system significant part of the Bulgarian society does not separate waste at source and is not convinced to regularly use the established separate waste collection infrastructure. The achievements over the last years are mainly as a result of the optimization of the collection practices already existing prior the establishment of the EPR scheme and the demand of Bulgarian recycling industry for raw materials.

Despite the fact that there is a lot of criticism towards the existing system, there are obvious achievements in the field of packaging waste management that can be summarized in the following way:

- The country succeeds to achieve the recycling and recovery targets for packaging waste according to the derogations agreed with the European Commission;
- The quantities of packaging waste collected and recycled in the country are steadily growing. Nevertheless, the increase is not the same for all packaging materials and there are large possibilities for improvement;
- The country has a clearly defined policy objectives and national waste legislation in the field of packaging waste management;
- The implementation of separate collection systems did not result in the increase of municipal waste taxes;
- The costs for the Bulgarian industry and consumers occurred after establishment of the system are still lower in comparison to the Western European countries;
- Significant amount of funds were generated and invested in the setting of separate waste collection and sorting infrastructure. As an additional effect a significant number of new working places were opened, especially taking into account that a significant part of the new jobs do not require special education or skills;
• The system proved that it can adapt to significant fluctuations in market prices of recyclable materials.

• The system provides valuable resources to the Bulgarian recycling plants and supports their competitiveness;

• The necessary administrative structures are established and gained the necessary experience for the planning and control of packaging waste management.

The real benefits from the system are expected to grow in the future with the increase of waste recycling and recovery targets. The major challenge for the system is to develop an efficient and cost effective system for the household packaging waste collection and significantly increase the quantities of recycled waste in the country.

Considering the existing obstacles in the functioning of the EPR system, the Bulgarian authorities focused their efforts on the revision of national legislation and setting more clear rules for the activities of the recovery organizations and for improving transparency and the efficiency of the packaging waste separate collection and recycling. These legal changes took place in the new Waste Management Act3 adopted in July 2012.

The establishment of EPR system for packaging waste proved its efficiency in many countries and despite of the difficulties faced, Bulgaria is considered to be one of these examples. Nevertheless there is no unique best solution that can be directly transferred to other countries. The various EPR systems differ significantly from each other and they were gradually developed and adapted to fit with the needs of the individual countries. The EPR system shall take into account the specific conditions in place, especially geographical conditions, level of economic development, legal system, current level of waste management services, people behaviour and standard of living, existence of recyclable waste markets, etc.

1. Introduction

1.1 Background to this Case Study

The financial sustainability of solid waste management systems is one of the greatest challenges being faced in low- and middle-income countries. Cost recovery is an important requirement for sustainably implementing solid waste management systems, but it does not always correspond to political priorities, the willingness of the population or the capacities of the administration to implement it.

However economic instruments include more than fees or taxes. They can be used to cover costs, but also to create incentives for waste reduction, reuse, recycling or particular treatment and disposal options. Extended producer responsibility (EPR), where the manufacturers, importers, packers, fillers and distributors of products take voluntary or mandatory responsibility for the management (including recycling) of the post-consumer waste is one of the most important existing economic instruments.

A wide diversity of approaches to implementing EPR has been applied, operating under a variety of legal, administrative and financing frameworks, and allocating responsibilities between the producers, consumers and governmental/municipal authorities in different ways.

The sector project “Concepts for sustainable waste management” is analysing the economic instruments that could be used in solid waste management, and comparing their effects and the pre-conditions for their implementation in different countries.

The aim of the case study is however not to analyse the characteristics and effects of different economic instruments in general, but rather to focus on answering the questions: What have been the preconditions necessary to treat economic instruments? Which conditions have had to be created to secure the effective use of the selected economic instruments? Which approach has been followed to implement certain economic instruments? What are the currently prevailing effects of the measures?

1.2 EPR in Bulgaria

EPR has been in existence in Bulgaria for over 10 years. Driven by the need to align national legislation and waste management/recycling practices to EU requirements, Bulgaria’s experience in implementing EPR offers fascinating insights as to how these systems can be implemented.

Prior to 1991 the Bulgarian recycling system was state sponsored and state run. After the fall of communism the system collapsed, leaving materials recovery and recycling purely in the hands of the private sector (formal, informal, legal and illegal). In 2001, with the establishment of EPR, major challenges were faced, including how to re-impose order, introducing a new structure of responsibilities which could meet obligatory targets, whilst retaining flexible and market-oriented recycling systems.

Inevitably, mistakes were made in the design and implementation of the original EPR systems. However, Bulgaria has learned from these mistakes, and is now - with the recent adoption of the Waste Management Law of 2012 - putting in place an EPR system which is more robust and consequently able to meet the challenging recycling targets required of any EU Member State.

1.3 Structure of the Case Study

This Case Study analyses the experience with the implementation of economic SWM instruments, especially the producer responsibility schemes for packaging waste in Bulgaria.

The Case is divided into 7 sections, providing description and analysis of EPR in Bulgaria under the following section headings:

- Section 2 provides a description of the basic elements of the waste management and EPR system implemented in Bulgaria, including general information on the country, the legal and regulatory framework, economic instruments being applied, the responsibilities of different stakeholders, and technical aspects of separate collection and recycling;

- Section 3 looks in depth at the responsibilities and structure of producer responsibility organisations in Bulgaria, including their legal form and ownership, key players, contractual arrangements, the relationship between the recovery organisations and the state authorities, and the relation of EPR systems to the rest of the waste management system;

- Section 4 presents an overview of the financing of EPR in Bulgaria, including the systems in place for financing municipal waste management in general, specific financing arrangements in place for EPR, the role of product taxes, licensing fees, investment and assets, and costs and revenues of the system with a particular focus of the service fees;

- Section 5 reflects on the experiences of implementing EPR in Bulgaria and analyses the preconditions for the introduction of new economic instruments, including
consultations and the decision making process and other necessary pre-conditions for success;

- **Section 6** assesses the effects and challenges experienced during the implementation of EPR in Bulgaria, looking at the practical effects, the obstacles and objections experienced during implementation, the corrective measures designed to overcome the obstacles, and possible future measures which are being considered;

- **Section 7** presents a set of recommendations for further improvement, and introduction of EPR schemes in other countries;

- The **Annexes** provide further supporting information related to the technical, organisational, financial and legal framework for EPR in Bulgaria.
2. Description of the basic elements of the systems implemented in the country

2.1 General Information about Bulgaria

Bulgaria is situated in the southeast part of Europe and shares a border with Romania to the north, Greece and Turkey to the south, Serbia and FYROM (Macedonia) to the west and the Black sea to the east. It has an area of 110,910 sq. km. of varied terrain, containing large mountainous areas, fertile valleys, plains and a coastline along the Black Sea. Bulgaria has a continental climate with hot summers and cold, snowy winters.

The population of Bulgaria in 2011 is 7,327,224 people. The population growth rate in the last years is negative, and lies at -0.7% as per data from the February 2011 census. The following chart summarizes the information obtained from the Bulgarian Statistical Institute about the structure of the population of the country in the last 10 year period.

Source: National Statistical Institute
Economic Instruments for Solid Waste Management, Case study Bulgaria

Administratively, Bulgaria is divided in 28 districts (6 statistical regions) and 264 municipalities. The capital, Sofia, lies in the western region of the country. It is the largest and economically most developed city of the country. Other major Bulgarian cities and the number of their population are presented in the figure above.

The labour force of Bulgaria amounts to 3.3 million (2011 census). The labour force is distributed by occupation in the following way - agriculture 7.5%; industry 35.5%, services 57% (2007 estimate). The unemployment rate stood at 12.4 % in June 2012.

Bulgaria has an industrialised market economy in the upper middle income range, where the private sector accounts for more than 80 % of GDP. From a largely agricultural country with a predominantly rural population in 1948, by the 1980s Bulgaria had transformed into an industrial economy with scientific and technological research as its top priorities in terms of budget expenditures. The loss of COMECON markets in 1990 and the subsequent “shock therapy” of the planned system caused a sharp drop in industrial and agricultural production, ultimately followed by an economic collapse in 1997.

GDP in Bulgaria for 2011 amounts to 75.3 billion LEVs. The service sector accounts for 64.6 per cent of GDP, followed by industry with 30.1 per cent and agriculture with 5.3 per cent.

After 2000, Bulgaria experienced rapid economic growth, even though its income level remained one of the lowest within the EU with a gross average monthly wage of 755 LEVs (386 EURO) in June 2012. Wages, however, account for only half of the total household income. Bulgarian PPS GDP per capita stood at 45 % of the EU average in 2011 according to Eurostat data, while the cost of living was 51 % of the average. The currency is the LEV, which is pegged to the EURO at a rate of 1.95583 LEVS for one EURO.

Bulgaria is a net receiver of funds from the EU. The country is not part of the Eurozone and the financial crisis has pushed the accession date beyond 2015 according to some economic analysts.

2.2 Legal and regulatory policies

2.2.1 Legal background

The waste management policy and legislation in Bulgaria aims at implementing the relevant EU directives, regulations and decisions in the field.


The management of packaging and packaging waste should include as a first priority, prevention of packaging waste and, as additional fundamental principles, reuse of packaging, recycling and other forms of recovering packaging waste and, hence, reduction of the final disposal of such waste. In line with waste management hierarchy, with regard to recovery processes, reuse and recycling should be considered preferable in terms of environmental impact.

The Directive states that the EU Member States shall take measures to prevent the formation of packaging waste.
waste, which may include national programmes and may encourage the reuse of packaging. No later than 31 December 2008, systems for the return and/or collection of used packaging must be introduced in order to attain the following targets:

- 60 % as a minimum by weight of packaging waste to be recovered or incinerated at waste incineration plants with energy recovery;
- Between 55 and 80 % by weight of packaging waste will be recycled;
- The following recycling targets for materials contained in packaging waste must be attained: 60 % by weight for glass, 60 % by weight for paper and board, 50 % by weight for metals, 22.5 % by weight for plastics and 15 % by weight for wood.

These systems shall be open to the participation of the economic operators of the sectors concerned and to the participation of the competent public authorities. They shall also apply to imported products under non-discriminatory conditions, including the detailed arrangements and any tariffs imposed for access to the systems, and shall be designed so as to avoid barriers to trade or distortions of competition.

The Directive considers it essential that all those involved in the production, use, import and distribution of packaging and packaged products become more aware of the extent to which packaging becomes waste and that, in accordance with the polluter-pays principle, they accept responsibility for such waste. Member States must also ensure that harmonised databases on packaging and packaging waste are established. They are also obliged to promote information campaigns aimed at the general public and economic operators.

The new Waste Framework Directive additionally defines the extended producer responsibility as major tool to support the design and production of goods which take into full account and facilitate the efficient use of resources during their whole life-cycle including their repair, re-use, disassembling and recycling. In order to strengthen the re-use and the prevention, recycling and other recovery of waste, Member States are allowed to take legislative or non-legislative measures to ensure that any natural or legal person who professionally develops, manufactures, processes, treats, sells or imports products (producer of the product) has extended producer responsibility.

Such measures may include an acceptance of returned products and of the waste that remains after those products have been used, as well as the subsequent management of the waste and financial responsibility for such activities. When applying extended producer responsibility, Member States shall take into account the technical feasibility and economic viability and the overall environmental, human health and social impacts, respecting the need to ensure the proper functioning of the internal market.

The Directive considers that economic instruments can play a crucial role in the achievement of waste prevention and management objectives. Waste often has value as a resource, and the further application of economic instruments may maximise environmental benefits.

The Directive aims to move EU closer to a ‘recycling society’, seeking to avoid waste generation and to use waste as a resource by ensuring the source separation, collection and recycling of priority waste streams. In line with that objective and as a means to facilitating or improving its recovery potential, waste should be separately collected if technically, environmentally and economically practicable, before undergoing recovery operations that deliver the best overall environmental outcome. By 2015 separate collection shall be set up for at least for paper, metal, plastic and glass waste and by 2020, the preparing for re-use and the recycling of these waste materials generated from households and possibly from other origins as far as these waste streams are similar to waste from households, shall be increased to a minimum of overall 50 % by weight.

Both directives give a priority to waste separation at source in front of sorting of mixed municipal waste considering the attainment of high level of recycling and avoidance of health and safety problems by those employed to collect and process packaging waste.

The Member States are also allowed to take measures, as appropriate, to promote the re-use of products and preparing for re-use activities, notably by encouraging the establishment and support of re-use and repair networks, the use of economic instruments, procurement criteria, quantitative objectives or other measures.

The requirements of Directive 94/62/EC as amended have been transposed into Bulgarian legislation via Bulgarian Waste Management Act (WMA) and Regulation on packaging and packaging waste.

Within the frame of negotiations for accession to the EU, the Bulgarian Government has submitted to the European Commission a directive’s specific implementation programme on which basis a transitional period for achievement of recycling and recovery targets until 2014 was agreed.

7 Approved with DCM No 41 of 26.02.2004, promulgated SN No 19 of 09.03.2004, last amended SN No 53/10.06.2008
The following chapters explain the responsibilities of different stakeholders regarding the development of separate collection systems for packaging waste and the achievement of separate collection and recycling targets.

2.2.2 Economic instruments and regulatory policy

In the past, Bulgaria had a relatively well-developed system for collection of secondary raw materials. The collection of recyclable waste was organized via a system of stationary and mobile buy-back centres where the residents delivered sorted materials against payment. In 1988 approximately 15,000 residents were served by one buy-back centre on average. Collection campaigns at schools were also widely implemented. The trade with secondary raw materials was a state monopoly and the system was operated by the state corporation Secondary Raw Materials. The prices of the secondary raw materials were regulated at national level and the collection of waste paper, plastics, glass and textile was subsidized. The major part of the funds necessary for this purpose were generated through the profit resulted from the collection of metal scrap. There were national targets and plans for the quantities of waste collected and recycled. Several pilot projects for the implementation of municipal waste separate collection using coloured separate collection containers were implemented in mid 80s but this approach was rejected and the buy-back centres were considered to provide better results in terms of quantities collected and especially quality of the collected materials. At the same time the glass collection was completely based on deposit-refund systems supported by the obligatory use of standard returnable glass packaging.

After the changes started in 1989, the system was destroyed and collection of non-metal recyclable materials dropped significantly. A large number of small companies entered the market of recyclable waste collection, the major part of them focused on the collection and processing of metal scrap. The collection of waste paper and plastics was entirely driven by the market prices of the materials and focused mainly to commercial and industrial packaging where the prices paid by the recyclers covered the related waste collection and processing costs. Some of the existing buy-back centres in the big cities continue to operate but their number dropped significantly. Individual waste collectors appeared at the same time and over the last two decades they become a significant source of material supply to buy-back centres. The role of individual collectors increased significantly over the time.

The municipal waste recycling was not considered as a priority issue till late 90s, the focus was to improve the municipal waste collection services, closure and reduction of risk from a large number of landfill sites, hazardous waste management, past environmental damages from mining and other heavy industries.

The first attempts for establishment of more efficient recycling practices started in 2001 with the implementation of the Bulgarian – German Twinning project on packaging waste. The following activities were undertaken:

- Assessment of the packaging consumption in the country;8
- Survey of the recycling industry potential and identification of available recycling capacities for the major waste commodities;
- Analysis of practices in EU countries for the implementation of Packaging Waste Directive with special focus on different systems applied with regard to development of separate collection and achievement of recycling and recovery targets: full responsibility of industry (Germany), shared responsibility between industry and local authorities (France) and voluntary agreements (Netherlands9);

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8 Developed within the project “Database for packaging and packaging waste in Republic of Bulgaria”, implemented within the frame of bilateral agreement with the Federal Republic of Germany and financed by the German Federal Ministry of Environment, Nature Conservation and Nuclear Safety.

9 The implementation approach in Netherlands was changed after 2006 and is presently a combination between a product tax and EPR system for packaging waste applies.
- Analysis of possible separate collection practices and providing cost estimates;
- Development of recommendations for implementation of Directive 94/62/EC and justifications for transitional periods required for the achievement of the recycling and recovery targets;
- Development of Draft Regulation on packaging and packaging waste;
- Identification of necessary institutional changes and administrative structures in charge with packaging waste management.

As a result an Implementation Programme for Directive 94/62/EC was developed and approved by the Bulgarian government in the beginning of 2003.

The following pre-conditions defined to a large stage the decision making process on the approach to implement the Directive 94/62/EC:

- The Framework waste legislation was already adopted;
- The legal and institutional analysis showed that transposition of Packaging Directive cannot be ensured only with the amendments of existing legislation and that a new Regulation on packaging and packaging waste shall be adopted, covering entirely this waste stream;
- The Ministry of Environment and Water was the institution designated for planning and coordination of all activities related to packaging waste management;
- There were indications about the possible transitional periods for achievement of recycling and recovery targets that European Commission was ready to accept and it was obvious that these transitional periods could not differ significantly from those already agreed with other accession countries from Central and Eastern Europe;
- Considering the experience in other European countries it was obvious that the industry shall be responsible for the achievement of recycling and recovery targets and in particular for the financing of related costs.

