Regional Research on Waste Management Economic Instruments Implemented in SEE Countries



Prepared by: Urban Research Institute

Abbreviations	
DRS	Deposit-Refund System
EBRD	European Bank of Reconstruction and Development
EEA	European Environment Agency
EI	Economic Instrument
ELV	End-of-life-vehicle
EPR	Extended Producers Responsibility
EU	European Union
GDP	Gross Domestic Production
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
HH	Household
INSTAT	Institute of Statistics
ISWM	Integrated Solid Waste Management
LATS	Landfill Allowances Trading Schemes
MBT	Mechanical Biological Treatment
MED	Ministry of Economic Development
MESP	Ministry of Environment and Spatial Planning
MSW	Municipal Solid Waste
NWMP	National Waste Management Plan
PAYT	Pay-as-you-throw
PBGS	Performance Based Grant Scheme
PG	Performance Grant
RWMP	Regional Waste Management Plan
SEE	South Eastern Europe
SMS	Sustainable Municipal Services
TG	Thematic Group
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
URI	Urban Research Institute
WB	World Bank
WEEE	Waste from Electric and Electronic Equipment

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Background

The Project "Regional research on waste management economic instruments implemented in South Eastern European (SEE) countries" is financed under "Sustainable Municipal Services (SMS 2.0)" in Kosovo and co-financed by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and by the European Union. At regional level the cooperation is achieved through a sub-group of Seneca Green, which consists of bilateral waste management projects in Serbia, Albania, Kosovo, Eastern Ukraine and Greece, as well as regional projects in SEE and the Western Balkans (WB).

From various projects that are financed by GIZ and other international organizations, it is visualized that SEE countries face common challenges on solid waste management, each to a lesser or greater degree. Local governments are struggling to cope with increased volumes of waste being generated. Low levels of revenue gains through existing economic instruments such as basically service charges collection and/or reluctance to increase them undermines the possibilities of achieving a full cost-recovery. On the other hand, basic services provision is concentrated mostly to urban areas and less in rural areas, leads very often to an increase of illegal waste dumping.

Although there has been slight progress on consolidating national legal frameworks in accordance with EU Waste Framework Directive, the implementation as such is still lagging behind (EEA, 2019). Common denominators which are present in all the countries and substantially affect the sustainability of service provision are lack of adequate infrastructure for efficient management and processing of solid waste, lack of socioeconomic incentives and appropriate economic instruments to stakeholders relevant to the waste management chain, lack of modern waste management and processing technology, ineffective and inefficient operational structures, failure to vigorously enforce local management plans and regulations and poorly defined roles and responsibilities within the responsible bodies for waste management.

The SENECA green Thematic Group on Waste represented by the GIZ SMS Project is committed to the regional research in identifying and providing in-depth analysis of waste management economic instruments applied in the SEE countries and showcasing useful examples and insights on successfully implemented economic instruments while assessing their impact and potential cost-effectiveness.

The research work will focus on analyzing the waste management economic instruments in place for the countries of Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, Greece, Ukraine and Serbia to be shared as good practices; reveal existing experiences, mechanisms and possible impacts while representing instrument types, levels of intervention, positions in the value chain and types of waste, to gain a full overview of the current stage of integrated waste management processes in the SEE countries. The research will also provide detailed description of three successfully implemented economic instruments with impact on cost-effectiveness and on behavioral change of producers, consumers and waste processors which could effectively be exchanged and potentially implemented in other SEE countries.

GIZ has commissioned the Urban Research Institute (URI) an Albanian organization experienced in waste management to assist the member projects of the SENECA green TG Waste with a summary research waste management economic instruments implemented in South Eastern European countries with the support of all GIZ contact persons from each of the countries as above listed.

Executive Summary

This report is prepared by Urban Research Institute. Its objective is to present an analysis of economic instruments in use in South Eastern Europe countries in the areas of waste prevention and integrated municipal and commercial waste management. Economic instruments work with economic incentives to influence the behavior of consumers and producers. Generally speaking, economic instruments compared to other types of policy instruments (e.g. command-and-control in- struments) leave a larger degree of freedom to individuals to make the environmental improvements in the most cost-effective manner. Also, administrative costs of implementing economic instru- ments tend to be significantly lower than those associated with the monitoring of compliance with command-and-control regulation. In the waste management sector, economic instruments can con- tribute to strengthen waste management systems and the "polluter-pays-principle" by providing revenue – either through user charges or through taxes and charges on waste generation or disposal that can be earmarked for waste management services.

Apart from fiscal objectives, economic in- struments in the waste management sector can also help to further a number of environmental ob- jectives like reducing waste generation, increasing separated collection and recycling of household waste as well as diverting waste streams from landfill disposal. Economic instruments identified in the countries of the case sample are: **municipal waste charges**, **landfill charge**, **incineration charge**, **pay** – **as** – **you** – **throw (PAYT) systems, taxation on raw materials and products, deposit – refund systems, subsidies and fiscal incentives.**

Waste charge, in most countries, the collection and treatment of municipal solid waste are locally organized by the municipalities, either through public or private waste management service operators.