The planning process was supported by intensive discussions with representatives of the Bulgarian business, represented by the Bulgarian Packaging and Environment Association\(^\text{10}\) (BAPE), Bulgarian Industrial Association and Bulgarian Chamber of Commerce. Despite the fact that common agreement about establishment of EPR system was achieved, the industry did not support the timeframe and implementation approach proposed by the Ministry of Environment and Water and had a quite different view on the details of the EPR system to be applied. The following major objections were identified:

- The industry considered the recycling target of 20% planned for the first year after adoption of legislation as a very high starting point and insisted that setting of targets shall be done only after implementation of pilot projects for testing of different separate waste collection practices;
- The industry demanded a longer period for achievement of recycling and recovery targets significantly exceeding the politically acceptable timeframe;
- The industry was lobbying for the implementation of shared responsibility system where the municipalities shall be responsible for the organization of packaging waste separate collection and sorting on their territories and take significant role in the financing of the new system through the municipal waste taxes charged to residents;
- The industry was against the introduction of a product tax on packaging waste, with the argument that it’s an additional unnecessary financial burden.

The discussions didn’t lead to a common agreement on the implementation approach and finally the Bulgarian government adopted the packaging regulation without taking into account the major part of the arguments provided by the business. The political arguments for this approach were the following:

- The transitional period for the achievement of recycling and recovery targets till 2014 agreed with the European Commission was longer than those agreed by the other candidate countries at that time and further delays were politically not acceptable;
- The industry had more than 4 years from the start of the discussions in 2001 till the adoption of the Regulation on packaging and packaging waste to organize the necessary preparatory work for setting up EPR system, including the implementation of pilot projects;
- The product tax was considered as powerful economic instrument to speed up the set up of necessary collective compliance schemes by the industry and didn’t have the purpose to generate additional funds for the state budget;
- The full responsibility of industry for the financing of separate collection and sorting of packaging waste was preferred instead of shared responsibilities with municipalities because of the following reasons: i) the

\(^{10}\) The BAPE was established in 2000 with the major task to provide lobbying on behalf of the industry and especially FMCG companies and protect their interests in the process of the development of national waste policy and legislation in the field of packaging waste. The multinational companies between the founders of BAPE such as Coca Cola HBC, Danone, P&G, Unilever, Kraft Foods, Tetra Pack, etc. already gained experience from EPR practices implemented in other European countries.
increase of municipal waste taxes as alternative to the financing from the industry was not acceptable from political point of view; ii) historically municipalities were never involved in separate waste collection and recycling and there was no such municipal system in place; iii) the organization of separate collection and recycling by the industry and private sector was expected to be more efficient than public municipal services.

At the time of the development of the packaging waste regulation, it was expected that the industry will set up only one national compliance (EPR) scheme and no issues about possible existence of several industry organizations and competition between them were discussed.

2.2.3 Responsibilities of different stakeholders

The responsibilities of the different stakeholders are interpreted in the context of the national legislation in the field of packaging and packaging waste.

Producers and importers of packed goods

Every producer or importer whose products are sold in packaging is required to contribute to or provide for packaging waste recycling and recovery and for the achievement of the quantitative targets defined in the national legislation. If the producers or the importers cannot be identified, the person responsible for the initial distribution of goods on the market will have the same responsibilities as the producer does. The producers or the importers of the packed goods have the possibility to undertake their responsibilities in two ways:

- Individually, through the establishment of take back or deposit systems for used packaging in the place of sale of the respective products. In this case the respective producer shall prepare and submit for approval a waste management plan explaining how the collection of used packaging will be organized;
- Collectively, by transferring their responsibility for the achievement of recycling and recovery targets to an approved by the competent authorities Compliance Scheme (Recovery Organization). The Recovery Organization (RO) is responsible for the organization of separate collection system and for the achievement of packaging waste recycling and recovery targets on behalf of the producers and importers of packed goods against payment of remuneration/fee. In this case the producers of packaging have the obligation to identify the packaging that is entrusted to the RO.

It shall be underlined that the take back obligation applies only to companies achieving the recycling and recovery targets individually and not to the collective compliance schemes. The collective schemes are only obliged to achieve the recycling and recovery targets but not to establish take back or other collection targets only for part of packaging put on the market and contract the remaining part of packaging to a RO; iii) the organization of separate collection and recycling by the industry and private sector was expected to be more efficient than public municipal services.

The individual compliance is possible in some very specific cases when the major part of packaging put on the market by the respective producer is returnable or for some industrial goods suppliers where taking back from limited number of clients can be easily organized.

Despite the fact that no special provisions in the legislation exist, the following rules regarding the above alternatives apply:

- The parallel implementation of individual and collective compliance is not allowed, e.g. the producer cannot achieve individually the recycling and recovery targets only for part of packaging put on the market and contract the remaining part of packaging to a RO;
- The membership in more than one RO at one and the same time is not allowed, e.g. the producer cannot contract the plastic packaging with one RO and glass packaging with another RO. Changes of RO are allowed, e.g. producer can contract one RO for the packaging put on the market during the first 3 months and another RO for the remaining 9 months of the respective year.

The obligations to achieve recycling and recovery targets apply to both returnable and single use packaging and to all packaging materials.

The producers and importers of packed goods are obliged to pay product taxes for packaging put on the market to the state Enterprise for the Management of Environmental Protection Activities (EMEPA). They are exempted from this obligation once they receive an approval to achieve the recycling targets individually or sign a contract with a RO. The payment of product tax actually presents a third possibility for the producers and importers of packed goods in case that they do not achieve the recycling and recovery targets individually or through collective scheme. The mechanism for the charging of product taxes is considered in more details in Chapter 4.2.

The producers and the importers of packed goods are responsible for compliance of packaging put on the market with the legal requirements regarding marking, content of heavy metals, etc. They shall also keep records
and provide information\textsuperscript{11} to Executive Environmental Agency (EEA)\textsuperscript{12} about the quantities of different packaging materials put on the market and for quantities of packaging waste recycled and recovered.

**Producers and importers of packaging materials and empty packaging**

The producers and the importers of packaging materials and empty packaging are obliged to ensure compliance of the packaging put on the market with the requirements of the legislation and in particular these for the maximum allowed content of heavy metals.

The producers of packaging materials and empty packaging are not responsible for the achievement of recycling and recovery targets.\textsuperscript{13} Nevertheless, they can on voluntary basis participate in the established collective compliance schemes and also to provide a possibility for return acceptance of the packaging materials produced.

**Distributors of packed goods**

The take back obligation affects also distributors of packed goods in case the producers and importers of these goods achieve the recycling and recovery targets individually.

**Waste Management Companies\textsuperscript{14}**

The establishment of EPR scheme for packaging waste didn’t impose additional legal obligations for the waste management companies.

It shall be noted that historically these companies were never involved into collection of recyclable waste and their activities were limited to mixed municipal waste collection and disposal, cleaning of public areas, winter cleaning and in some cases maintenance of green areas.

In the first years of implementation the WM companies investigated the possibilities for extending their market to providing separate waste collection services. For this purpose in some municipalities WM companies were contracted by the Recovery Organizations. In all cases where a WM company was contracted, except in the capital Sofia, the same company collects both residual and separately collected waste.

Nevertheless, the WM companies tried to generate additional financial benefits from their activities as a result of the established separate collection systems:

- Some of the waste companies influenced the selection of partner RO by the municipalities. The WM companies were lobbying for the RO with which they already have a preliminary agreement and blocked any negotiations between the municipality and a competitive RO. An example can be given with the agreement between Ecopack Bulgaria and biggest waste management company Titan A/S that supported the RO in 2006 to enter in almost all municipalities served by the company (more than 2 million residents);

- Some of the waste management companies reduced the number of placed residual waste collection containers or their collection frequency looking for cost savings from their normal services. As a result of insufficient volumes provided for collection of municipal waste in some settlements, significant amounts of mixed waste were thrown and collected in the separate collection containers. Same effect was achieved when the openings of containers placed along the streets were turned to the street, while the openings of the neighbour separate collection containers were turned to the pavement;

- In limited number of cases the different materials from the separate collection containers were lifted in one and same vehicle.

There are very few examples where waste management companies are involved in sorting of separately collected waste but as a general they do not possess the necessary technical equipment for sorting and preparation, nor the experience in implementation of such activities, including trade with recyclable waste commodities. The situation could change in the future with the construction of new sorting facilities for mixed municipal waste and other treatment plants (e.g. MBT or anaerobic digestion).

There is a new tendency after 2010, when big waste management companies started to try to get control over existing small ROs or register a new one. There are two explanations for this practice:

- The WM companies see some competitive advantage for establishing/controlling such ROs because of potential costs sharing with municipal waste collection services;
The WM companies see the RO as a potential competitor in their normal services or as a party that could support a potential competitor.

It shall be noted that the present market for municipal waste management services is dominated by local companies. The role of WM companies is expected to grow in the future with the entry of market of large international operators.

Recyclable Waste Collecting Companies

The position of the recyclable waste collecting companies differs significantly from the WM companies.

At the time when the EPR system for packaging waste was introduced in 2004, the situation with the collection of recyclable waste was as follows:

- The collection of recyclable waste from large supermarkets and other commercial outlets was well organized;
- Significant quantities of paper and plastic were collected by individual collectors from municipal waste collectors or at the landfills and delivered to buy-back centres;
- The collection was focused to materials where the revenues covered the collection and preparation costs: metal scrap; paper and cardboard; foils and PET bottles; large items of rigid plastics; the collection of glass from households was negligible;
- The collection of recyclable waste was organized independently from municipal waste collection;
- The quantities of recyclable waste already collected were higher than recyclable waste targets set for the first years of implementation of EPR system;
- The collection and trade with waste paper and plastics was concentrated in 3 large players but also more that 100 small\(^\text{15}\) companies operated on market;
- Some of companies collecting recyclable waste were specialized in paper and/or plastic collection, others were metal scrap dealers where collection of other recyclable waste was supporting activity;
- The profile and size of these companies was different with turnover varying from several thousands to hundreds millions of EUR per year.

The large RWC companies played a significant role in the setting of the EPR system. The following observations were made:

\(^{15}\) The term small refers to the quantities of packaging waste collected and not to the size of economic activities

The newly established ROs didn’t have the possibility to organize a collection system within a short period of time. The only possibility for these ROs to achieve the recycling targets in first years was to have an agreement with the large RWC companies and to buy from them the materials already collected;

In the first years of the EPR system implementation the RWC companies had much more experience in the trade of recyclable waste commodities than newly established ROs;

The RWC companies considered the ROs as competitor on the recyclable waste market assuming that in a mid-term the ROs will generate the necessary financial resources and knowledge to set up their own collection systems;

The RWC companies agreed to sell materials to the ROs if additional bonus above the market price of material was paid. The amount of this additional bonus varied in the first two years after establishment of the EPR system around 30 EUR/tonne for waste paper and cardboard, 50 EUR/tonne for waste plastics and 20 EUR/tonne for metal waste packaging;

The large RWC companies carried out coordinated policy focused on the increase of their revenues and the achievement of following objectives:

- Avoiding conclusion of contracts between RWC and small operators. The purpose was to avoid access of small companies to additional financial resources and in this way keep stable and avoid increase of prices paid for materials to individual collectors and small suppliers;
- Avoiding a decrease of the final prices paid by the recycling plants. For this purpose they placed a condition for minimum prices per material to be paid by the ROs and insisted to be involved in negotiations between the ROs and recycling plants on delivery prices. In case of significant deviations of local prices for paper and plastics the large RWC companies were ready to organize export in order to avoid the attempts of some recycling plants to reduce the prices paid to ROs for delivered material;
- The result of this policy was that bonuses per tonne of material delivered for recycling paid by the ROs actually increased the margin between the supply and sales prices.

The ROs agreed to rely on contracts with the large RWC companies for the major part of recyclable waste quantities to be delivered but also signed limited number of contracts with some of the small collectors as measure to reduce their dependency;
Two of the large RWC took shares in one of the small ROs (Bulecopack) and actually control its policy. The RWC companies will continue to play a significant role on the market considering the future increase of recycling and recovery targets.

**Recycling Companies**

The activities of the recycling companies are subject to waste management permit or other operational environmental permit. The recycling companies are obliged to provide information to state authorities about the quantities of recycled packaging waste. They should also provide the ROs with proofs for the quantities of recycled materials received on their behalf.

The large recycling plants were not actively involved in the setting of EPR system and most of them were waiting to see how it will influence their activities. In the beginning they tried to keep the existing waste supply routes and didn’t rely entirely on the ROs for that purpose. There were several attempts on behalf of recycling plants to reduce the prices paid to ROs with the argument that part of fees charged to producers shall go to stimulate recycling. Nevertheless, this did not happen mainly because of availability of export markets.

The paper mills and glass factories refused to sign the long-term contracts proposed by the ROs and to provide guarantees for acceptance of waste. All of them continued to use their standard contracts for supply and keep the power to decide unilaterally about the supply prices and terms. The ROs adapted their activities to the individual policies of recycling plants.

After several years implementation period, good relations and communication were developed between the recycling plants and the ROs. Nevertheless, the difficult situation of some recycling plants and the delayed payments are considered as potential problem by the ROs.

**Holders of packaging waste**

The holders of packaging waste are obliged to submit it to the places designated for that purpose and to follow the regulations issued by local authorities for collection of such waste.

The separation at source and recycling is obligatory for commercial and industrial packaging and waste holders. In some municipalities a contract with specialized collection company is required for large commercial, industrial and administrative sites.

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**Municipal Administrations**

The municipal administrations are responsible for organizing the separate collection of recyclable waste from the households on their territory. For that purpose they should sign a contract with a recovery organization or organize the services by themselves.

In the contracts with RO the municipalities have two possibilities:

(i) To transfer all responsibilities for separate collection of packaging waste to a RO.

(ii) To organize separate collection by themselves and negotiate and receive from RO additional financing for implementation of separate collection, and eventually sorting and transportation to recycling plants.

The Law does not provide a clear guidance on the financial responsibilities of municipalities related to the organization of municipal waste separate collection services. In practice all municipalities prefer to delegate all financial responsibilities to a RO applying first of the above mentioned options, instead of sharing these costs with the industry. Nevertheless, in limited number of cases the separate collection is financed directly by the municipalities through the municipal waste taxes charged to residents and legal entities in case that contract with RO does not exist.

The municipalities have the following possibilities for organizing municipal waste management services, including separate collection and sorting:

- To implement the respective service through municipal (public utility) enterprise. The municipal enterprise performs its activities according to an annual plan and budget and does not present a separate legal entity. In this case all assets are owned directly by the municipality;
- To contract the services to a specialized company which can be both municipality (public) or private owned. If this option applies, the contracting of services shall be done following a tender procedure in compliance with the Bulgarian Public Procurement Act.

The municipalities have the power to select the type of separate collection and sorting system to be implemented but actually these subjects are negotiated with the ROs which are providing the financing of the system.

Each municipality in Bulgaria is obliged to have a municipal waste management program and to adopt local regulation on the collection, transportation,

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16 The major part of industries recycling packaging waste, such as paper mills, glass factories, metallurgical plants, etc. are subject to IPPC permit

17 Municipalities of Karlovo, Troyan and Sopot (see Figure 13)
recycling and treatment of municipal solid waste as well as of the local taxes for the financing of these activities. The requirements for the separate collection of waste, including packaging waste shall be provided in these two documents.

The municipalities have the right to impose penalties for violations of the rules for separate waste collection. The municipalities do not have special reporting obligations for the separately collected waste from their territories. At present the ROs cover the full costs for collection of packaging waste and no additional financing is provided from municipalities. Nevertheless, the following shall be taken into account:

- The separate collection and sorting systems organized by the RO deal also with other non-packaging materials (mainly printing paper and newspapers put into the separate collection containers). Over the last years significant amounts of impurities are collected. This leads to additional collection/sorting costs for the ROs;
- The municipalities have some savings because the separately collected packaging waste does not use municipal waste collection and disposal infrastructure;
- The municipalities usually do not charge fees for the disposal of separately collected waste sorting residues at the municipal waste landfill. Nevertheless, such costs could appear in the future with the establishment of regional waste treatment facilities and/or the appearance of private operators.

Sharing of costs between municipalities and ROs for the implementation of separate collection and sorting is not considered an applicable option in the next years and could be achieved in exceptional cases. Nevertheless, this situation is acceptable for the ROs, because they have the possibility to propose and influence the final decision about the collection scheme to be implemented in the respective municipality or settlement.

There is a competition between the ROs for signing contracts with larger municipalities where generation rates of recyclable waste are higher and the collection and sorting of waste is more economically viable.

**State administration**

The Ministry of Environment and Water is the national competent institution in charge of the packaging waste management. The key responsibilities and functions of the Ministry include:

- Development of national legislation and policy in the field;
- Issuing of permits to Recovery Organizations, implementation of control over their activities, approval of their annual reports;
- Registration, permitting and control of waste collection, sorting, recycling, recovery and disposal activities and control;
- Control over the companies’ proper reporting of packaging placed on the market by the producers and importers of packed goods;
- Communication and reporting to European Commission.