On the revenue side, the costs of waste management may be either paid from the general municipal budget or passed on to the citizens, through either a local waste tax or user charges of tariffs for waste management services.

Depending on how these charges are calculated, they can be further divided into the sub-categories:

- Flat rate user charges;
- Service-unrelated variable-rate user charge;
- Service-related variable-rate user charge (unit pricing).

Landfill still remains the common destination and usually the cheapest mode of waste disposal in the short term in comparison to other treatment technologies such as mechanical biological treatment (MBT) and/or incineration.

Recent EU 28 experiences and new policies enshrined in the EU Waste Directive have given raise to adaptation of new reuse-reduce objectives and application of various economic instruments that tent to divert and reduce wastes to landfills. The environmental and social costs of landfilling (for example, greenhouse gases (GHG), air emissions, and leachate production causing air, water and soil pollution) are borne by the general public and the communities neighboring disposal site. These costs are often not considered by local authorities, waste management services, and industrial waste producers when comparing the relative costs of different waste management options.

Thermal treatment, especially incineration, has been widely applied in the EU, as an effective way of achieving the EU recycling targets (Williams, 2005). For the past decades, Waste to Energy (WtE)

technologies have been extensively applied throughout Europe as an accepted and successful process for treating MSW, especially in the West and Northern Europe (Williams, 2005).

Notably, there is a distinction in the charges concerning incineration, as in landfill charges (Bio Intelligence Service S.A.S, 2012):

- incineration tax: a tax imposed by a public authority for the treatment method of MSW through incineration; and
- gate fee: a charge on the provision of service from the operator of the facility (incinerator).

PAYT System fall under the "polluter pays" principle as citizens are charged according to an amount of generated residual, organic and bulky waste which is being handled by a third-party waste management entity (Morlok, et al., 2017).

The establishment of a PAYT system is followed by the requirements of a significant input of resources from municipalities, including financial and administrative costs. To implement a PAYT system, it is necessary to identify the waste generators, quantify the waste of each waste stream that is being treated, and enforce a unit-based pricing policy (per kg and/or per capita).

Through a PAYT approach, a part of the overall fee is allocated based on the amount of the collected waste, to provide incentives for citizens to engage in waste prevention and material recovery.

Taxation of specific types of products with high environmental impact is a method used in order to minimize their use and optimize their production. The main goal is to internalize the environmental costs of such products and to deterrent their demand by the consumers.

In 2015, the EU adopted the 2015/720 Directive, amending the packaging Directive 94/62/EC, emphasizing the EU's introducing measures for the MS to reduce single-use thin plastic bags consumption. In 2019, the EU has progressed further by adopting the Single-use Plastic Directive (2019/904) under the Circular Economy package attempting to tackle plastic pollution and to reduce the impact of certain single-use plastic products.

A **deposit-refund system** is essentially a combination of a tax and a subsidy. The consumer of packaging/container materials is given the right to a refund if he/she returns the waste product to the seller, i.e., to an authorized recycling/reuse point. For this right the consumer may have had to pay a formal deposit at the time of the purchase or have paid a higher product price. The superficial evidence drawn from schemes that have actually been implemented (most for beverage containers) suggests that DRSs may impose net costs on society. Actual schemes have led to only relatively small reductions in the volume and cost of waste disposal and litter reduction cost savings have usually been experienced but their magnitude has varied quite widely and such schemes have also been expensive to operate and have pushed up product prices. DRS may be market-generated systems or schemes imposed by law. This latter category of government-initiated systems can operate with or without the govern.

Subsidies and financial incentives can be used to give a positive financial incentive to producers and service providers who perform certain behavior that is considered to be socially beneficial from the service provision point of view.

1 Introduction

The increasing level of solid waste is now days a serious problem in urban areas all over the world. A high rate of growth of population and rising per-capita income have resulted in the increasing generation of solid waste, posing a serious threat to environmental quality and human health. This is more obvious in the developing countries where large quantities of solid waste are dumped haphazardly thereby, putting pressure on scarce land and water resources and at the same time adversely affecting the health of human beings.

Municipal solid waste includes all solid wastes generated in the community except for industrial and agricultural wastes. It generally includes discarded durable and non-durable goods, containers and packaging, food leftover, yard trimmings, miscellaneous inorganic debris, including household hazardous wastes (for instance pesticides, batteries, left over paints etc.) and often construction and demolition debris and sludge and ashes generated by sewage treatment and municipal solid waste incinerators. There are eight major classifications of solid waste generators: residential, industrial, commercial, institutional, construction and demolition, municipal services, process and agricultural. There is no a consistent definition of MSW across countries, nevertheless the most comprehensive definition for statistics on MSW is still the definition that derives from the OECD/Eurostat¹ joint questionnaire which quotes that "MSW covers household waste and waste similar in nature and composition to household waste". In some cases, it encompasses industrial and commercial waste and even construction and demolition debris which make its estimation incorrect and leads to erroneous policy formulation.