The Ministry is implementing its control functions through a system of 15 Regional Environmental Inspectorates.

The Executive Environmental Agency is a structure of the Ministry of Environment in charge with the development and maintenance of national reporting system about packaging waste management.

The state Enterprise for the management of environmental protection activities (EMEPA) is in charge with the collection and management of product taxes due for the packaging placed on the market.

### 2.3 Functioning of the separate collection and recycling system

The present Chapter provides an overview of packaging waste consumption and packaging waste collection and recycling practices in Bulgaria. The selected technical solutions for organizing separate collection and recycling have direct influence of the related costs and the provided data aim to support the better understanding of different cost structures and organizational arrangements explained in the following chapters.

#### 2.3.1 Packaging waste generation and recycling

In 2010, 321,196 tonnes of packaging waste has been generated \(^{18}\) in Bulgaria, according to NSI, which corresponds to 43 kg. per capita. The percentage distribution of the packaging waste by material, generated in 2010 is shown on the following figure.

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\(^{18}\) The quantity of packaging waste generated is considered to be equal to the quantity of packaging placed on the market (consumed) within one calendar year.
The quantities of packaging waste generated during the period 2004 – 2010 are presented on the following figure.

High levels of consumption of plastic, paper and cardboard packaging are preserved in 2010. Compared with previous years, there was significant decrease in the consumption of glass packaging. In addition to reduced purchasing power of the population the fact that many of the glass packing were replaced with plastic ones reduced their consumption (e.g. soft drinks packing in the past were made of glass).

Consumption of packaging in Bulgaria is among the lowest in Europe. This is typical for all categories: metal, plastic, paper / cardboard, wood and glass containers. The factors determining consumption include income increase, economic globalization, technological breakthroughs, decreasing household size and aging population.

According to the National Statistical Institute data, packing intended for repeated use in 2010 were 58759 tons, which is 18% of all the packaging introduced on the Bulgarian market.

The largest share of reusable packing belongs to wood (90%), glass (50%) and metal containers (32%).

In 2010 in Bulgaria a total of 199,074 tons of packaging waste have been recovered, of them 197958 tons were recycled materially. The country has achieved 62% material recycling of the total packaging waste generated, while 47% were required by law. The achievement of targets for recycling as per material is visualized on the following figure.
Economic Instruments for Solid Waste Management, Case study Bulgaria

2.3.2 Recyclable material collection channels

Bulgaria has a relatively well developed municipal waste collection system compared to other Eastern European countries and presently about 98% of the population is provided with collection services. The major characteristics of the system can be summarized as follows:

- The municipal waste collection is entirely organized through container systems;
- The collection is based mainly on 1,1 m³ metal euro containers with wheels and in some cases in villages and family house areas metal ring containers of 110 litres or plastic bins of 120/240 litres are used.
- Rear-end refuse collection vehicles with compaction of different age and volume are used for the service of containers. The use of second hand equipment from Western Europe is common;
- The private sector is largely involved in the collection of municipal waste and its market share exceeds 80%;
- The contracting of services is based on tenders with usual contract duration of 4 – 10 years.
- The collection companies are paid directly by the municipalities for collection of household waste. Some municipalities allow direct contracting of additional services provided to commercial and industrial sector;
- The price for the services is usually defined per one municipal waste container lifted and can vary

A specific indicator measuring the effectiveness of the system is the amount of waste recycled per capita. For the year 2010 this indicator was 26.38 kg. per capita. In the previous three years it was respectively 2009 - 17.54 kg. per capita, 2008 - 19.99 kg. per capita and 2007 - 22.85 kg. per capita.

The quantities of different types packaging materials recovered in Bulgaria during the period 2004 – 2010 is presented in the following table.

Table 2. Packaging waste recycled in Bulgaria (tonnes)

<table>
<thead>
<tr>
<th>Material</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic</td>
<td>7622</td>
<td>8935</td>
<td>17996</td>
<td>19941</td>
<td>12084</td>
<td>28596</td>
<td>33553</td>
</tr>
<tr>
<td>Paper and cardboard</td>
<td>74898</td>
<td>121772</td>
<td>65770</td>
<td>104345</td>
<td>73945</td>
<td>65285</td>
<td>113543</td>
</tr>
<tr>
<td>Glass</td>
<td>12215</td>
<td>29513</td>
<td>43767</td>
<td>50150</td>
<td>51395</td>
<td>23537</td>
<td>32735</td>
</tr>
<tr>
<td>Metal</td>
<td>5875</td>
<td>24</td>
<td>1498</td>
<td>20</td>
<td>11806</td>
<td>6639</td>
<td>8052</td>
</tr>
<tr>
<td>Wood</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2827</td>
<td>8606</td>
<td>10074</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>98</td>
<td>102</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total recycled</td>
<td>100610</td>
<td>160244</td>
<td>129129</td>
<td>174558</td>
<td>152057</td>
<td>132663</td>
<td>197958</td>
</tr>
</tbody>
</table>

Figure 6. Fulfilment of the targets for recycling for 2010 compared to the legally required

Source: Executive Environment Agency
Economic Instruments for Solid Waste Management, Case study Bulgaria

depending on the distance of settlement/area to the disposal site, container type and volume, etc. The prices for collection of bulky waste and out of schedule services are defined separately. The payments from municipality to the respective collection companies are done on monthly basis;

- Municipal waste collection companies are also involved in public cleaning and in some areas in the maintenance of green areas. A system of regional waste landfills is gradually introduced over the last ten years;
- As explained in Chapter 2.2.3 there are three different types of service providers: municipal enterprise, municipal company, private operator;
- Landfilling is still the major disposal option for municipal waste collected. Sorting facilities and MBT plants are presently under construction in some of the biggest municipalities;

- Disposal of waste is entirely public service and no private ownership of municipal waste landfills is presently allowed. Private companies are involved in landfill operation based on service contracts.

The established system for collection of recyclable waste succeeds to achieve the growing recycling and recovery targets over the last years. Nevertheless, the separation at source and collection of recyclable waste from households is not sufficiently developed in comparison to other Central and Western European countries, while the recycling of packaging waste from large industrial and commercial outlets is a well-established practice. The individual collectors/scavengers currently provide much more material than separate collection systems.

The major collection channels for packaging waste paper and cardboard, plastics, glass and metals allowing the achievement of recycling and recovery targets are presented on the following figure.

Figure 7. Recyclable waste collection channels

The recyclable waste collection from households is entirely based on different colour separate collection containers. Container bring systems are established in almost all municipal centres and other large settlements providing services to more than 5.5 million residents at present. There is no practice for providing of individual bins/containers or use of plastic bags for separate collection. The separate collection practices for household waste are considered in more details in Annex 1.

In parallel to the separate collection with containers, buy-back (recycling) centres continue to operate in almost all towns with population exceeding 10,000 residents. The recyclable waste is delivered to buy-back centres sorted and against payment. Example of a buy-back centre is shown on Figure 11.

If in the past buy-back centres were used by almost all residents in the service area, presently the major suppliers of materials are the individual collectors. Most of the buy-back centres operate without proper registration and do not meet the relevant sanitary and hygiene norms.

The majority of people consider that operation of buy-back centres is in conflict with the newly established separate collection system. The reason is that individual collectors steal almost all valuable materials from the separate collection containers and then deliver them to the buy-back centres.
Sorting of municipal waste is applied only in the capital city of Sofia and the second and third largest cities Varna and Plovdiv as part of larger MBT plants. The role of sorting will grow over the next years, due to the large number of facilities planned for construction. Nevertheless it shall be pointed out that:

- Quality of materials sorted out of mixed waste is very low. This is especially relevant for paper and cardboard waste considering that the paper mills in Bulgaria refuse to accept such waste for recycling;
- The legal requirements at European level give a priority to separation at source and sorting of mixed waste will most probably focus on the production of alternative fuels;
- The development of separate collection will reduce the quantity of valuable components into residual waste.

Industrial and commercial packaging self-delivered by the clients of recovery organizations contributes mainly to the achievement of targets for recycling of glass. This is related to the periodic replacement of used returnable glass bottles by large breweries and soft drinks manufactures.

Presently there are no reliable statistical data about how different collection channels contribute to the achievement of recycling targets. Nevertheless it can be concluded that separate collection with containers brings about 40 - 50% of presently collected paper and plastics, additional 5% is provided by the sorted municipal waste and the remaining 40-50% is collected industrial and commercial packaging.

### 2.4 Important preconditions for the establishment of EPR

Considering the information provided in the previous chapters the following key pre-conditions were of major importance for the establishment of EPR system:

- The existence of specific legislation at EU level dealing with packaging and packaging waste allowing for the establishment of EPR and the necessity for transposition of its requirements into Bulgaria legislation.
- Experience gained from other countries in the establishment of EPR systems provided the basis for negotiations between the state authorities and business. Despite the fact that EPR system is causing additional costs for the business it is recognized that such costs can be significantly lower if system is managed by the private sector and not administrated by the state.
- The setting of recycling and recovery targets and the agreed transitional periods for their achievement provided clear and measurable objectives for the operation of EPR system. Establishment of high and unrealistic recycling targets since the very beginning can make the industry resistant in taking responsibilities and risks for operating the system.
- The establishment of product tax enforced the creation of the RO by the concerned businesses as it provided the opportunity to reduce their costs (establishment of EPR system is considered lower costs solution than paying product tax to the state).
- At the time of establishment of EPR all basic waste management regulations and administrative structures dealing with planning, registration and permitting of waste management activities were already set up.
- Availability of relatively well developed recycling industry for all packaging materials collected supported the technical planning in the first implementation years.
- Not at the last place, the readiness on the Bulgarian competent authorities to communicate and discuss the implementation approach with the various stakeholders concerned shall be mentioned.
3. Recovery Organizations

The Recovery Organization is the main element for implementing the EPR system. The RO is a collective compliance scheme established on behalf of the industry, responsible for the organizing of separate collection and achievement of recycling and recovery targets on behalf of producers and importers of packed goods on Bulgarian market.

In the implementation of these duties the RO interacts with various stakeholders such as producers and importers of packed goods, state and local authorities, waste management companies, recycling plants and citizens using the separate waste collection services. The key relations of RO with the different stakeholders are presented on Figure 9 and explained below.

The Bulgarian legislation does not impose limitations about the number of operating RO in the country. As a result several RO were established in Bulgaria. In other countries where EPR system is implemented there is only one RO functioning at national level.

3.1 Permits

In order to operate on the Bulgarian market, all Recovery organizations shall hold a special permit issued by the MOEW. In order to obtain it, the RO shall submit to MOEW, among other formal documents, a Program and preliminary contracts signed with municipalities and recycling companies. The program shall be in compliance with the provisions of the national legislation and include the following:

- Preliminary financial estimates for the chosen system for collecting, recycling and recovery of packaging waste and evidence that it is financially secured what concerns the initial investment and operating costs;
- Plan setting out the terms of contracts with municipalities and the minimum number of people to be served by the systems for separate collection of packaging waste, per year;
- Measures to attract those who market packaged goods in the organization for collective recovery and recycling of packaging waste;
- Plan of the quantities of recovered and/or recycled packaging waste by types of packaging materials;
- Plan to reduce waste from packaging, including optimizing packaging and re-use, and the use of recycled materials in the packaging industry, when this does not contradict the hygiene and health standards;
- Measures to be taken in the event of interruption or reduction of the levels of collected packaging waste and its subsequent recycling and/or recovery;
- Plan for informing and attracting consumers to implement separate collection of packaging waste, including educational programs aimed at kindergartens, schools, etc.;
- Measures for the recovery of packaging waste from households, administrative, social and public buildings, catering, retail and facilities for leisure, recreation and tourism;
- Measures to compensate for any negative impact on the market price of recycled materials.

The WMA does not allow licensing of recovery organization only for some types of packaging (household, commercial, industrial) or for separate packaging materials (paper, metals, etc.). All ROs shall have full license covering all types of packaging and packaging materials.

The Recovery Organizations are also obliged each year to prepare and submit for approval to the competent authorities which have issued the permit, a report for the previous calendar year, including detailed information on:
- The financial status (income and expenditures);
- The quantities of packaging put on the market by the members of the organization and the quantities of packaging waste, which has been recovered and recycled through the collective compliance scheme of the organization;
- The implementation of the contracts with members, municipal administrations and processing companies;
- The progress and results of the activities;
- The campaigns organized for raising public awareness, including education campaigns of children;
- The financial parameters of the system;
- The technical solutions adopted;
- The research activities carried out.

Their overall business and financial results are subject to verification by an independent professional audit organization.

3.2 Legal Form and Ownership

The RO is a company registered under Bulgarian Trade Law. The practice shows that all RO in Bulgaria are registered as Shareholder Companies. Despite the fact that ROs are commercial companies according to the provisions of the WMA they operate not-for-profit.

There are different points of view among the recovery organizations regarding the system ownership and companies allowed to become shareholders:

- The first established recovery organization EcoPack Bulgaria was registered by the obliged companies (producers and importers of packed goods) mainly in FMCG sector. The leading role in the registration of company was taken by the large multinational companies like CocaCola, Danone, Unilever, etc. who already had experience with the establishment of EPR systems in other countries. EcoPack does not have waste management companies as shareholders or companies with core activity recycling of waste. The existing shareholders of EcoPack consider the participation of WM companies in the organization as a conflict of interest. The total number of shareholders in the company is 18 and it has very resistant policy towards attracting new shareholders. Ecopack Bulgaria is a member of Packaging Recovery Organization Europe (PRO Europe) and has the rights to use the ‘green dot’ trademark.

- The second largest recovery organization EcoBulPack has more than 100 shareholders from different sectors. It was established as an alternative of EcoPackBulgaria by several Bulgarian companies who didn’t accept the leading role of large multinational companies in the first recovery organization. The establishment of EcoBulPack was supported by the Bulgarian Chamber of Commerce and several branch associations (dairy products, edible oils, meat processing). Despite that EcoBulPack has lower market share than EcoPack Bulgaria it has much bigger number of clients between the small and medium size companies.

- In 2005 several industrial sectors initiated discussions for a merger between EcoPack Bulgaria and EcoBulPack but the negotiations between the management of two organizations were not successful.

- The third registered recovery organization was supported by several large wine producers and companies from chemical industry sector but it didn’t succeed to extend its market share.

- All other active RO are linked to some extent to waste management companies or recycling sector who consider the EPR system as potential revenue source, e.g. key shareholders in BulEcoPack are the leading companies for collection of waste paper and plastics and glass recycling plant; EcoResource Bulgaria is closely linked to the biggest waste management company in Bulgaria Titan International Holging; the main shareholders of EcoCollect are the companies operating the MBT plants in Varna and Plovdiv (second and third biggest cities) in the country.

19 “DER GRUNE PUNKT” is a trademark of Duales System Deutschland Aktiengesellschaft
3.3 Key players

Presently there are 7 active Recovery Organization competing on the market. Data about the number of companies contracted by the RO and quantities of packaging represented are shown in the following Table.

Table 3. Comparison between the ROs

<table>
<thead>
<tr>
<th>Company/Organization</th>
<th>Number of clients</th>
<th>Material in tonnes</th>
<th>Plastic</th>
<th>Paper and cardboard</th>
<th>Glass</th>
<th>Metal</th>
<th>Wood</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>EcoPack Bulgaria</td>
<td>1 169</td>
<td></td>
<td>34 229</td>
<td>36 613</td>
<td>32 581</td>
<td>5 732</td>
<td>13 067</td>
<td>5 006</td>
<td>127 228</td>
</tr>
<tr>
<td>Ecobulpack</td>
<td>3 262</td>
<td></td>
<td>27 340</td>
<td>28 977</td>
<td>12 228</td>
<td>5 315</td>
<td>17 401</td>
<td>1 521</td>
<td>92 782</td>
</tr>
<tr>
<td>Repack</td>
<td>1 016</td>
<td></td>
<td>2 863</td>
<td>6 170</td>
<td>4 807</td>
<td>1 946</td>
<td>2 509</td>
<td>300</td>
<td>18 595</td>
</tr>
<tr>
<td>Bulecopack</td>
<td>865</td>
<td></td>
<td>3 220</td>
<td>6 734</td>
<td>1 757</td>
<td>491</td>
<td>5 453</td>
<td>631</td>
<td>18 285</td>
</tr>
<tr>
<td>Ecoresource Bulgaria</td>
<td>205</td>
<td></td>
<td>1 730</td>
<td>4 580</td>
<td>2 750</td>
<td>483</td>
<td>632</td>
<td>250</td>
<td>10 426</td>
</tr>
<tr>
<td>Ecolollect</td>
<td>293</td>
<td></td>
<td>2 775</td>
<td>5 931</td>
<td>13 063</td>
<td>668</td>
<td>2 280</td>
<td>488</td>
<td>25 205</td>
</tr>
<tr>
<td>Companies achieving targets individually</td>
<td>7</td>
<td></td>
<td>108</td>
<td>629</td>
<td>0</td>
<td>8</td>
<td>69</td>
<td>0</td>
<td>814</td>
</tr>
<tr>
<td>Total</td>
<td>6 817</td>
<td></td>
<td>72 264</td>
<td>89 635</td>
<td>67 187</td>
<td>41 410</td>
<td>8 196</td>
<td></td>
<td>293 335</td>
</tr>
</tbody>
</table>

The biggest RO is EcoPack Bulgaria followed by EcoBulpack. The two organizations represent more than 75% of packaging placed on the market.

Source: Order No 368/08.08.2012 of the Minister of Environment and Water

20 The Ministry of Environment and Water revoked the permits issued of two recovery organizations.
3.4 Contractual arrangements

3.4.1 Contracts with clients

The relationships between the Recovery Organization and the producers and importers of packed goods (clients) are regulated in bilateral contracts. The contracts are standard for each recovery organization and provide the following:

- The contract should guarantee the principles of equality and the possibility for any client, carrying out activities on the territory of the country, to join the organization;
- It should be concluded for a specific time, limited by the term of the permit, issued to the organization. The contract gives the right to the respective client to transfer its obligations for recycling and recovery of packaging waste to the Organization. In exchange the client pays to the Recovery Organization a fee, calculated on the basis of the type and the quantities of packaging put by him on the market;
- The contract gives the right, but does not oblige the clients to print the logo of the Recovery Organization on the packaging of their products;
- The contract specifies the type of packaging, the expected volumes of the packaging waste, the targets for recycling and recovery for each year, as well as the amount of the fees due to the organization;
- It contains provisions regulating the monthly and yearly reporting on behalf of the client of the quantities of packaging introduced on the market, the possible discounts for on-time submission of information, on-time payment of monthly fees, etc.;
- The contract covers all packaging produced, imported, sold or distributed in Bulgaria, intended for household use or with possible household use, as well as commercial packaging similar to household packaging, but used in shops, public catering establishments, hotels and restaurants or in other trade activities.
- The Recovery Organization should have the right, on its own, or through its authorized representatives, to perform the necessary checks in order to prove that the clients, participating in the collective scheme, have calculated and paid the exact amount of the remuneration fee, as well as to receive samples of the packaging, which is subject of the contract.

3.4.2 Contracts with local authorities

The local authorities are generally responsible for the overall organization of waste management services on their territories. Nevertheless, what concerns waste separate collection systems, the participation of the municipalities is usually limited to negotiating and concluding contracts with a RO to operate on its territory. The selection of the system for collection and sorting of the packaging waste is subject of negotiations between the Recovery Organization and the municipality, whereas the municipalities are responsible for taking the final decision. Other issues negotiated and included in the contracts between the Recovery Organization and the Municipalities are:

- The general conditions and the obligations of both parties;
- The details of the municipality’s project for introduction of separate collection, recycling or recovery of packaging waste, as well as details from their waste management program;
- The requirements towards the quality of the collected packaging waste;
- The conditions and the terms of payment of the additional costs to the municipalities by the organization.

Once the contract is signed, the municipality is engaged in the approval of the locations for deployment of the coloured container sets and the schedule of container lifting.

The actual organization of the system for separate collection of packaging waste on the territory of a given municipality and the respective contractual arrangements may vary, but in general follow the models presented in the next two figures.

One of the possible models is the RO to conclude separate contracts with the municipality and the collecting and sorting companies (Figure 11).
The figure below illustrates the current situation regarding the territorial coverage of the systems for separate collection of packaging waste in Bulgaria in 2010.

Figure 11. Contractual arrangements of ROs with local authorities regarding separate collection

Another possibility allowed by the legislation is a contract with the municipality only, which in its turn has contracts with collecting and sorting companies (Figure 12).

Figure 12. Alternative form of contractual arrangements of ROs with local authorities

The figure below illustrates the current situation regarding the territorial coverage of the systems for separate collection of packaging waste in Bulgaria in 2010.

Figure 13. Distribution of separate collection of packaging waste systems in Bulgaria in 2010
The municipalities are not directly involved in the implementation of the separate collection system and its financing and are not responsible for the results of its functioning. Other peculiarities, which characterize the relationship between the ROs and the municipalities include:

- Historically municipalities in Bulgaria were not involved in collection of secondary raw materials;
- No reporting is required from the RO to municipality about the quantities of separately collected materials;
- Municipalities are primarily interested in the visual appearance of the separate collection containers on the streets, but not in the actual results achieved;
- The municipalities do not impose penalties for incorrect placement of waste other than packaging waste in the containers for separate collection. For example, the fallen tree leaves cleaned in the autumn in Sofia were placed by the cleaning staff without any sanctions in the separate collection sets;
- No measures are taken by the municipalities against scavengers taking the valuable materials out of the coloured containers.

### 3.4.3 Contracts with waste collection and sorting companies

Collection of the packaging waste disposed off in the colour container sets is done by the existing waste management companies under contractual arrangements with the ROs, although some ROs (e.g. Ecobulpack) perform these activities themselves. The collection contracts are usually entered into under the following terms and conditions:

- The usual term of the contracts is five years;
- The payment is defined per container lifting and done on monthly basis;
- There are penalties for common lifting of different materials;
- There are no limitations on the types of trucks used;
- The recovery organizations are owners of materials collected;
- Containers are owned by the recovery organization.

The collection contracts also specify:

- Container number and volume;
- Collection frequency;
- Place for delivery of the collected waste.

The contracts for sorting specify the following:

- Type of the input material to facility. In some contracts there are minimum quantities of delivered material guaranteed by the RO;
- Fractions to be sorted and quality requirements for the output materials;
- Price for sorting usually defined per quantity of input material;
- Working time

Some of the ROs support the investments in the sorting facilities operated by private operators. For this purpose they invest in the sorting equipment preliminarily selected by the operator and then rent this equipment to operator. In this way the risk for the operation of sorting facility is shared between the RO and the operator.

### 3.4.4 Contracts with recycling companies

In order to guarantee the acceptance of packaging waste collected, the ROs conclude contracts with recycling plants. The types of contracts are different for different plants and packaging materials:

- The large paper mills and glass factories use their own standard supply contracts. These contracts define the quality requirements for the supplied waste and the delivery conditions. Quantities to be delivered and prices for the different materials, as well delivery schedules are agreed usually in Annexes to the contract. The recycling plants usually have the right to change the price unilaterally with short notice.
- The small plastic recycling plants usually agree to sign contract proposed by the ROs. The quantities to be delivered for recycling are agreed on annual basis.

At present there is no practice of the RO to sell the sorted materials based on tender and all contracts are agreed on case-by-case basis in direct negotiations with recycling plants.
4. Financing of EPR

The present chapter provides information about the financing of EPR system in Bulgaria. It also considers the general principles for the financing of municipal waste services, the various economic instruments applied and how EPR system is situated within this frame.

4.1 General Overview on the municipal waste management financing in Bulgaria

The major source of financing of municipal waste management services in Bulgaria are the local taxes on municipal waste and the grant financing provided as subsidies from the state budget and/or funds received through various EU funded programmes.

4.1.1 Municipal waste tax

The municipal waste tax is determined independently by each municipality in accordance with the provisions of the Local Fees and Taxes Act\(^{21}\). The municipal waste tax is defined on annual basis with a decision of the municipal council for each separate settlement or area in the municipality. The tax is cost oriented and shall provide the necessary funds for the following communal services:

- Municipal waste collection;
- Municipal waste treatment and disposal;
- Cleaning of public areas (including winter cleaning).

The municipal tax is defined according to the quantity of municipal waste. As an exception from this rule, the tax can be determined on a basis per capita covered with the respective services or proportionally to the property tax, when the quantities of municipal waste cannot be defined. In practice all municipalities use this exception and determine the municipal waste tax proportionally to the property tax.

The applied tariffs for households and those for legal entities are different in all municipalities in Bulgaria. For example the present tariff system in Sofia Municipality is as follows:

**Households**

Households are charged with an add-on to the property tax, calculated as a pro-mille of the property value as defined for local authorities for tax purposes. Both waste management charges and property tax are collected together. Up to the year 2008 the municipality charge was 2 \(\%\) of the property value. From the year 2009 the charge is decreased to 1.6 \(\%\) as a consequence of the increase of the tax value of the real estate by 50%.

**Legal entities**

For legal entities, 3 different systems apply. These were introduced in 2006 in order to comply more closely with the Polluter Pays Principle and to set incentives for the legal entities to increase prevention and recycling:

(i) In case the legal entity chooses to use the full municipal collection and cleaning services, it is then charged with a percentage of the property tax. At present, the municipality charges 12\(\%\) of the property value.

(ii) In case the legal entity chooses to use the Municipal collection services, but only for a certain container volume, which is ordered from the Municipality, then it pays a reduced percentage of the property tax for waste treatment and disposal and cleaning and an additional service fee for the collection of the ordered container volume. Presently under this system, the municipality charges 7.8\(\%\) of the property value plus an annual fee for the collection service provided according to the volume of the containers - BGN 810 for a 1100 l container and BGN 5907 for a 4 m\(^3\) container.

(iii) In case the legal entity chooses to order collection services from other providers of collection services, then it is exempted from the municipal collection services and pays only a reduced percentage of the property tax for waste treatment and disposal and cleaning. Under this scheme, at present the municipality charges 7.8\(\%\) of the property value.

The present tariff system is significantly imbalanced and in most of the municipalities the legal entities have to cover more than double the costs which they normally should pay in accordance with their share.

The income from municipal waste taxes is earmarked and can only be used for MW management and cleaning in the respective municipality. Nevertheless, significant part of funds received from the municipal waste tax is spent for other municipal activities in practice.

It needs to be mentioned, that the property value is being re-evaluated for taxation purposes frequently. Given that the property values are rising steeply, the taxation values are also being increased frequently. This means that, although the add-on percentages for the waste management tariffs have been decreasing, the revenues for waste management have been increasing.

The collection of local taxes and fees (a part of which is also the municipal waste tax) in Bulgaria within the legally set terms is an obligation of the specialised municipal revenue authorities. The population and the companies may pay the due property tax and solid waste fee via bank transfers (this includes electronic banking and payment via current bank accounts through which people may also pay their bills for other services like electricity, water, telephone, etc.) or in cash in the relevant “Local Taxes and Fees” district division according to the property’s location.

The payment mechanism for the municipal waste tax is explained in Annex 2.

4.1.2 Grant financing for municipal waste management

The major sources of grant financing for investment projects in municipal waste management are the direct subsidies from the state budget and the Operational Programme Environment 2007 - 2013 (OPE).

The subsidies from the state budget provided to individual municipalities are determined on an annual basis upon proposal of the Minister of Environment and Water. Over the last decade these funds were used for the financing of investment costs for new waste treatment and disposal infrastructure. The present priority area for the state financing is the closure of old municipal waste landfills.

The necessary investments for the development of the system of regional waste treatment facilities are mainly provided through the OPE Priority Axis 2: Improvement and development of infrastructure for waste treatment. The total amount of available financing allocated for waste management projects for the planning period 2007 – 2013 is approximately 367 million EUR. The average percent of EU financing is 85%. The priority activities envisaged for financing are the establishment of a set of new regional municipal waste landfills and treatment facilities as well as the closure and rehabilitation of the existing landfill sites.

4.2 Financing of Producer Responsibility Schemes

The major source of financing of EPR schemes are licensing fees charged by the recovery organizations to the producers and importers of packed goods and the revenues from the sold recyclable materials. The clarification of mechanisms for the financing of EPR schemes also requires the consideration of product taxes imposed on packaging put on the market in Bulgaria, that directly influence the activities and pricing policies of producer responsibility organizations.

4.2.1 Role of the product taxes imposed on packaging put on the market

Product taxes on packaging put on the market in Bulgaria have been introduced since March 2004. The product taxes are defined in BGN per kilogram of packaging material and are due by producers and importers of packed goods on Bulgarian market. The taxes are payable on monthly basis to the Enterprise for management of environmental protection activities (EMEPA). The amount of the product taxes defined for the period 2008 – 2012 is presented in the following table.

It’s obvious that the level of product taxes is very high and for some packaging materials the amount of the tax is comparable to or presents a significant percentage of the material value. The product taxes do not address the real collection and recycling costs.

The companies achieving the recycling and recovery targets individually and the producers and importers of packed goods who sign a contract with a RO are relieved from the obligation to pay product tax to the state. In this sense the product tax shall be considered as a kind of penalty imposed on the obliged companies for non-achievement of recycling and recovery targets for packaging waste.

22 Former Environmental Protection Fund

<table>
<thead>
<tr>
<th>Material</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic</td>
<td>1,75</td>
<td>1,93</td>
<td>2,12</td>
<td>2,33</td>
<td>2,33</td>
</tr>
<tr>
<td>Paper and cardboard</td>
<td>0,50</td>
<td>0,55</td>
<td>0,61</td>
<td>0,67</td>
<td>0,67</td>
</tr>
<tr>
<td>Glass</td>
<td>0,10</td>
<td>0,11</td>
<td>0,12</td>
<td>0,13</td>
<td>0,13</td>
</tr>
<tr>
<td>Metals</td>
<td>0,45</td>
<td>0,50</td>
<td>0,54</td>
<td>0,60</td>
<td>0,60</td>
</tr>
<tr>
<td>Aluminum</td>
<td>0,15</td>
<td>0,17</td>
<td>0,18</td>
<td>0,20</td>
<td>0,20</td>
</tr>
<tr>
<td>Composites</td>
<td>1,30</td>
<td>1,43</td>
<td>1,57</td>
<td>1,73</td>
<td>1,73</td>
</tr>
<tr>
<td>Wood</td>
<td>0,30</td>
<td>0,33</td>
<td>0,36</td>
<td>0,40</td>
<td>0,40</td>
</tr>
<tr>
<td>Others</td>
<td>0,60</td>
<td>0,66</td>
<td>0,73</td>
<td>0,80</td>
<td>0,80</td>
</tr>
</tbody>
</table>

Table 4. Product taxes on packaging waste
In case that recycling and recovery targets are not achieved, the concerned RO organization is obliged to pay the product tax to the state. If the RO does not have sufficient financial resources this obligation is transferred to its members.

The producers and importers who declared lower quantities of packaging than actually placed on the market are obliged to pay the product tax in double size for the undeclared packaging. The control over the quantities of packaging put on the market is delegated to the Regional Inspectorates for Environment and Water.

The entity in charge for the collection and management of product taxes (EMEPA) is a structure of the Ministry of Environment and Water. It is a special kind of a state owned company established by Law. The major activity of EMEPA is providing grant financing and free of interest loans to local authorities and NGOs for implementation of various projects related to environmental protection.

4.2.2 Costs and revenues in the EPR system

The following chapter considers the costs for the establishment of EPR system with the primary focus of costs and revenues occurring for the packaging waste Recovery Organizations.

Costs

The costs for the establishment of EPR system include the costs occurring for the establishment and operation of recovery organizations and the external costs occurring at state (and local) administrations related to the development and implementation of national policy and legislation, setting up necessary databases, permitting and control of activities of RO, etc.

The main cost components for the ROs are presented on the following chart.

The separate collection and sorting costs are the ones related to the development of separate collection systems in the municipalities. As mentioned before the different organizations apply different policies for organizing these services: some of them outsource these services to specialized collection and sorting companies, others are organizing them in-house. The structure of costs for separate collection and sorting of household packaging waste and similar commercial and industrial waste with containers is presented in Figure 15. In calculation of Net Costs for separate collection and sorting the revenues from the sold materials shall be taken into account.

The price for service is negotiated between the RO and the collection company but nevertheless the contracts between the parties usually contain a cost model defining the price, assuming profit for the collection company of...
maximum 20%. The price is usually defined per container lifted. Actual prices paid to collection companies for lifting of one standard 1.1 Euro type container vary from 1.60 to 2.50 EUR/container depending mainly on the type of settlement, material collected and distance to the sorting facility. The prices for lifting of Igloo type containers are approximately twice higher.

The prices for sorting are subject entirely to negotiation between the RO and sorting companies. The prices paid per 1 tonne of input material vary between 40 and 70 EUR/tonne. The RO is owner of the sorted material and gets the revenue from the sales to recycling plants. Most of the contracts with sorting companies contain provisions for minimum quantity of valuable materials that need to be sorted per ton of input waste. The reason is that RO is not in a position to control the actually sorted quantities and sometime the sorting facilities manipulate the final output. Nevertheless, because of the scavengers stealing valuable materials from separate collection containers, some sorting facilities have to buy recyclable materials on the market in order to provide the minimum quantities to the ROs.

Figure 15. Separate collection and sorting costs and material sales revenues structure

The material purchasing costs are additional costs occurring for buying of recyclable from RWC companies and re-selling them to recycling plants. This recyclable waste is collected directly by the RWC companies and includes commercial and industrial packaging and waste collected at buy-back centres. The mechanism is presented on figure 16 below.

The collection company delivers waste to the recycling plant on behalf of the RO. The quantity of waste is weighted at the recycling plant and a delivery note is issued. On this basis the RWC issues two invoices to the RO:

- The first invoice is issued for the value of the material. The value of the material is initially agreed between the collection company and the RO. The price of the material is usually the same as the price paid by the recycling plant to the RO.
The second invoice, usually described as payment for collection and sorting services, is issued, calculated on the basis of the preliminary agreed fees per tonne of material delivered for recycling (bonus above the market price of material).