2 Economic Instrument

In broad terms *Economic Instruments* (EI) are financial incentives that affect the market conditions under which people and firms make their decisions, without directly reducing the decision-making space available to them.

Traditionally, environmental policy in most countries has mainly used direct regulative, otherwise command-and-control instruments to achieve its objectives and waste policy is no exception to this convention.

While command-and-control instruments work with bans, requirements and standards, which are set and monitored and informational instruments follow the intention to influence people behavior by informing and educating them, *economic instruments* work with economic incentives to influence people's behavior. The crucial difference between command-and-control instruments and economic instruments is that, when confronted with command-and-control policy instruments the individual has no choice but to fulfill the standard or obey the regulation, while with economic instruments, the individual is free to choose his/her behavior. The rationale is to influence his/her behavior via the pricemechanism making a specific behavior more or less expensive.

Hence, economic instruments comprise all taxes and charges, permit trading schemes, and subsidies that create incentives and disincentives mobilizing the self-interest of consumers, producers, and service

¹ "Guidance on municipal waste data collection"; European Commission, Eurostat, 2017.

providers to make environmental improvements or reduce adverse environmental consequences. In environmental policy, the most prominent among these instruments are certainly environmental taxes and levies. These instruments may be used to address basic environmental needs, or may motivate actions to address environmental protection beyond the prescribed minimum accepted standards. A large and growing number of economic instruments with positive effects on the environment are applied in EU and OECD member countries as well.

Box 1: Scientific difference between taxes and charges

Taxes and charges are mandatory payments by individuals or companies to a publicly administered account. The term 'taxes' is commonly used for those payments for which there is no direct relationship between the payment and the use of the revenues. Generally, tax revenues accrue to the general public budget, although sometimes they may be earmarked for specific purposes (for example, in many Eastern European countries the environmental tax revenues go to Environmental Funds). Charges, on the other hand, are payments for specific services provided by the public body (e.g. the collection of municipal waste), and the revenues from the charge are specifically spent on this purpose. The amounts that private persons and companies have to pay under a charge system are not necessarily proportional to the services provided: for example, households often pay a fixed amount for waste collection although the use of differential rates is increasing.

Economic instruments do not substitute but complement and strengthen regulatory and other approaches in the respective policy area. Economic instruments should therefore be thought of as important and so far, often underused components of policy mixes and not as "stand alone" policy packages.

Enforcing environmental regulations can be difficult if prices are sending the wrong signals, which can happen if market failures are not corrected and economic activities are producing external costs to environment or society or if environmentally harmful behavior is even subsidized. Environmental levies, for example, have the potential to internalize negative environmental impacts and establish the right price signals creating direct incentives for minimizing pollution and resource consumption, by reflecting the true cost of pollution or the scarcity of natural resources through the price mechanism.

Permit trading schemes establish maximum levels for environmentally harmful behavior (e.g. emissions of a specific pollutant). The level is determined politically and can be adjusted to solve an environmental problem. "Pollution rights" are distributed among the polluters who are participating in the trading scheme so that the cap is met. The trading of permits among the polluters promotes environmental improvements where they are most efficient. As long as the abatement cost of polluting are lower than the price of the permits, there will be a stimulus to invest in technologies which help avoiding pollution.

Subsidies may help to overcome market-entry barriers of innovative products, which may be environmentally beneficial but with higher costs at an early stage of development due to high development or labor costs. In addition to providing incentives to comply with environmental regulations, economic instruments can make additional funding available, which is always the case with environmental levies and usually with permit trading schemes, when the permits are not just given out for free but sold or auctioned. This additional funding can go either to the general budget or can be used specifically to refund the costs of environmental programs and services.

Generally speaking, economic instruments compared to other types of policy instruments (e.g. command-and-control instruments) leave a larger degree of freedom to individuals to make the environmental improvements in the most cost-effective manner. Also, the administrative costs of implementing economic instruments tend to be significantly lower than those associated with the

monitoring of compliance with command-and-control regulation. For example, the administrative costs of the German eco-tax introduced in 1999 amount up to only 0.13 per cent of its overall revenue. On the other hand, an inherent weakness of economic instruments (with the exception of certificate trading schemes) is that they do not serve to binding restrict environmentally harmful behavior. Whereas command-and-control instruments have the potential to ban certain practices, economic instruments merely create incentives to make these practices less attractive.

Economic instruments in general can be classified as follows:

Revenue-generating instruments	Revenue-providing instruments	Non-revenue instruments	
e.g. charges, fees and taxes	e.g. direct subsidies, tax ex-	e.g. permit-trading schemes,	
	emptions, etc.	deposit-refund systems, etc.	