The bonuses are usually agreed between the RO and RWC companies once per year. The indicative bonuses per tonne of material are as follows: 15 ÷ 25 EUR/tonne of waste paper and cardboard and usually same bonus applies for metal and wood packaging; 30 ÷ 50 EUR/tonne of waste plastics; 25 ÷ 40 EUR per tonne of waste glass.

In the beginning of every year the RO provides to each contracted RWC company an indicative quantity and monthly plan for the waste to be delivered to the recycling plants. The deliveries are allowed only to recycling plants that have signed contract with the respective RO organization.

The decision which RWC company delivers to which recycling plant is taken on monthly basis depending on the geographical location, material prices paid by the recycling plants and payment terms.

The common practice is that Recovery organization pay to RWC companies the same price for material as received by the recycling plants. The price is also paid once the RO receive the corresponding payment from the recycling plant. In this way all risks related to the market prices of materials and delayed payments are transferred to collection companies. Nevertheless, the RO and the collection company are trying to guarantee some minimum revenue per tonne of material taking into account the prices for same material offered at the international market.

Some ROs are organizing collection of packaging waste from their large clients. For this purpose contracts are signed with collection companies for waste transportation, processing (balling) and delivery to the sorting plants. In the ideal case these activity does not bring additional costs for the RO because the revenues from the sold materials balance the price paid for received waste to client and the transportation and processing costs. In any case the incremental costs for collection of waste from clients shall not exceed the bonus paid to RWC companies for the same type of material.

The administrative costs for the recovery organization are the costs necessary for organizing and administrating the system. Such costs include management and administrative personnel costs, office costs, costs for the setting up and maintenance of reporting systems for clients, accounting and legal fees, auditing costs, costs for marketing and advertisement, travelling costs, etc. The administrative costs vary between the recovery organizations depending on their size, number of clients and organizational structures. The administrative costs of the large organizations are around 1 million EUR per year.

The public awareness costs are an important cost component. Usually these costs are budgeted as part of
the separate collection costs or administrative costs but their importance for the setting-up of the systems is obvious and for this reason they are considered separately. These costs are usually linked and budgeted according to the number of residents served by the respective RO. At present the costs of RO for public awareness are not high and are within the range of 0.5 EUR per resident served per year. Nevertheless the actual expenditures for public awareness are much lower because the allocated budgets for these activities are usually spent for commercial advertisement and attracting of new clients and not directly to support the separate collection systems.

Revenues

The revenues in the Recovery organizations have two major sources:

- Licensing fees charged to clients (producers and importers of packed goods);
- Revenues from sold materials.

The costs and revenues of the RO are planned on annual basis. The planning process has the following general steps:

(i) Defining the annual sales targets in tonnes of packaging placed on the market. Each organization has plans and targets for recruitment of new clients. According to the sales targets and estimated quantities of packaging to be put on the market from the existing clients the RO is calculating the indicative quantities to be represented during the year.

(ii) Once the annual forecast for the packaging quantities is ready, the RO decides about the annual targets for recycling and recovery for individual packaging materials. The annual targets are set at several percents higher than the targets defined in the legislation. The reason is the uncertainty in the forecasts provided by the individual companies and the fact that in the end of the year it is very difficult to react if the actual quantities of packaging increase.

(iii) The next step is the preparation of a plan for the development of separate collection services. The quantity of packaging placed on the market defines the number of residents to be provided with separate collection services according to the market share of the RO. As a result of the plan estimates (indicative budget) for the separate collection and sorting costs and expected quantity of sorted materials are developed. In parallel an estimate about the quantities of industrial and commercial packaging to be collected directly from clients is developed. Additionally a conservative estimate for the potential revenues from sales of materials is developed.

(iv) The necessary quantities of sorted recyclable materials to be purchased are obtained as a difference between the recycling targets and the quantities delivered from the separate collection systems and clients. On this basis an estimate (budget) for fees (bonuses) to be paid to RWC companies is defined.

(v) Planning of the annual administrative costs is based on the previous year data.

(vi) On this basis, an estimate for the total amount of necessary revenues from licensing fees to cover the gap between planned costs and material sales revenues is obtained. When planning revenues additional 5 – 10% reserve is assumed.

(vii) Once all estimates and forecasts are developed an indicative investment plan, P&L and Cash Flows forecasts are prepared and submitted for approval by the management.

4.2.3 Licensing Fees charged by the Producer Responsibility organizations

The remuneration paid by the producers and importers of packed goods for transferring their responsibilities to achieve recycling and recovery of packaging waste to a Recovery Organization is called ‘licensing fee’.

The following Table presents the licensing fees charged by Ecopack Bulgaria in 2012. The tariff has two components: base fee and discounts.

For 2012, Ecopack Bulgaria AD give their clients the opportunity to get another 10% discount on the fees for packaging recycling compared to 2011. Additional fee reduction can be achieved through the following changes in their commercial policy:

- A 10% discount is introduced for all customers who submit their reports by the 15th of the month, following the reporting. The deduction is given in each invoice.
- The Annual loyalty discount of 10% is added to the 10% discount for on-time payment, i.e. the overall discount can reach another 20% on the already discounted for submission of report base fee. Ecopack Bulgaria AD keep the same requirements for the on-time payment discount - the payment has to be made by the 25th day of the month following the reported one.

In order to support the cash flow of their clients, Ecopack Bulgaria AD subtracts the discount sums on a monthly basis, instead of in February the following year.
The licensing fee structure of all ROs follows the structure of the product tax, i.e. the fee is defined in BGN per kilogram of packaging material placed on the market of the same material types like the product tax one. The reason for this fee structure was the initial sales argument of the ROs that they save money for their members in comparison to the payment of product tax to state.

It shall be noted that the initial licensing fees charged by Ecopack Bulgaria to the clients had a different structure and contained two components:

- Administration (participation) fee covering the costs for administration of the system – defined in BGN per company. The companies were divided in three groups based on the annual quantity of packaging and the administration fee varied between 130 - 1270 EUR.
- Recovery fee defined in BGN per kilogram of different packaging materials placed on the market and covering the costs for the establishment of separate collection system, recycling and recovery.

Table 5. Tariff of the base fees for recycling, per material for 2012 of Ecopack Bulgaria AD

<table>
<thead>
<tr>
<th>Material</th>
<th>Product taxes</th>
<th>Base Fees</th>
<th>Fees, after 10% on-time reporting deduction</th>
<th>Best fees, after 20% on-time payment discount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic</td>
<td>2.33</td>
<td>0.157</td>
<td>0.141</td>
<td>0.113</td>
</tr>
<tr>
<td>Paper and cardboard</td>
<td>0.67</td>
<td>0.112</td>
<td>0.101</td>
<td>0.081</td>
</tr>
<tr>
<td>Glass</td>
<td>0.20</td>
<td>0.06</td>
<td>0.054</td>
<td>0.043</td>
</tr>
<tr>
<td>Metals</td>
<td>0.13</td>
<td>0.041</td>
<td>0.037</td>
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</tr>
<tr>
<td>Aluminum</td>
<td>0.60</td>
<td>0.144</td>
<td>0.13</td>
<td>0.104</td>
</tr>
<tr>
<td>Composites</td>
<td>1.73</td>
<td>0.194</td>
<td>0.175</td>
<td>0.14</td>
</tr>
<tr>
<td>Wood</td>
<td>0.40</td>
<td>0.062</td>
<td>0.056</td>
<td>0.045</td>
</tr>
<tr>
<td>Others</td>
<td>0.80</td>
<td>0.259</td>
<td>0.233</td>
<td>0.187</td>
</tr>
</tbody>
</table>

Prices are in BGN, per kg, excluding VAT and apply for packaging placed on the market from 01.01.2012 that will be reported after 01.02.2012.

Source: The official website of Ecopack Bulgaria AD

A comparison of the fees for 2012 of the various organizations is given in the table below:

Table 6. Licensing fees charged by the various RO

<table>
<thead>
<tr>
<th>Material</th>
<th>Ecopack Bulgaria*</th>
<th>Ecobulpack</th>
<th>Ecoresource Bulgaria</th>
<th>Repack</th>
<th>Ecocollect</th>
<th>Bulecopack*</th>
<th>Recopac**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic</td>
<td>0.113</td>
<td>0.11</td>
<td>0.10</td>
<td>0.10</td>
<td>n.a.</td>
<td>0.13</td>
<td>0.25</td>
</tr>
<tr>
<td>Paper and cardboard</td>
<td>0.018</td>
<td>0.075</td>
<td>0.07</td>
<td>0.08</td>
<td>n.a.</td>
<td>0.08</td>
<td>0.16</td>
</tr>
<tr>
<td>Glass</td>
<td>0.043</td>
<td>0.035</td>
<td>0.03</td>
<td>0.04</td>
<td>n.a.</td>
<td>0.04</td>
<td>0.05</td>
</tr>
<tr>
<td>Metals</td>
<td>0.030</td>
<td>0.025</td>
<td>0.10</td>
<td>0.03</td>
<td>n.a.</td>
<td>0.03</td>
<td>0.20</td>
</tr>
<tr>
<td>Aluminum</td>
<td>0.104</td>
<td>0.095</td>
<td>0.03</td>
<td>0.08</td>
<td>n.a.</td>
<td>0.10</td>
<td>0.07</td>
</tr>
<tr>
<td>Composites</td>
<td>0.140</td>
<td>0.135</td>
<td>0.12</td>
<td>0.12</td>
<td>n.a.</td>
<td>0.15</td>
<td>0.30</td>
</tr>
<tr>
<td>Wood</td>
<td>0.045</td>
<td>0.04</td>
<td>0.04</td>
<td>0.05</td>
<td>n.a.</td>
<td>0.10</td>
<td>0.10</td>
</tr>
<tr>
<td>Others</td>
<td>0.187</td>
<td>0.18</td>
<td>-</td>
<td>0.20</td>
<td>n.a.</td>
<td>0.05</td>
<td>0.36</td>
</tr>
</tbody>
</table>

* After application of maximum amount of discounts

ADOウェイブに許可されたdiscounts

Source: The official websites of the various organizations
Ecopack stopped charging the administration fee after 2005 because there were no such fees at the other ROs and it was considered as barrier for small and medium size companies to be contracted by the organization.

Till 2007 Ecopack used a formula for calculation of the recovery fee and deducted the quantities of packaging waste delivered for recycling by the individual companies from the quantity of packaging placed on the market when the licensing fees were calculated. In this way Ecopack was providing incentive to its clients to separate packaging waste at source and also support the achievement of recycling targets. This charging practice was well accepted by the large industrial clients and supermarkets where significant quantities of recyclable waste were collected.

The discounts for waste delivered for recycling was removed because it was considered by Ecopack management to reduce unnecessarily the company revenue.

Since 2005 Ecopack established a minimum licensing fee of 150 BGN per year. The reason for establishment of such minimum fee was the large number of companies placing small quantities of packaging on the market (less than 1 ton) and paying fees below the administrative costs occurring for the organization.

Most of the other RO organizations also provide discounts from the officially announced tariffs. The discounts are given only to key clients and defined on a case by case basis. This practice is in contradiction with the principle for equal treatment of clients defined in the legislation.

Some of the ROs offer additional services for their clients. The additional services include providing of additional separate collection containers and organizing the waste collection, buying of sorted recyclable waste, consultations in different waste management subjects, support in organizing collection of municipal waste and/or hazardous waste, etc.

At present the licensing fees do not address the actual costs for collection of different materials and cross subsidies between different materials types are observed. The size of the fees is mainly defined by the market, i.e. what the ROs consider possible to charge their clients.

The ROs are very conservative for changing the fee structure and defining different fee levels for consumer (household, sales) packaging and commercial/industrial (group, transport) packaging fees depending on the packaging size or volume.

Establishment of fees or fee components defined per units of packaging placed on the market is also not considered.

There is a common opinion between the Recovery organizations that the present licensing fees are low and do not allow development of efficient separate collection system.

All ROs except EcoPack support the establishment of minimum licensing fees by the state.

The following table provides an estimate of maximum amount of revenues to be received from licensing fees by all RO in 2012. The estimate is based on the fees charged by EcoPack Bulgaria as the biggest RO in the country.

Table 7. Estimate of revenues from licensing fees for 2012 (EURO)

<table>
<thead>
<tr>
<th>Material</th>
<th>At Ecopack’s base fees</th>
<th>At fees, after 10% on-time reporting discount</th>
<th>At best fees, after further 20% on-time payment discount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic</td>
<td>5800827</td>
<td>5209660</td>
<td>4175118</td>
</tr>
<tr>
<td>Paper and carton</td>
<td>5132893</td>
<td>4628769</td>
<td>3712181</td>
</tr>
<tr>
<td>Glass</td>
<td>2061117</td>
<td>1855005</td>
<td>1477134</td>
</tr>
<tr>
<td>Metal</td>
<td>306974</td>
<td>277025</td>
<td>220871</td>
</tr>
<tr>
<td>Wood</td>
<td>1312712</td>
<td>1185675</td>
<td>952775</td>
</tr>
<tr>
<td>Other, incl. composite</td>
<td>1085335</td>
<td>976382</td>
<td>783620</td>
</tr>
<tr>
<td>Total income from fees*</td>
<td>15699857</td>
<td>14132517</td>
<td>11321699</td>
</tr>
</tbody>
</table>

* Based on Ecopack’s fees; no participation fees are taken in consideration

The mechanism for invoicing of fees to the clients is closely linked with the established reporting requirements. The companies submit the following reports to the recovery organization:
4.2.4 Comparison of licensing fees or recovery organizations in Bulgaria with fees charged in other European Countries

There are several factors affecting fee levels which should be taken into account when comparing the relative costs of compliance across various European countries. Major factors influencing relative compliance costs include the following:

- Existing collection and recovery infrastructure in the waste management sector.
- The source of packaging used to meet national recycling quotas (household only or all packaging). Household packaging waste is more expensive to collect and recover than packaging waste arising at industry’s back door.
- The proportionate share of costs which industry bears. Some schemes meet 100% cost of collection and recovery, while others only pay a share thereof.
- National recycling quotas and the effect of derogations.
- Collection system used affect charges. Bring systems are generally less expensive than kerbside collection.
- Geographic location and population density. Remote and sparsely populated regions will generally be more difficult and expensive to collect from.
- Enforcement regimes influence costs. The more companies who participate in the scheme, the greater the spread of the cost base.
- Labour costs and general overheads differ depending on the prevailing local economic conditions.

In order to get an idea of the relative size of the licensing fees in the country (in this case the fees of Ecopack Bulgaria AD, the biggest organization, are taken) the table below makes a comparison with the respective fees charged in some other countries where the collective compliance organizations are also members of Pro Europe.

As it becomes apparent, a straightforward comparison is not possible, as the materials are grouped in a different way in each separate country. Besides, in some of the countries additional membership and other fees apply, as well as various types of discounts.

Nevertheless, it can be concluded that the licensing fees for packaging placed on the market in Bulgaria are higher than in the neighbour countries, but still below the levels set in countries like Austria, Belgium and Germany where the recycling of packaging waste is well established.