2.1 Economic Instruments in the Waste Management Sector

In the waste management sector, economic instruments can contribute to strengthen waste management systems and the "polluter-pays-principle" by providing revenue, either through user charges or through taxes and charges on waste generation or disposal that can be earmarked for waste management services. Apart from these fiscal objectives, economic instruments in the waste management sector can also help to further a number of environmental objectives, for example:

- reducing the generation of household, commercial and industrial waste (e.g. through user charges for waste collection and treatment services on the basis of the quantity of waste collected),
- increasing separated collection and recycling of household waste (also through variable user charges and the introduction of deposit-refund systems for specific product or waste types),
- reducing the quantity of waste disposed of in landfills and instead increase of incineration and/or recycling (e.g. through landfill charge).

For furthering these environmental objectives economic instruments can create incentives and disincentives at different stages of the waste management process, most importantly at the stage of waste generation, waste treatment and waste disposal (see figure 1 below). At each stage of the waste management process, different economic instruments may be appropriate to further the respective environmental objectives. For example, waste charges may create incentives for improved separation and general waste reduction at the stage of waste generation. Deposit-refund systems may create incentives for better collection at the same stage.





At the stage of waste treatment, Advanced Recycling Fees (ARFs) can provide the revenue for the recycling processes so that recycling of certain products is increased. At the stage of waste disposal, landfill charge can create disincentives for landfill disposal and divert waste streams to other waste management methods (e.g. recycling or incineration) instead. Similarly, Landfill Allowances Trading Schemes (LATS) can be implemented to introduce a maximum amount that may be deposited of a specific waste stream and allow actors to trade allowances among each other.

For the purpose of this research work, description of waste management economic instruments which are mostly being implemented in SEE countries would include but not limited to:

- Waste charges;
- Landfill charge;
- Incineration taxes;
- Extended producer responsibility scheme;
- Pay as you Throw (PAYT) systems;
- Taxation on raw materials and products;
- Deposit refund systems;
- Subsidies and fiscal incentives.

2.2 System boundaries

To determine the potential of economic instruments in the waste policy, an analytical framework has to be designed representing the most relevant conceptual dimensions of waste management. The balance between theory and practice is demonstrated by addressing several dimensions of the analytical framework.

Scale of intervention

The effectiveness of economic instruments strongly depends on the scale of intervention (see Figure 2). On the one hand, for example in the case of unit-based pricing for waste disposal, implementation on a municipal scale is most effective because local authorities are better able to account for local conditions. On the other hand, for example in the case of a deposit-refund scheme, national implementation is more effective given the need for a country wide collection and refund system.



Figure 2: Economic instruments intervene at various levels of governance

The research aims also to identify the level of governance a certain economic instrument is being used in any of the SEE countries.

Position in the value chain

Traditionally, waste management policies are mainly focused on the final phase in the material chains, namely the waste stage. These policies, are being used in many EU countries, can be present along the whole value chain, to offer the most cost-efficient improvements towards sustainable material use in any of the SEE countries.





3 Methodology and approach

In order to provide a solid foundation for the study, information was gathered from the beginning of the study on the use of EIs in the waste sector.

This research was mainly desk-based and internet-based, consulting reports, strategies, plans and legislative framework of and websites of countries involved in the study. However, a questionnaire for the certification and for the provision of the most updated information in regards to the EIs in SEE countries was sent tailored versions of the templates to the local officials through the GIZ focal points in these countries and several provided useful information on the use of EIs in their sectors.

The latest headline data on waste management performance in the EU was gathered, most notably on waste generation, recycling (and composting) rates and waste disposal. The main focus was on

municipal waste data, where the most complete data sets are available. Attempts are made in this report to identify relationships between this data on waste management performance and the use of EIs in the SEE countries (bearing in mind that it can be difficult to draw causal links due to the influence of other factors, including the broader waste policy context in the SEE countries).

The following methodological approach proposed will be broken into two packages as follows:

- 1. Package 1 Country profiling and economic instruments implemented in the SEE Countries;
- 2. Package 2 Analysis of the best economic instrument implemented in SEE Countries;

* Due to the lack of information and the responses the consultant received from GIZ focal point the study is limited only in Albania, Greece, Kosovo, Montenegro and Serbia.

4 Region Overview

The South Eastern European (SEE) countries comprising Albania, Bosnia and Herzegovina, Greece, Kosovo, Montenegro, North Macedonia, Serbia and Ukraine face common challenges on solid waste management, each to a lesser or greater degree. Local governments are struggling to cope with increased volumes of waste being generated. Low levels of fee collection and/or reluctance to increase fees undermines the possibilities of achieving a full cost-recovery. On the other hand, basic service provision is concentrated mostly to urban areas, leading to an increased illegal dumping in rural areas.