There is a general understanding that competition between the ROs allow to keep the level of fees low. Considering the table above this statement is very disputable comparing the fees in Bulgaria with these charged by the ROs in neighbouring countries where no competition exists.
### Table 8: Fees per Material for 2012 in Different Countries

<table>
<thead>
<tr>
<th>Material</th>
<th>Greece</th>
<th>Latvia</th>
<th>Lithuania</th>
<th>Poland</th>
<th>Romania</th>
<th>Russia</th>
<th>Spain</th>
<th>Sweden</th>
<th>Switzerland</th>
<th>United Kingdom</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic</td>
<td>0.01024</td>
<td>0.0068</td>
<td>0.01633</td>
<td>0.0060</td>
<td>0.0156</td>
<td>0.0013</td>
<td>0.0029</td>
<td>0.0317</td>
<td>0.0035</td>
<td>0.02806</td>
<td>0.0121</td>
</tr>
<tr>
<td>Glass</td>
<td>0.037</td>
<td>0.0154</td>
<td>0.0317</td>
<td>0.0178</td>
<td>0.032</td>
<td>0.0012</td>
<td>0.0029</td>
<td>0.0202</td>
<td>0.0178</td>
<td>0.0145</td>
<td>0.00121</td>
</tr>
<tr>
<td>Metals</td>
<td>0.0066</td>
<td>0.0683</td>
<td>0.0075</td>
<td>0.0125</td>
<td>0.0090</td>
<td>0.0068</td>
<td>0.0310</td>
<td>0.235</td>
<td>0.09</td>
<td>0.0068</td>
<td>0.00315</td>
</tr>
<tr>
<td>Aluminium</td>
<td>0.031</td>
<td>0.0197</td>
<td>0.0146</td>
<td>0.0108</td>
<td>0.0109</td>
<td>0.0563</td>
<td>0.0163</td>
<td>0.0231</td>
<td>0.0128</td>
<td>0.0154</td>
<td>0.00121</td>
</tr>
<tr>
<td>Steel</td>
<td>0.021</td>
<td>0.014</td>
<td>0.037</td>
<td>0.0178</td>
<td>0.0317</td>
<td>0.0156</td>
<td>0.0145</td>
<td>0.0163</td>
<td>0.00928</td>
<td>0.0068</td>
<td>0.00315</td>
</tr>
<tr>
<td>Wood</td>
<td>0.00017</td>
<td>0.00036</td>
<td>0.00029</td>
<td>0.00017</td>
<td>0.00017</td>
<td>0.00002</td>
<td>0.00003</td>
<td>0.00017</td>
<td>0.00003</td>
<td>0.00006</td>
<td>0.00003</td>
</tr>
<tr>
<td>Composite</td>
<td>0.00065</td>
<td>0.0001</td>
<td>0.0007</td>
<td>0.00017</td>
<td>0.00017</td>
<td>0.00002</td>
<td>0.00003</td>
<td>0.00017</td>
<td>0.00003</td>
<td>0.00006</td>
<td>0.00003</td>
</tr>
<tr>
<td>Paper and Cardboard</td>
<td>0.0003</td>
<td>0.00017</td>
<td>0.00017</td>
<td>0.00017</td>
<td>0.00017</td>
<td>0.00002</td>
<td>0.00003</td>
<td>0.00017</td>
<td>0.00003</td>
<td>0.00006</td>
<td>0.00003</td>
</tr>
<tr>
<td>Beverage Cans</td>
<td>0.00006</td>
<td>0.00017</td>
<td>0.00017</td>
<td>0.00017</td>
<td>0.00017</td>
<td>0.00002</td>
<td>0.00003</td>
<td>0.00017</td>
<td>0.00003</td>
<td>0.00006</td>
<td>0.00003</td>
</tr>
<tr>
<td>Beverage Cartons</td>
<td>0.00017</td>
<td>0.00017</td>
<td>0.00017</td>
<td>0.00017</td>
<td>0.00017</td>
<td>0.00002</td>
<td>0.00003</td>
<td>0.00017</td>
<td>0.00003</td>
<td>0.00006</td>
<td>0.00003</td>
</tr>
<tr>
<td>Other</td>
<td>0.00001</td>
<td>0.00001</td>
<td>0.00001</td>
<td>0.00001</td>
<td>0.00001</td>
<td>0.00001</td>
<td>0.00001</td>
<td>0.00001</td>
<td>0.00001</td>
<td>0.00001</td>
<td>0.00001</td>
</tr>
</tbody>
</table>

Source: The official websites of Pro Europe (www.pro-e.org)

Economic Instruments for Solid Waste Management, Case Study Bulgaria
4.2.5 Other economic instruments

The charging of product taxes also applies to other groups of products which, after their final use, become a widespread waste that require a special treatment. At the moment product taxes are implemented for vehicles, car tires, batteries and accumulators, electrical and electronic appliances. All these taxes are functioning as part of the extended producer responsibility system for the specific waste streams.

A separate product tax is introduced for single use plastic bags with the purpose to reduce their use at shops and supermarkets.

A landfill tax was introduced in 2010 for municipal waste deposited at the landfills. The tax is due by the landfill operators and calculated in the price for service. Considering the fact that all municipal waste landfills are owned by the municipalities and the permits for operation are issued on their behalf, the taxes are actually managed by the municipalities. The revenues from landfill taxes are deposited into special accounts of the municipalities and the generated funds can be spent for financing of investments into waste treatment and recovery infrastructure after permission of the Ministry of Environment and Water. The purpose of the tax is to stimulate measures at municipal level leading to the reduction of the quantities of landfilled waste and the development of waste recycling and recovery infrastructure. The size of the tax in 2012 is 30 BGN per tonne of waste and is expected to be increased gradually over the coming years. The total amount of funds generated through landfill tax is expected to exceed 35 million EUR per year.

In 2012 a survey on the possible introduction of obligatory deposit system for certain types of packaging was completed. The survey was mainly focused on single use beverage containers and came to the following main conclusions:

- The introduction of a mandatory deposit system will increase the level of collection and recycling, but it seems additional investments in existing systems for collection and curbside collection would lead to the same results at lower cost.
- The introduction of a mandatory deposit system can be seen as an additional cost to households.
- The majority of the materials collected through a deposit system will probably be packaging diverted from existing systems for collection, not ones that are not currently being collected.
- The introduction of a mandatory deposit system would require the construction of additional infrastructure for the collection and storage of packaging by retailers while decreasing utilization of existing infrastructure systems for waste collection.
- The introduction of a mandatory deposit system could help reduce street pollution, mostly to reduce the disposal of packaging of products consumed on the move in the waste bins.
- The introduction of a deposit system will require initial investments exceeding EURO 65 million and annual operating costs for collecting, counting and sorting of packaging of approximately EURO 15 million.

Comparing the benefits and drawbacks of a mandatory deposit system, the team that prepared the study does not support its implementation in the short term due to the following main reasons:

- The implementation of a deposit system affects limited sorts of materials and types of packaging only and as a result of this the additional environmental benefits from its application are limited.
- The introduction of a deposit system will lead to significant costs for bottlers and retailers associated with the charging and recovery of deposits and technical support system.
- The technical support of the system for deposit payments will require a significant investment, which is not justified in times of crisis.
- Charging of deposits will lead to an increase in consumer prices of certain products.
- A significant proportion of the population lives in small towns where opportunities for returning empty packaging and recovery of deposits will be limited, especially during system start-up.
- The implementation of a deposit system would have a negative impact on small businesses as a result of the additional administrative burdens and costs for their commercial sites.
- At the moment, no problem exists to attain the objectives of recycling for the packaging materials that can be included in the deposit system.
- The introduction of a mandatory deposit system will adversely affect the organizations for recovery of packaging waste.

Given the above, the team considers the introduction of a deposit system is only substantiated in case of a serious underachievement of the targets for recycling of packaging waste, which is found in the period after 2015.
5. Effects and Challenges in the implementation of EPR for packaging waste management in Bulgaria

5.1 Analysis of the effects of the economic instruments introduced

Over the last years there is a discussion about the results and the efficiency of the established extended producer responsibility system, and particularly of the separate collection methods, in Bulgaria. From the formal point of view, the system is achieving its initial objectives and guarantees the recycling of waste to levels that are comparable with other EU countries. Nevertheless, almost eight years after the start of the system significant part of the Bulgarian society does not separate waste at source and is not convinced to regularly use the established separate waste collection infrastructure. The achievements over the last years are mainly as a result of the optimization of the collection practices already existing prior the establishment of the EPR scheme and the demand of Bulgarian recycling industry for raw materials.

Despite the fact that there is a lot of criticism towards the existing system, there are obvious achievements in the field of packaging waste management that can be summarized in the following way:

- The country succeeds to achieve the recycling and recovery targets for packaging waste according to the derogations agreed with the European Commission;
- The quantities of packaging waste collected and recycled in the country are steadily growing. Nevertheless, the increase is not the same for all packaging materials and there are large possibilities for improvement;
- The country has a clearly defined policy objectives and national waste legislation in the field of packaging waste management;
- The implementation of separate collection systems did not result in the increase of municipal waste taxes;
- The costs for the Bulgarian industry and consumers occurred after establishment of the system are still lower in comparison to the Western European countries;
- Significant amount of funds were generated and invested in the setting of separate waste collection and sorting infrastructure. As an additional effect a significant number of new working places were opened, especially taking into account that a significant part of the new jobs do not require special education or skills;
- The system proved that it can adapt to significant fluctuations in market prices of recyclable materials. The financing provided by the EPR system allowed the functioning of recyclable waste collection during the drop of material prices in 2008 – 2009;
- The system provides valuable resources to the Bulgarian recycling plants and supports their competitiveness;
- The necessary administrative structures are established and gained the necessary experience for the planning and control of packaging waste management.

It is important to mention that the real benefits from the system will grow in the future with the increase of waste recycling and recovery targets.

5.2 Obstacles/objections to implement the system

The major challenge for the system is to develop an efficient and cost effective system for the household packaging waste collection and significantly increase the quantities of recycled waste in the country.

The key obstacles in front of the system are explained in the following sub-chapters.

5.2.1 Companies not contributing to the system (free riders)

The analysis of statistical information, the actually reported quantities of packaging placed on the market and data about municipal waste generation and composition lead to a conclusion that significant amount of packaging is not involved in the EPR system. The expert estimate of the total quantities of undeclared packaging is about 30%.

The possible reason for this could be the existence of producers and importers of packed goods who neither have signed contracts with ROs, nor pay product taxes to the state. These are usually small companies not completely aware of their responsibilities or afraid that signing a contract with RO will provoke the Ministry of Environment to impose them penalties retroactively for the period since the establishment of the product tax on packaging in 2004. Despite the fact that such companies exist, they cannot be the reason for such a significant difference in the packaging amounts declared.

Most probably the lower packaging quantities are a result of fewer amounts declared by the companies already
contracted by the recovery organizations. At present there is no effective mechanism in place to control the quantities declared. The major reasons are:

- The control is designated to the Ministry of Environment and Water but its regional inspectorates in charge of the control activities are understaffed and do not have the necessary knowledge to check accounting information at the obliged companies;
- The national tax and custom authorities who have access to the information about the sales of individual companies and other accounting data are not involved in the control mechanism;
- The ROs do not audit the quantities declared by their clients, which is the normal practice in other countries.

These obstacles are well recognized by the state authorities and first corrective measures are already planned.

5.2.2 Large number of Recovery Organizations

The EPR system in Bulgaria differs significantly from those in other countries where one national organization is operating the system or at least one of the several organizations dominates the market.

The existence of eight competing recovery organizations in a small country like Bulgaria creates difficulties for the development of the EPR system because of the following reasons:

- Achievement of common agreement about the development of separate collection is practically impossible;
- The different separate collection systems applied does not allow the implementation of a common communication policy;
- The national authorities and municipalities do not have a single partner with whom to negotiate and plan the national policy in the field;
- The system administration costs are very high;
- The possibilities for economies of scale at the implementation of separate collection and recycling systems are limited;
- The competition between the recovery organizations requires significant resources to be spent for attracting of new clients;
- Small recovery organizations have very limited resources to invest in separate collection systems.

5.2.3 Insufficient involvement of local authorities

One of the major problems in the existing system is the lack of real involvement on behalf of the municipalities.

The local authorities are not actively participating in the planning and implementation of the system. In most cases they are interested only in the visual appearance of separate containers on streets and not by the actual results achieved in terms of the quantities of waste recycled. Because of this reason the coordination between the separate collection systems implemented by the RO and the residual waste collection is very poor.

5.2.4 Integration of individual collectors

The role of individual collectors is the most disputable point of the collection of recyclable waste in Bulgaria. The recovery organizations insist on the closure of buy-back centres in the country and legal ban on the sales of materials from individual persons with the argument that most of the materials delivered by them are stolen from the separate collection containers.

On the other hand, it shall be recognized that at least 15,000 residents of the country get revenue from picking up and selling recyclable waste to buy-back centres. The majority of these people have no other chances for realization in the society. Waste scavenging is a serious social problem and cannot be solved with administrative measures only.

5.3 Corrective measures to overcome the obstacles

Most of the above obstacles were already identified and corrective measures were implemented or recently planned by the national authorities. Two major documents represent these measures.

5.3.1 Memorandum between the Bulgarian Ministry of Environment and Water and the Producer Responsibility organizations

As mentioned above, the different opinions of Ministry of Environment and Water and the business on the timing for the development of the separate collection system resulted in a serious conflict in 2006.

Two years after start of the system the situation with the management of packing waste was as follows:

- Five Recovery Organizations for packaging waste were licensed to operate;
- Only few pilot separate collection projects have been implemented by the RO with total number of residents involved less than 50,000;
- The achievement of recycling targets was guaranteed only with buying and reselling of already collected materials;

28 In force till 2009
The total revenues from licensing fees in all ROs were less than 4 million EUR. The Ministry was not satisfied with the achieved results and especially the slow development of the separate collection systems and the lack of investments on behalf of the industry. As a consequence it didn’t approve the 2005 reports of the ROs and initiated actions for withdrawal of the issued licenses.

The Ministry refused any discussions with the ROs and started considering an option for development of state mechanism for financing of separate collection based on product taxes.

This approach faced strong objections on behalf of the ROs and industry. As a result of difficult political discussions with the support of the Bulgarian business organizations an agreement was achieved in mid 2006 resulting in the signed Memorandum between the Ministry of Environment and Water, the National Association of Municipalities in Bulgaria and the Recovery Organizations. With the signing of the memorandum the ROs took the following obligations:

- Development of separate collection systems providing service to at least 6 million residents by the end of 2008. The number of residents served to be distributed between the RO according to their market share;
- The separate collection systems shall meet minimum technical requirements presented as maximum number of residents served by one container set, minimum volume of containers to be provided and minimum collection frequency;
- Establishment of a set of sorting facilities for separately collected waste;
- Guarantees for investment of at least 56.1 million EUR in the above mentioned infrastructure over 2 years period;
- Providing of minimum financing for the implementation of public awareness campaigns in the amount of 1 EUR per resident served per year. Half of these funds to be used for the implementation of national information campaign coordinated by the Ministry of Environment and Water;
- In order to guarantee the necessary investments a minimum level of licensing fees was set in the Memorandum. The minimum level of fees required the ROs to increase 5 – 7 times the tariffs applied. A comparison between the product tax, 2005 fees and the new minimum fees is presented in Table below;
- Packaging Waste Council including representatives of all parties to Memorandum was set for coordination and monitoring the implementation.

Informal agreement was also achieved for not issuing licenses for new organizations over a two years period.

Table 9. Comparison between licensing fees charged by RO and product taxes in 2007

<table>
<thead>
<tr>
<th>Packaging Material</th>
<th>Product taxes €/kg</th>
<th>Old Licensing Fees&lt;sup&gt;29&lt;/sup&gt; €/kg</th>
<th>New Memorandum Minimum Fees, €/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastics</td>
<td>0.875</td>
<td>0.026</td>
<td>0.128</td>
</tr>
<tr>
<td>Composites</td>
<td>0.665</td>
<td>0.026</td>
<td>0.154</td>
</tr>
<tr>
<td>Beverage cartons</td>
<td></td>
<td>0.009</td>
<td></td>
</tr>
<tr>
<td>Paper and cardboard</td>
<td>0.256</td>
<td>0.009</td>
<td>0.082</td>
</tr>
<tr>
<td>Glass</td>
<td>0.077</td>
<td>0.005</td>
<td>0.036</td>
</tr>
<tr>
<td>Metals</td>
<td>0.041</td>
<td>0.008</td>
<td>0.026</td>
</tr>
<tr>
<td>Aluminium</td>
<td>0.220</td>
<td></td>
<td>0.102</td>
</tr>
<tr>
<td>Wood</td>
<td>0.077</td>
<td>0.003</td>
<td>0.051</td>
</tr>
<tr>
<td>Other</td>
<td>0.665</td>
<td>0.008</td>
<td>0.184</td>
</tr>
</tbody>
</table>

<sup>29</sup> Ecopack Bulgaria licensing fees in 2005 used as an example.
After the political changes in the Government from July 2009, the Memorandum was repealed and the activity of the Packaging Council was suspended. The reason for this decision was that the new management of the Ministry of environment considered that setting minimum licensing fees is against the free market principles and that the collection of funds does not guarantee the efficiency of the system. Nevertheless, most of the ROs consider that the Memorandum had a positive role for the sector and support the establishment of minimum technical criteria towards the separate collection and sorting systems in order to guarantee a fair competition between the organizations. The re-establishment of the Packaging council could also provide an useful platform for discussions between the ROs, recycling industry, state administration and local authorities.

5.3.2 Changes in the legal framework

Following the repeal of the Memorandum the Ministry of Environment and Water focused its efforts on the revision of national legislation and setting more clear rules for the activities of the recovery regulations. These legal changes took place in parallel with the transposition of the requirements of the new Waste Framework Directive. The new Waste Management Act adopted in July 2012 introduced the following key new requirements towards the EPR system for packaging waste:

- All packaging waste ROs shall apply for a new licenses by the end of 2012;
- A bank guarantee in the amount of 1 million BGN (app. 511 thousands EUR) shall be provided by each Recovery Organization;
- The Recovery Organizations shall organize the auditing of the quantities of packaging put on the market declared by their clients;
- The minimum number of residents to be provided with separate collection services is defined in the Law. The technical requirements for the separate collection systems will be defined in the secondary legislation;
- A minimum number of residents to be served by a RO was set to 500,000. The requirement will reduce the number of organizations because most of the small ones will not be able to achieve compliance;
- The at source separation and separate waste collection is made obligatory for all commercial, industrial and administrative objects with an area higher than 100 square meters;
- The packaging waste quantities separately collected and sorted by the RO will be reported separately for each municipality and divided between household packaging waste and waste of other origin;
- The annual reports of the ROs shall include information not only about the achievement of recycling and recovery targets for packaging waste but also financial and technical data about the development of separate collection and sorting infrastructure, public awareness campaigns, etc.;
- Additional inspections of the Recovery Organizations, producers and importers of packed goods, waste collection and recycling companies will be organized by the Ministry of Environment and Water and implemented by independent auditors.

The changes in the legislation are expected to reduce the number of ‘free riders’, to improve the transparency if the activities of the recovery organizations and to optimize the separate collection and sorting system established.

New Regulation on packaging and packaging waste is currently under development and will be adopted by the end of the year.

5.3.3 Alternatives considered

The following alternatives were considered when the new Waste Management Act was developed:

Changing the financing mechanism

Alternative mechanisms for the financing of EPR system were considered:

- Defining fixed amount of licensing fees charged by the RO for different types of materials or defining minimum level of licensing fees as a percentage of product tax. These alternatives of state regulated prices were refused and was agreed that only technical compliance with the requirements will be controlled. It was accepted that different RO could have different costs depending on the selected system for separate collection and sorting and different geographical areas of operation.
- Combination of licensing fee and product tax and establishment of obligation for RO to make direct transfers of funds per ton of packaging to EMEPA. The alternative was not approved because it will cause additional costs for the industry.

Changing the geographical scope of services provided by the RO

The possibility for changing the present requirement for distribution of residents provided with separate collection according to the market share of the organizations with a requirement each organization to organize national collection system. It was considered that such change will cause consolidation between the business and concentration of activities into one national scheme. The
alternative was refused because of the big uncertainties with the implementation and possible collapse of the whole system.

The proposed change is supported by the author of present study considering that it will lead to concentration of activities into most probably one Recovery Organization. This will allow the development of common national separate collection and sorting system and support the communication to the households and industry. It will also reduce most probably the costs for collection and sorting considering that a national scheme, managed by the producers and importers of packed goods will be in better position to negotiate with the collection and recycling companies. The idea for the establishment of market monopoly has many opponents but it shall be taken into account the non-for-profit nature of the Recovery Organization and the fact that the low prices for services are guaranteed through its ownership by the producers and importers of packed goods.

**Revision of separate waste collection technical concept**

Considering the present low efficiency and high costs of separate collection systems with coloured containers and in particular the problems faced with individual collectors some of the RWC companies rise the issue for change in the applied separate waste collection technical concept. In their opinion a system based on recycling centres will give better results than separate collection with coloured containers. The proposed technical alternative considered the possibility the collection of waste paper to be entirely based on recycling centres, while the separate collection containers to be used only for glass packaging, PET bottles and other plastic containers. The proposal was not supported by the ROs and MoEW with the argument that recycling centres will support the informal sector and stimulate picking of waste from containers. Most of the ROs consider that closing of existing recycling centres and prohibiting of payments to individual collectors will improve the efficiency of the container collection and prevent stealing of waste from containers.

**Setting of separate targets for household and commercial/industrial packaging waste**

It was considered that setting separate targets for household packaging waste to be collected and recycled will increase the efficiency of the separate collection system. The idea was generally supported but was decided to be postponed in time.

**Unification of separate collection system**

The possible setting of obligatory requirements for the number, volume and type of containers for separate collection was discussed without achievement of common agreement. Setting of such requirement will actually mean to decide between three and two container systems implemented by the different organizations. The idea has some advantages because will allow the implementation of common communication campaign at national level. Nevertheless it was refused because of the lack of unique opinion which of the systems provides better results.

**Revision and increase of recycling and recovery targets**

The possible increase of recycling targets from 60% to 80% of packaging placed on the market was discussed as a possible measure to enforce the development of more efficient system for household packaging waste separate collection. Similar to the previous proposal it was decided the decision to be postponed with few years and reconsidered when first results of the implementation of new legislation are evaluated.
6. Recommendations for further improvement/introduction of EPR schemes in other countries

The establishment of EPR system for packaging waste proved its efficiency in many countries. Nevertheless there is no unique best solution that can be directly transferred to other countries. The various EPR systems differ significantly from each other and they were gradually developed and adapted to fit with the needs of the individual countries. The EPR system shall take into account the specific conditions in place, especially geographical conditions, level of economic development, legal system, current level of waste management services, people behaviour and standard of living, existence of recyclable waste markets, etc.

It shall be noted the EPR systems are not a magic solution for all potential problems in recyclable waste management. The major role of EPR system is to provide an additional financial stream in support of packaging waste recycling and recovery. It can also bring valuable knowledge how the recyclable waste collection and sorting to be organized and also to provide guarantees that the collected materials will be recycled. Considering that the EPR system is organized by the private sector it is usually more flexible and efficient than state institutions in organizing waste management services.

Prior to start considering the possible introduction of EPR system there are several pre-conditions that have to be met:

- Achievement of high levels of recycling though implementation of separate collection systems is a net costs activity. The society shall be prepared to cover these additional costs and consider the recycling of waste as a priority issue.
- The country shall have established basic environmental institutions in charge with waste management. The institutions shall have the power to adopt or proceed new waste management legislation necessary for the implementation of EPR system.
- The applied trade legislation and policies shall allow the identification of companies placing packed goods on the market and monitoring of packaging quantities.
- At least basic waste management system dealing with waste collection shall exist in the country.
- Availability of national and export markets for the collected recyclable waste is a must.

If national competent authorities consider that implementation of EPR system is possible the following recommendations can be provided for planning purposes:

**Identification of all stakeholders potentially affected by the EPR system**

The major groups that will be potentially affected by the establishment of the EPR system shall be identified and involved in the discussions of the national legislation and policy at the very early stage.

These usually include the representatives of the business associations in the country, various branch chambers and associations, especially those from the FMCG sector, waste management companies, recycling industry, local (and regional) authorities, NGO. The involvement of representatives of large multinational companies could be of significant support for the discussion process because of the available knowledge at the company level about the practices and solutions in other countries.

**Financing of the system**

Establishment of a producer responsibility scheme to deal with packaging waste assumes that industry will be responsible for financing the separate collection and sorting of packaging waste. The industry, through the producer responsibility organizations, can cover the full costs of the system, or only part of the costs in the case of additional financing provided from the municipalities.

The implementation of product tax on packaging placed on the market can be used as a powerful tool to support the establishment of EPR system.

**Identification of necessary policy and legal changes**

The development of national plan for packaging waste management can significantly support and channel the EPR implementation process. The plan can be developed as a separate document or as part of the general waste management plan. Once the institution responsible for the preparation of plan is defined it shall organize the collection and processing of necessary baseline data (e.g. data about packaging consumption, development of generation forecast, existing packaging waste collection systems, available recycling capacities, etc.).

The specific responsibilities of the competent national authorities in charge of packaging waste management need
to be defined and these to be provided with the necessary capacity to monitor, control and enforce the requirements of packaging regulations. Legislation should provide a clear framework defining the responsibilities of different stakeholders and how the cost related to packaging waste collection and sorting will be financed. Special attention shall be given to the role of the local authorities in organizing separate collection and sorting in their territories.

Targets for recycling of different packaging materials shall be defined in legislation.

It is essential to put in place appropriate information and reporting systems, incl. reporting templates and procedures, availability of trained staff to process the collected data, developed specialized software, etc.

**Collection and reporting of data**

Companies placing packaged goods on the market should be responsible for the calculation and documentation of packaging amounts. The documentation requirements should be based on the available accounting procedures in order to avoid unreasonable burden on the industry. The documentation shall be kept for auditing by the competent authorities.

The reporting system should be oriented mainly to large producers/importers of packaged goods, and the producer responsibility organizations, in order to guarantee that at least 90% of the packaging placed on the market is reported. Extending the reporting requirements to all companies placing packaged goods on the market will require additional administrative capacity for the processing and verification of collected data.

**Separate collection and sorting**

It is wise to implement an appropriate set of pilot projects before launching full scale operations in order to test different collection methods. The existence of individual collectors requires the efficiency of collection systems based on separate collection containers or plastic bags to be initially tested prior to their eventual implementation at national level. The chosen technical solution to implement the separate collection and sorting has direct influence on the amounts and quality of the collected materials and the related costs.

To the extent possible, the new system shall build on the existing recyclables collection/sorting activities, including and involving the informal/semi-formal sector. In this respect different possibilities shall be examined:

- Providing minimum guaranteed prices for purchasing of materials from informal collectors.
- Development of markets for the collected materials.
- Direct contracts between the RO and cooperatives/unions of informal collectors.
- Improvement of labour and health and safety conditions through the contracts with waste collection companies and/or unions of informal collectors.

The availability of recyclable waste markets (don’t sort material you can’t use), the potential in the waste-stream and the market situation (revenues) shall be considered as main economic factors for taking decisions about the materials to be separately collected and for justification of investments in the collection and sorting infrastructure.

**Public awareness and communication**

Requirements for raising public awareness and educating society about the importance of waste recycling shall be established in national legislation and all plans in the field of packaging waste.

The target groups, key messages and communication channels need to be defined prior the start of EPR system implementation. Special attention shall be given to work with kids in first school classes.

In many countries the church can also play significant supporting role in promoting the separate collection system.
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7. Data of NSI about quantities of packaging waste,
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8. Annexes

Annex 1: Separate collection, sorting and recycling of packaging waste

Annex 2: Collection mechanisms for municipal waste tax in Bulgaria


Annex 4: MINISTRY OF ENVIRONMENT AND WATER REPUBLIC OF BULGARIA, PROGRAM FOR IMPLEMENTATION OF DIRECTIVE 94/62/EC FOR PACKAGING AND PACKAGING WASTE
http://europe.bg/upload/docs/CONF_BG_02_03_ad07.pdf
Annex 1
Separate collection, sorting and recycling of packaging waste

Different separate collection practices for household packaging waste

The first projects for waste separate collection started in the end of 2004. The initial objective of these projects was to test different collection systems, different types of containers and how the system works in different size and types of settlements.

Kerbside collection systems using individual containers/bins or plastic bags were not actually implemented because of the following reasons:

- The major part of the population in the large towns lives in blocks of flats and it was difficult to allocate separate collection containers to individual flats or entrances;
- The individual bins provided to family houses gave good results in terms of quantities and quality of waste collected but the implementation costs were very high;
- The separate collection with plastic bags didn’t give the expected results.

Figure 1-1. Pilot test for separate collection with plastic bags

When decisions about separate collection systems to be implemented were taken the following key arguments prevailed:

- It was obvious that the value of the separately collected materials will be several times higher than the one for the same material delivered via other collection channels (e.g. commercial waste, buy-back centres);
- The quantities of packaging waste already collected and recycled in the country were higher than the recycling targets for the first years of implementation. It actually meant that the ROs didn’t need the separate collection from households for the achievement of recycling targets and that it only increased the costs. It was expected that separate collection will be developed over 10 years period in parallel with the increase of recycling targets;
- The state authorities wanted to see fast results and insisted on the development of separate collection systems for household packaging;

The ROs started looking for a solution for organizing separate waste collection and sorting at lowest possible costs without giving priority to the quantities of materials to be additionally collected.

Because of this reason container bring systems with low container placement density were implemented by the different organizations.

The results from last years show that separate collection containers provide less than 10% of the collected material but the operation of the system requires significant costs (60 – 70% of the total costs). ROs are trying to reduce the collection costs for the container systems and rely mainly on buying materials collected from the commercial sector or scrap dealers for the achievement of recycling and recovery targets.

Despite the fact that all organizations based their systems on separate collection containers there is no uniform solution regarding the number of containers used and their types and volumes. The two leading recovery organizations have different views on what the optimal collection system is. Ecopack Bulgaria relies on a three-container system (Figure 1-2): 

- Blue container for paper and cardboard;
- Yellow container for plastics, metals and composite packaging;
- Green container for glass.
The company uses both 1,1 m³ wheeled euro containers made of plastics and metals and Igloo type containers with volume 1.3 – 1.5 m³ metal made of fiber glass or HDPE. The experience of the organization is that Igloo type containers bring better results in terms of quality of collected material but the initial investments and their service is significantly more expensive.

The standard euro containers fit well to the existing municipal waste collection system and allow same collection vehicles to be used. Nevertheless, it’s considered that this type of container is not suitable for the collection of glass.

The second largest RO Ecobulpack and Ecocolect promote the implementation of a two container system, where glass is collected separately in the ‘green’ container and all other packaging materials are placed together in one ‘yellow’ container (Figure 1-3).

It can be seen from the above examples that plastic euro containers with wheels are commonly used and preferred for the separate collection of packaging waste because of the low initial investment costs.

All installed separate collection containers are owned by the ROs. Different ROs have different approaches regarding the organization of collection services:

- Most of the ROs organize the lifting of containers based on contracts with municipal waste collection companies;
- EcoBulPack started their activities based on service contracts but gradually replaced them with own collection vehicles and staff.

The following major problems are observed:

- The density of the deployed separate container sets is very low and usually between 500 – 800 residents are served by one set;
The separate collection containers are usually situated away from the bins for municipal waste and in general there is no common planning with the residual waste collection;

- In many cases containers are dirty, with broken lids or graffiti;
- In some settlements the container collection frequency is not sufficient and waste overflow is observed;
- The discarding of mixed municipal waste in separate collection containers is common (Figure 1-4);
- The major part of the valuable materials placed in containers are actually taken by scavengers (Figure 1-5);
- Despite of the legal requirements, there are no penalties imposed for placement of mixed waste in separate collection containers.

Due to the above reasons, the system is considered difficult to use by the residents and most of them do not see a real benefit to participate. The ROs also do not pay significant attention to the public awareness and communication.

Figure 1-4. Examples of wrong placement of waste into separate collection containers

Figure 1-5. Individual collectors
Sorting and pre-treatment of packaging waste

The sorting of separately collected waste is organized by the ROs in almost all regional settlements. The facilities usually include a manual picking station and a baling press.

The different ROs have different policies regarding the sorting of separately collected waste:

- EcoPack Bulgaria relies on contracts with sub-contractors. Usually, the existing sites of RWC companies are used. The duration of sorting contracts is usually 2 – 5 years. The services are paid per quantity of input material and minimum sorting efficiency\(^1\) is required. Ecopack remains the owner of the waste delivered for sorting and also of the sorted materials. In several cases Ecopack invested in equipment and then rented it to the operator of the respective sorting facility.

- EcoBulPack relies completely on its own sorting facilities. For this purpose a specialized company EcoBulSort was registered, 100% owned by EcoBulPack. The organization presently operates 6 sorting facilities (Figure 1-6). The company also invested in a specialized glass treatment plant (Figure 1-7);

- RePack owns and operates one sorting facility and in the rest of the settlements where the organization is involved in collection, sorting is contracted to other companies;

- The other small ROs use sub-contractors for the sorting of waste.

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1 The sorting efficiency is measured as minimum percentage of valuable materials per tonne of waste entering the facility.
Considering the available infrastructure, the issue with waste sorting is solved in the biggest settlements in the country. The problems remain with the sorting of separately collected waste in the small settlements where the distances to the nearest sorting facilities are high (40 – 80 km) or in case the respective sorting facility is owned/contracted by a competitive RO it refuses to accept waste of other origin. Sorting in these cases is usually organized in a very primitive way by spreading the waste on the land at the site of the collection company and picking up the valuable materials by hand.

The situation will most probably improve with the construction of new regional sorting facilities for municipal waste.

**Recyclable materials markets**

Bulgaria has a relatively well developed recycling industry for all major waste commodities. The available capacities are sufficient for all packaging materials collected at present, with some minor exceptions (aluminium cans).

Information about the available recycling capacities for the main packaging waste materials is presented in the Table below:

The following key characteristics of recyclable waste markets shall be underlined:

- Paper production in the country dropped significantly over the last years, following the closure of two paper mills with total capacity of 100,000 tonnes. The future development of the sector is uncertain and most probably export to Turkey will play a significant role in the future;
- Bulgaria is in a favourable situation because of the existence of large size glass factories in the country. The quality requirements imposed by the factories allow collection of mixed glass and sorting by colour is not economically justified. Delayed payments for the supplied glass, though, give reason for concern;
- There is significant growth of the plastic recycling capacities in the country. The market is largely influenced by plastic prices at international markets.

Therefore, it can be concluded that the markets for recyclable waste are not a limitation factor for the achievement of the recovery and recycling targets in the country.