Although there has been progress on consolidating national legal frameworks in accordance with EU Waste Framework Directive, the implementation as such is still lagging behind (EEA, 2019). Common denominators which are present in all the countries and substantially affect the sustainability of service provision are lack of adequate infrastructure capacities required for the efficient management and processing of solid waste, lack of socioeconomic incentives to stakeholders relevant to the waste management chain, lack of modern waste management and processing technology, ineffective and inefficient operational structures, failure to vigorously enforce local management plans and regulations and poorly defined roles and responsibilities within the responsible bodies for waste management.

Figure 4: Map of the selected countries for the study



Albania is located on the Adriatic and Ionian Sea within the Mediterranean Sea, and shares land borders with Montenegro to the northwest, Kosovo to the northeast, North Macedonia to the east, Greece to the south; and maritime borders with Greece in the south, Montenegro in the north and Italy to the west.

Albania has a resident population of 2,845,955 habitants $(2020)^2$; it generates about 1,201,590 tons / year of Municipal Solid Waste (MSW) in 2019 (INSTAT, Urban Solid Waste Report, 2019), yielding therefor an amount of about 0.42 tons/cap/year or the relevant number of 1.15 kg/cap/day, including here other non-hazardous urban waste, of which MSW constitute only 1,086,692 tons /year (87%). Referring to the same report, 80% of waste are managed by being deposited in landfills and other authorized disposal sites, whereas about 2.5 % are uncontrolled disposed; while the rest of about 17.5 % is reported to have been incinerated and collected separately for recycling.

Waste management in Albania as in other Western Balkan countries is dominated by the EU approximation process in terms of strategic direction i.e. legal framework adjustments, waste management targets, and standards. Country policy in waste management is defined by the National Waste Strategy 2010-2025 and National Waste Management Plan 2010-2025; these documents are currently entered into force in 2020. Other important strategic documents are the National Strategy for Development and Integration and Draft Cross-Cutting Environmental Strategy.

The waste management system in Albania is decentralized and the jurisdiction is split between

² INSTAT Report, January 1st 2021.

central, regional and local authorities. Law on Integrated Waste Management tasks ministry in charge for the environment (currently Ministry of Tourism and Environment) with the responsibility for drafting waste management legislation and strategic documents while the Decision of the Council of Ministers elaborates further responsibilities of the Ministry in the field of waste management, whilst by virtue of a Decision of the Council of Ministers, the Ministry of Infrastructure and Energy and its subordinated National Agency for Water manage planning and allocation of capital investments with regard development of national and regional infrastructure for waste management. Regional councils as a second tier of local government, are tasked with providing regional policy framework by developing regional waste management plans. Finally, Law on Local Self-government gives authority over waste management to the local government units as the original jurisdiction and tasks them with the organization and providing enabling conditions for the service provision.

Inspection in waste management is also split between the Ministry of Tourism and Environment and the local self-government. When it comes to data collection municipalities are reporting to the Ministry of Tourism and Environment and National Environmental Agency. The Agency is compiling data but also performing environmental monitoring and finally reporting to the European Environmental Agency.

The circular economy is a new term in the Albanian context. It cannot be found in the legal framework yet, but it is introduced with the revision of the Integrated Waste Management Strategy and Action Plan. Some progress is being made with the intervention of international and bilateral development programs like GIZ project "Climate-friendly Integrated Solid Waste Management and Circular Economy in Albania". The project aims to introduce the Deposit-Refund System (DRS) in Albania to start in collaboration with companies that import high quantities of packaging waste at and then with all producers.

Bosnia and Hercegovina (BiH) is located in northern part of the Balkan Peninsula surrounded by Serbia to the east, Montenegro in southeast and Croatia to the north and southwest, however BiH is not entirely landlocked since it has a narrow coast on the Adriatic Sea which is about 20 km.

According to the census in Bosnia and Hercegovina the total population is 2.219.220 from which 46.9% lives in urban areas and 53.1 lives in rural areas. Waste generation per capita in BiH is around 0.87 [kg/inh/day] changing from one division to another from which Bosnia Podrije has the lowest generation 0.55 [kg/inh/day] and Tuzla has the highest generation 0.89[kg/inh/day].

The BiH laws on waste management are the legal basis for waste management in the country, while strategies and plans both at BiH and cantonal level provide guidelines for the future development and investments in the field of waste management. The Law encourages prevention, recycling, reuse and usage of waste for energy recovery and governs all categories of waste (excluding radioactive waste, gases emitted into the atmosphere and wastewater), as well as all types of waste management activities, operations and systems.

All waste management activities in BiH are carried out by municipal communal companies with the exception of one cantonal communal company in case of Sarajevo Canton. Organic waste is the dominant fraction and varies from 25 % (cantonal average) up to 50 % (municipal average). The dry recyclables (plastic, glass, paper, metals, Al. cans, PET) accounts for 24% to 38 % of the total waste. The percentage is lower in rural municipalities and higher in the urban centres, especially in the capital city of Sarajevo.