**Annex 2: Collection mechanisms for municipal waste tax in Bulgaria**

<table>
<thead>
<tr>
<th>Material</th>
<th>Number of processing plants</th>
<th>Key Players</th>
<th>Recycling Capacities (tonnes)</th>
<th>Prices (June 2012)</th>
<th>Products</th>
<th>Alternatives for export</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper and cardboard</td>
<td>4</td>
<td>Duropack Trakia Papir, Belovo Paper Mill, Sanitex</td>
<td>120,000</td>
<td>85 – 105 EUR/t</td>
<td>Corrugated board packaging, sanitary papers</td>
<td>Turkey</td>
</tr>
<tr>
<td>PET</td>
<td>3</td>
<td></td>
<td>25,000</td>
<td>250 – 400 EUR/t</td>
<td>synthetic fibres, flakes</td>
<td>Turkey, China</td>
</tr>
<tr>
<td>Plastics foils</td>
<td>6</td>
<td>Unitrade 2002, Ecoinvest, Megaport</td>
<td>25,000</td>
<td>160 – 350 EUR/t</td>
<td>regranulate</td>
<td></td>
</tr>
<tr>
<td>Other rigid plastics (PP, HDPE)</td>
<td>4</td>
<td></td>
<td>15,000</td>
<td>≈ EUR/t</td>
<td>regranulate, flakes</td>
<td></td>
</tr>
<tr>
<td>Glass</td>
<td>3</td>
<td>Yioula Group, Drujba Glassworks, Rubin</td>
<td>200,000</td>
<td>15÷-50 EUR/t</td>
<td>glass packaging</td>
<td>No export alternatives</td>
</tr>
<tr>
<td>Wood</td>
<td></td>
<td>Ecoinvest, Ecocalor</td>
<td>60,000</td>
<td>10÷-50 EUR/t</td>
<td>Wooden pallets, briquettes</td>
<td></td>
</tr>
<tr>
<td>Steel, tinplate</td>
<td></td>
<td>Ecoinvest</td>
<td>60,000</td>
<td>≈ EUR/t</td>
<td></td>
<td>na</td>
</tr>
<tr>
<td>Aluminium cans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>na</td>
</tr>
</tbody>
</table>
Annex 2
Collection mechanisms for municipal waste tax in Bulgaria

The usual practice collection of the municipal waste tax is as follows:

- The payment may be done either in 4 equal installments during the year (by the end of the relevant quarter) or 100% at the time of the payment of the first installment (from 1 February till 31 March) for which the citizens are entitled to 5% discount from the due solid waste fee. This discount is an incentive for the people to pre-pay for the service related to the solid waste management that they are going to use in the course of the year.

- The local authorities are obliged to inform the payers about: the tax evaluation for determining the property tax; the amount of the calculated tax; the amount of the solid waste fee; the terms for payment; the address of the cash desks and the relevant bank accounts for payment of the due amounts.

- If the due amounts are not paid within the preliminary set terms, then the payers are invited to voluntarily pay the due fees with the due interest for the delay. This invitation however does not have any administrative value and cannot be used in a forced collection procedure.

The taxes not paid in time are collected together with the interest set according to the Law for the Interests on Taxes, Fees and Similar State Receivables. The collection by force is done by the Agency for State Receivables under the procedures of the Tax Insurance Procedures Code. The municipality performs the following actions for this purpose:

- The receivables are determined by an act of the mayor of the municipality under the Tax Insurance Procedures Code;

- An invitation for voluntary collection is then sent as the payers are invited to voluntarily pay the due taxes and interest within 7 days;

- If the actions described in the invitation are not fulfilled, then the municipal revenue authorities prepare a statement for forced collection from the identified payer and submit it to the Agency for State Receivables. A request for forced collection against the payer is also issued.

After receiving the statement, the public executers from the Agency for State Receivables start the procedural actions set in the Tax Insurance Procedures Code in order to collect the amounts due. These actions are as follows:

- Levying of distraint through a statement of a public executor (distraint on movable and immovable property, distraint on cash funds). For amounts exceeding EUR 2500, the public executor may request a preliminary securitisation for the principal and the interests in the form of: prohibition of the debtor to leave the country; removal of international passports, etc.

- In the course of the procedure, the public executor may propose and negotiate with the debtor a rescheduling of the due amounts and a protocol between both parties should be signed.

- The collection by force is directed towards the entire pool of property of the debtor except: items for everyday use; the only place of living if the area does not exceed 30 m²; amounts in bank accounts up to BGN 250; the labour remuneration up to BGN 150; social benefits; amounts from donations by physical and legal entities received by persons with permanent disability of over 50%.

- When the procedure is for collection of diverse public receivables and the property of the debtor is not enough for their repayment, despite the applied collection methods or procedures, then the collected amounts are distributed in the following order:

  1. For the tax and the customs duties and the due social insurance contributions - proportionately;

  2. For other public receivables that go directly to the central and/or the local budget - proportionately;

  3. For other public receivables - proportionately.

- The amounts collected in this way are transferred to the budget of the relevant municipality.

- However considering the long duration of the forced collection procedures, the large number of authorities (on the territory of the entire country) initiating forced collection procedures for public receivables (the municipalities alone are 264) as well as the fact that in many cases the debtors of solid waste fee are also debtors of receivables with higher priority, presently the collection rate for the municipal waste taxes in different municipalities is between 85% - 95%.

- In compliance with the Local Taxes and Fees Act, the municipalities may exempt certain categories of citizens partially or entirely from the payment of certain types of fees. The law also envisages a procedure for rescheduling of payments to the municipalities.
Annex 3

MEMORANDUM FOR COOPERATION BETWEEN THE MINISTRY OF ENVIRONMENT AND WATER AND THE PACKAGING RECOVERY ORGANIZATIONS IN ACHIEVEMENT OF THE NATIONAL TARGETS FOR PACKAGING WASTE RECOVERY AND RECYCLING

PREFACE

THE MINISTRY OF ENVIRONMENT AND WATER and THE PACKAGING RECOVERY ORGANIZATIONS

- lead by the common wish for effective implementation of the environmental protection principles and achievement of sustainable development;
- lead by the common wish to make the necessary investments for execution of the agreements with the European Union in the environmental protection area;
- lead by the wish for mutual cooperation aimed at prevention, minimization or limitation of the harmful impact of the packaging waste upon the human health and the environment as well as the use of packaging waste as resource in the economy;
- in compliance with the basic principles of the Waste Management Act adopted as national goal; and
- finding the wish of the Packaging Recovery Organizations to act in benefit of environmental protection agreed as follows:

I. SUBJECT OF MEMORANDUM

The Parties mentioned above have reached common agreement for cooperation for improvement of the effective packaging waste management. Also, the Parties have reached a principal agreement to work for perfection of the legislation.

II. TARGETS IN ENHANCEMENT OF EFFECTIVE NATIONAL SYSTEM FOR SEPARATE COLLECTION AND RECOVERY OF PACKAGING WASTE

1. Aiming at development of a national system for separate packaging waste collection the Packaging Recovery Organizations accept the obligation to cover in systems for separate packaging waste collection the following number of inhabitants of Republic of Bulgaria:
   - 3 million inhabitants in systems for separate packaging waste collection for 2006 as this target should be achieved in the period from 01.06.2006 to 01.06.2007;
   - 4.5 million inhabitants – by 31.12.2007;

2. Parties accept as achievable an annual quantitative target of 400 000 tons of packaging representing the amounts of packaging covered by systems for separate collection of both the packaging recovery organizations and the Enterprise for Management of the Environmental Protection Activities (EMEPA).

3. The enhancement of the organized national system for separate packaging waste collection will start in towns with more than 100 000 inhabitants, the national tourist centers and the regional centers as by the end of 2007 the predominant number of settlements with more than 20 000 inhabitants should be covered by the system.

4. The national system and the local systems for separate packaging waste collection should function according to the following parameters:

   4.1 Obligatory collection of packaging waste in containers:
   - minimum percentage of covered population by 31.12.2006 – 50%;
   - minimum percentage of covered population by 01.06.2007 – 60%;
   - minimum percentage of covered population by 31.12.2007 – 65%;
   - minimum percentage of covered population by 31.12.2008 – 70%

   4.2 Functioning of combined local systems for separate packaging waste collection is allowed
– in containers, in bags and centers depending on
the features of the settlement, in correspondence
with the parameters listed in 4.1.

4.3 Each local system for separate packaging waste
collection and recovery is served by a sorting
facility.

4.4 Systems for separate packaging waste collection
realized by the packaging recovery organizations
cover the packaging waste from the households,
administrative, public, commercial and industrial
outlets. Industrial waste, different from packag-
ing waste, does not serve for achievement of the
targets under Article 11, paragraph 2 of the Waste
Management Act.

5. Minimum technical and technological parameters and
financial calculations for functioning of the national
system and the local systems for separate packaging
waste collection are defined in Appendix to this
Memorandum.

6. Parties agreed to establish Packaging Waste Consulta-
tive Council consisting of representatives from MoEW,
the packaging recovery organizations, the National
Association of the Municipalities in the Republic
of Bulgaria as well as by one representative of the
organizations of the consumers and one repre-
sentative of the business organizations with advisory
powers. The Council will discuss significant issues of
common interest, including proposals for perfection
of the legislation. If necessary, representatives from
other institutions, business organizations, branch
organizations and NGO representatives will be invited
to participate in the work of the Council. Permanent
members with advisory powers are the representatives
of the consumers’ organizations and representative of
the business organizations.

6.1 The Consultative Council adopts rules for its
activities.

7. Parties agreed that the minimum costs needed for
enhancement of the systems for separate packaging
waste collection (including the calculated tax liabili-
ties) for the period till 31.12.2007 are in the amount
of 110 million BGN, which will be ensured by the
packaging recovery organizations.

8. Each packaging recovery organization respecting its
market share of the total licensed packaging amount
for the previous year will propose an amendment of
its investment program in accordance to Article 19,
item 1 of the Ordinance on Packaging and Packaging
Waste. For 2006, by 30.06.2006 the packaging recovery
organizations shall submit proposals for programs
update.

9. The Ministry of Environment and Water shall control
the investment policy implemented by the packaging
recovery organizations in order the nationally defined
targets in this Memorandum to be achieved. In cases,
when a packaging recovery organization has executed
the obligations of its members for packaging waste
recycling and recovery in accordance with Article 11,
paragraph 2 of the Waste Management Act, but has
failed to execute its obligations for covered population,
the organization is fined accordingly.

10. MoEW within its competency and authorities will
control all persons that release packed goods on the
market and will assist the packaging recovery organi-
zations in duly and correct reporting of the packaging
amounts put on the market.

11. Concluding agreements with municipalities the
packaging recovery organizations are obliged to:

» Carry out the investments for introduction of the
separate packaging waste collection – containers,
bags, construction and equipping of the packaging
waste collection centers, transport vehicles, waste
sorting facilities, etc.

» Carry out the operational costs for functioning of
the system for separate packaging waste collection.

12. It will not be recognized as achievement of the recy-
cling targets if a specific type of packaging material is
substituted by another type of packaging material or if
the recycled amount is bigger than the total amount of
the respective packaging material put on the market.

III. TERMS
Memorandum is with unlimited term.

IV. SUPPLEMENTARY PROVISIONS
Nothing in this Memorandum could be considered as
limitation for the Parties to achieve results higher than
the results described in this Memorandum under the
Waste Management Act, the Ordinance on Packaging and
Packaging Waste and the National Waste Management
Program.

V. AMENDMENT AND SUPPLEMENT OF
MEMORANDUM
1. This Memorandum is opened for other parties and
organizations accepting its subject and content to
 adhere by signing the Memorandum.

2. It is allowed to amend and supplement the conditions
of this Memorandum by mutual agreement and after
decision of the management of the parties.
Appendix

to Memorandum for cooperation between the Ministry of Environment and Water and the Packaging Recovery Organizations in achievement of the national targets for packaging recovery and recycling

Minimum technical criteria are introduced for the functioning of systems for packaging waste separate collection

1. With containers:
   1.1 350 inhabitants served by one point for collection of paper, glass, plastic and metal packaging waste in settlements with up to 20,000 inhabitants;
   1.2 750 inhabitants served by one point for collection of paper, glass, plastic and metal packaging waste in settlements with 20,000 to 100,000 inhabitants;
   1.3 1,000 inhabitants served by one point for collection of paper, glass, plastic and metal packaging waste in settlements with more than 100,000 inhabitants;

   At one collection point should be placed minimum as volume:
   For 1.1 240 l container – for plastic and metals; 240 l container – for paper; 240 l container – for glass (both colored and white);
   For 1.2 1.1 m³ – for plastic and metals; 1.1 m³ – for paper; 1.1 m³ – for glass (both colored and white);
   For 1.3 1.1 m³ – for plastic and metals; 1.1 m³ – for paper; 1.1 to 2.5 m³ – for glass (both colored and white).

   In case that the organized system collects paper/cardboard, plastic and metal packaging waste in a common container – this container should be with volume not less than 1.1 m³ and yellow in color. Minimum requirement for placing of one container with useful volume 1.1 m³ for collection of both colored and white glass.

   Locking, cover type and container type in the small settlements should conform to the specific conditions of the settlement in order to ensure a sustainable system for separate packaging waste collection. Frequency of transportation of the separately collected waste should conform to the accumulation rate and should be controlled.

2. Minimum frequency of transportation of the separately collected packaging waste
   * for settlements with up to 20,000 inhabitants – 2 times/month for paper, plastics and metals, and once a month for glass;
   * for settlements with 20,000 to 100,000 inhabitants – once a week for paper, plastics and metals, and once a month for glass;
   * for settlements with more than 100,000 inhabitants – once a week for paper, plastics, metals as for the glass, it is allowed to be transported once or more times in a month;
   * for the locations where the separate packaging waste collection is carried out with bags – once a week for the different types of packaging material.

3. Color of the containers for separate packaging waste collection:
   * blue – paper and cardboard;
   * yellow – plastic and metal;
   * green – colored glass (brown and green), collection of white glass is also possible;
   * white – white glass.

4. With plastic bags, where to collect paper, glass, plastic and metal packaging waste:
   * The average household is assumed to consist of 3 inhabitants. For the purposes of population coverage reporting, the statistical data for the respective settlement should be considered.
5. With collection centers, where to collect paper, glass, plastic and metal packaging waste:

- 5,000 inhabitants served by one collection center in settlement with up to 20,000 inhabitants;
- 8,000 inhabitants served by one collection center in settlement with 20 – 100,000 inhabitants;
- 12,000 inhabitants served by one collection center in settlement with more than 100,000 inhabitants.

If the number of inhabitants left is greater or equal to 2,000 inhabitants, a separate collection center should be designated.

6. For the resorts, the achievement of the target for covered population is reported based on the accommodation capacity for the respective tourist season reduced to equivalent (smaller) number of inhabitants for the entire year. For the rest of the year, the covered population is counted based on the inhabitants permanently registered in the respective settlement.

   - Equivalent number of inhabitants for resort/tourist center is calculated by the following formula:
     \[
     N_{\text{equivalent}} = N_{\text{local}} + \frac{N_t}{365} + N_{\text{other}}
     \]
     
     \(N_{\text{equivalent}}\) – equivalent number of inhabitants, \(N_{\text{local}}\) – number of local inhabitants, \(N_t\) – number of tourist accommodations, \(N_{\text{other}}\) – other people stay (students, settlers, non-registered, etc.).

7. Minimum criteria for the collection centers:

   - storage capacity of the covered working space of the center – not less than 50 m³;
   - operator of the center to possess license under Article 12 of the Waste Management Act, where the location of the sites for conducting activities with waste is specifically mentioned;
   - health and safety conditions established for the center personnel – working clothes, gloves, etc.

8. For achievement of the defined targets for packaging waste recycling and recovery representing the packaging amounts covered by systems for separate collection and in accordance with the principles and objectives of the Waste Management Act and this Memorandum and for ensuring the necessary financial resource, the calculated costs for collection and recovery of a packaging unit (kg) are as follows:

<table>
<thead>
<tr>
<th>Packaging Materials</th>
<th>Average costs referred to packaging unit put on the market [BGN/kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastics</td>
<td>0.25 – 0.33</td>
</tr>
<tr>
<td>Paper and cardboard</td>
<td>0.16 – 0.18</td>
</tr>
<tr>
<td>Metals</td>
<td>0.05 – 0.07</td>
</tr>
<tr>
<td>Aluminum</td>
<td>0.20 – 0.22</td>
</tr>
<tr>
<td>Glass</td>
<td>0.07 – 0.09</td>
</tr>
<tr>
<td>Composites</td>
<td>0.30 – 0.35</td>
</tr>
<tr>
<td>Timber</td>
<td>0.10 – 0.16</td>
</tr>
<tr>
<td>Other</td>
<td>0.36 – 0.40</td>
</tr>
</tbody>
</table>

9. In case that the packaging recovery organizations and EMEPA represent packaging waste in amount less than 400,000 tons of packaging, their obligations shall be reduced proportionally to the covered packaging.

10. The introduced systems for separate collection should be provided with a sorting facility for the separately collected waste. The capacity of the facility for packaging waste sorting should be minimum 20% over the maximum planned for the respective settlement.

Sofia, 12.05.2006

FOR THE MINISTRY OF ENVIRONMENT AND WATER
MINISTER
Dzhevdet Chakarov

FOR THE PACKAGING RECOVERY ORGANIZATIONS
FOR ECOPACK BULGARIA JSC
FOR ECOBULPACK JSC
FOR BULECOPACK JSC
FOR REPACK JSC
FOR RECO PACK JSC
Annex 4
PROGRAM FOR IMPLEMENTATION OF DIRECTIVE 94/62/EC FOR PACKAGING AND PACKAGING WASTE, MINISTRY OF ENVIRONMENT AND WATER, REPUBLIC OF BULGARIA

March 2003, 68+14 pages,
includes Annex 3: CALCULATION OF THE EXPENDITURES FOR IMPLEMENTATION OF SEPARATE WASTE COLLECTION IN SETTLEMENT/REGIONS WITH 150000 INHABITANTS.

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