Based on the latest national statistics report published by Agency of Statistics BiH in 2016, the situation in waste sector in BiH can be described with the following indicators: (i) average waste generation rate is 0.89 kg/cap/day (2015); (ii) total amount of municipal waste generated annually is around 1.3 million tons (2015), (Waste Management in Bosnia and Herzegovina – Current Situation and Perspectives – Country Reports); (iii) 74 % of waste generated is collected with waste collection services (2016), (iv) 66 % of population is covered with solid waste collection service (entity average) (2015), (v) 33 % of the waste collected is disposed on sanitary landfills, while 67 % is disposed on uncontrolled municipal landfills (2015), (vi) only 1 % of waste is recovered (2015).

In FBiH, the municipalities (and the Canton in case of Sarajevo Canton) are responsible for the creation of financially sustainable waste management systems. The municipality (and/or the Canton) might buy equipment or subsidize directly the waste collection company by taking over payments wholly or partly for operations of landfills, sorting lines, gate fee at regional landfills, etc.

No additional financing is received from State or Entity except for some grants from the Fund for Environmental Protection and Cantonal Ministry for specific project investments. This allocation is made on basis of a public call to submit projects and is limited by revenues from waste related taxes which, at present, are not sufficient to finance larger (investment)projects. Otherwise the municipalities have to pay for investments. The municipalities may receive grants from the EU and other donors or conclude loans for investments. The operational and capital (amortization) costs have to be financed from revenues such as tariffs, income from additional services such as street cleaning, green areas maintenance, etc. and subsidies.

In Federation B&H and District of Brčko circular economy principles have not yet been introduced in the waste management framework. At both the national and the local level, the linear model of the economy is more dominant than the circular model. The introduction of extended producer responsibility systems for packaging and packaging waste in FB&H and RS and WEEE in FB&H is important to be mentioned as a first step in the transition to the circular economy in this country. The existing strategies in the waste sector in FB&H, RS, and BD contain quantitative targets that refer to an increase in recycling and reuse for special waste categories, as well as on the reduction of the amount of waste for final disposal with more efficient resource use. At the institutional level, the same governmental bodies as for waste management should be responsible for the circular economy.

The promotion of circular economy in Bosnia and Herzegovina is implemented through project-based activities. An example is the SCP/RAC project supported through the Cooperation Agreement between UN Environment and IMELS (Italian Ministry of Environment Land and Sea) and EBRD (European Bank for Construction and Development), which has recently started a series of activities aiming at improving the policy framework and engaging with the food & beverage industry in Albania, Bosnia and Herzegovina and Montenegro for tackling plastics packaging value chains in a circular economy. The objective is to contribute to the prioritization and adoption of preventive measures that tackle plastic packaging in the food and beverage industry, by improving the relevant policy framework, strengthening the engagement of businesses and business support organizations (BSOs) and building other relevant stakeholders' capacities.

Greece is located in the southern part of Balkan Peninsula in an area of about 131,940 sq km and thousands of islands throughout the Aegean and Ionian seas, with a population of 10.7 million³

³ Eurostat as of 1.01.2019

habitants. Greece is surrounded by the waters of Aegean and Ionian sees in its southern east and west pat while is bordered with Albania in the northwest, North Republic of Macedonia and Bulgaria in the north and Turkey in the northeast. Greece is the only EU member state among SEE countries subject of this study.

Waste charges are levied as part of a general municipal tax through household electricity bills. User charges are flat rate, calculated based on the property size and location. Across the EU there is an increasing application of variable waste charges rather than flat rate fees, due to the environmental and social benefits of such tax (waste reduction, fairness, and acceptance. Therefore, a gradual

Adoption of a similar variable waste charging system is suggested for Greece. In the meantime, the collection of waste charges should be recovered via property tax to optimize administration costs and political discussions.

In April 2018, the Government Council for Economic Policy (KYSOIP) endorsed the national 'action plan on the circular economy' including short-term and long-term priorities. In addition, Greece will introduce indicators to monitor the impact of the circular transition. Greece also endorsed a new recycling law (4496/2017) in November 2017, which adjusted existing legislation to circular economy principles.

There are major structural problems with waste management in Greece. Municipal waste generation is estimated at an average of 487 kg/y/inhabitant⁴. Greece disposes the majority of its municipal waste in landfills (80 %, with only 19 % being recycled. The landfill rate has decreased modestly, and the recycling rate has slightly increased.

Greece adopted a landfill tax law in 2012, but its application was postponed for 2019 at the earliest. In the meantime, the landfill gate fee, which is currently low, together with the cheap illegal landfills do not encourage recycling over disposing of waste. The available economic instruments are insufficient and the schemes currently in place are ineffective. The 2012 --you-throw (PAYT) scheme to reduce waste in landfills and encourage people to separate their waste for separate collection was not yet being applied.

On the positive side, Greece has made legal and practical progress in increasing waste recycling and expanding its EPR schemes. For example, it has reduced waste disposal to non-compliant landfills. In 2015, this dropped to less than 4 % of the total waste disposed. An operational plan for EPR, which will introduce funding for different EPR packaging schemes, is about to be applied.

From 2019 and on, Greece priorities on municipal waste management are focused on the following main directions: (i) Address the issues of closure and rehabilitation of illegal landfills and of the treatment of hazardous waste as matters of absolute priority; (ii) Properly enforce and increase landfill charge to phase out landfilling of recyclable and recoverable waste; (iii) Improve and extend separate collection of waste, including for bio-waste. Establish minimum service standards for separate collection (e.g. frequency of collections, types of containers, etc.) in municipalities to ensure high capture rates of recyclable waste; (iv) Improve the efficiency of the extended producer responsibility systems.

⁴ EC-Environmental Implementation Review, 2019

Kosovo in an area of 10,887 km2 (4,203 sq mi), Kosovo is landlocked in the center of the Balkans and bordered by the uncontested territory of Serbia to the north and east, North Macedonia to the southeast, Albania to the southwest and Montenegro to the west.

By taking into account the number of 1,779,521 inhabitants in the country (2011 census) and the annual amount of municipal waste per capita, which is approximately 0.78 kg / inhabitant / day, the total amount of waste generated is approximately 506,629 tons /year⁵.

The amount of waste deposited in sanitary landfills managed by KLMC for 2018 is 299,960.04 tons / year. In other sanitary landfills the amount of landfilled waste is about 117,357.22 tons / year. Thus, the amount of municipal waste deposited in sanitary landfills amounts to 417,317.26 tons / year. Accounting for the amount of waste deposited in other disposal sites (such as the one in Istog (Tuqep), 8287 tons / year of waste were deposited, while there are no data reported from the northern part of Kosovo. From these data, the total amount of waste deposited in Kosovo is 425,589 tons / year.

The waste management sector in Kosovo is in the process of harmonizing with EU environmental acquis. The sector is governed by Law on Waste (No. 2012/04-L-060). The Law introduces European standards and sets certain objectives in the waste management field like prevention and reduction of the generation of waste, reuse of used components from waste, sustainable development through protection and preservation of human resources, prevention of negative effects of waste in environment and human health, and final disposal of waste in an environmental acceptable way. Other legal acts that regulate waste management include Law on Environmental Protection (No. 2009/03-L-025), and series of bylaws in the form of administrative instructions like those on landfill management, environmental information system, waste management of wastes from construction and demolition of the building objects, and other on special waste streams, inspection, fees, etc. Kosovo Strategy on Waste Management was adopted in 2012 for 10 years' period in line with the requirements set in the Law on Waste and Law on Environmental Protection.

Local authorities are responsible for establishing waste management systems on their territories, developing and adopting local waste management plans that need to be in line with the national plan and providing conditions for their implementation through public utility departments and local inspectorates. Municipalities are also responsible for creating an enabling environment, selection of the operator model for collection and tariff setting. Waste management services may be provided by a public utility company, or it can be delegated to a private entity through a PPP model.

The circular economy approach is recognized and introduced in the Law on Waste, National Strategy for Waste Management and with activities regarding introducing Extended Producer Responsibility through a Deposit Refund System for Beverage Containers, and in the local level in local waste management plans. The Law on Waste introduced principles like waste prevention and reduction, reuse waste materials and products, sustainable use of resources, prevention of negative effects on the environment.

North Macedonia is a landlocked country in the middle of the southern Balkan Peninsula with an area of 25,713 km 2. It is a small, open economy well integrated into international trade, with a gross domestic product of US\$11.33 billion as of 2017. The country has approx. 2.1 million inhabitants and a population density of 80.7 inhabitants per km2.

⁵

Solid waste services form part of the responsibilities delegated to the municipalities as part of the decentralization in the country. Municipalities are responsible for organizing the collection, transportation and disposal of municipal solid waste; supervising transportation and disposal of industrial non-hazardous waste, deciding on the location of waste management facilities, issuing local regulations on waste management, financing and supervising dumpsite and non-compliant landfill closures and termination of waste management facilities.

Generation of MSW remained stable and varied between 786,000 tons and 797,000 tons in the period 2011–2017, except for 2011 and 2014 when the amounts were lower – 735,250 tons and 765,156 tons respectively (table 10.1). Accordingly, waste generation per capita remains relatively low, varying between 354 kg/cap. and 384 kg/cap. Since 2017, data on the detailed waste structure within MSW are available. About 87 per cent of the total waste is mixed MSW, followed by organic waste, paper and textiles (figure 10.1). About 83 per cent of MSW is generated by households while 17 per cent can be defined as commercial waste.

The legal framework on waste management centred around the 2004 Law on Waste Management was enhanced with adoption of the 2009 Law on Management of Packaging and Packaging Waste, 2010 Law on Management of Batteries and Accumulators and Waste Batteries and Accumulators and 2012 Law on Management of Electrical and Electronic Equipment and Waste Electrical and Electronic Equipment. However, the actual implementation of extended producer responsibility (EPR) has not gone smoothly. There is a lack of proper infrastructure in the country for treatment of waste subject to EPR, so such waste needs to be exported. The producers are not keen to pay the related fees, and some escape from both making contracts with collective handlers and paying the fee.

Although in the acting waste management strategy many of the circular economy principles can be identified, the new waste management law that is currently in the process of adoption (second reading under the legal procedure) will introduce a separate chapter on the circular economy.

Montenegro is a country located on the Adriatic coast of the Balkans. It borders Bosnia and Herzegovina to the north, Serbia to the northeast, Kosovo to the east, Albania to the southeast, the Adriatic Sea and Croatia to the west. The largest and capital city Podgorica covers 10.4% of Montenegro's territory and is home to 29.9% of the country's population, while Cetinje has the status of old royal capital. Major group in the country are Montenegrins.

The legal framework in Montenegro consists of laws and strategies adopted by the Parliament, decisions of the Government and other regulations. The National Strategy with Action Plan for transposition, implementation, and enforcement of the EU acquis on Environment and Climate Change 2016-2020 has been adopted to achieve gradual and complete transposition of the entire EU acquis for Chapter 27-Environment and Climate Change into the legal system of Montenegro. Regarding that most laws related to the environment and thus waste management have been newly adopted or amended within the last three years.

Even though the circular economy has not been implemented in the national legislation as a separate law, there are several laws on special waste streams determining targets to be reached (recycling, reduction in production, etc.) as well as EPR (Extended Producers Responsibility) for all. The status of by-product, when derived from waste, is regulated by Law on waste management Article 8, as well as when a specific part of the waste is no longer treated as waste (Article 9.) There is also a separate Decree amending the Decommissioning Criteria Decree wastes from iron, steel, aluminum, copper and glass (Official Gazette of Montenegro 31/17). Besides, keeping in

mind CE principles, there is the regulation on design and packaging in concern of energy consumption Rule book about the eco-design of products affecting energy consumption ("Official Gazette of Montenegro", No. 073/18). Overall, national legislation and strategies recognize CE, but common knowledge as well as of operators on the local level is insufficient.

Serbia is a landlocked country and borders Hungary to the north, Romania to the northeast, Bulgaria to the southeast, North Macedonia to the south, Croatia and Bosnia and Herzegovina to the west, and Montenegro and Kosovo to the southwest.

Serbia's legal framework is heavily influenced by the EU accession process. This also includes the waste management sector which falls under the Environmental Acquis and negotiations under Chapter 27-Environment and Climate. The Serbian waste management framework is regulated by the number of laws and accompanying by-laws and regulations. Most important waste management related laws are listed below:

- Law on Local Self-government (O.G. no. 129/2007, 83/2014, 101/2016 and 47/2018)
- Law on Waste Management (O.G. no. 36/09 and 88/10, 14/2016 and 95/2018);
- Law on Packaging and Packaging Waste (O.G. no. 36/09 and 95/2018);
- Law on Environmental Protection (O.G. no. 135/2004, 36/2009, 36/2009, 72/2009, 43/2011, 14/2016, 76/2018, 95/2018 and 95/2018);
- Law on Communal Services (O.G. no 88/2011, 104/2016 and 95/2018

The Serbian Environmental Protection Agency (SEPA) is in charge of data collection on waste quantities and recyclables, data processing and communication and information to the EEA. General data on service coverage is collected and processed by the State Statistical Office. SEPA collects data on air emissions, water emissions, and waste. The collected data is entered into the database, thus forming the environmental information system of the Republic of Serbia, while monitoring and reporting at the national level are regulated by the Law on Environmental Protection. The Statistical Office of RS reports on waste generation and population served. Reporting to the EEA is regulated by Article 5 of the Law on Ministries (O.G. no. 44/2014, 14/2015, 54/2015, 96/2015 and 62/2017).

Responsibility for the introduction of the circular economy to national policies lies with the Ministry of Environmental Protection which in its organizational structure has Group for Green Economy. This unit is in charge of harmonization of economic development policy with the principles of the circular and green economy. So far, no strategic document at any level has been adopted that specifically deals with the transition to the circular economy. Still, some towns and municipalities have undertaken activities in the field of waste management, energy efficiency or use of renewable energy sources, by themselves or through cooperation within various international projects that can be considered as actions in line with the principles of the circular economy.

There are no national or local financial mechanisms to support the circular economy, but some of the international organizations and partners like UNDP, GIZ, OSCE or EU through Climate KIC and PLAC project are providing support to the Ministry, Serbian Chamber of Commerce and Industry, Standing Conference and municipalities with the promotion of the topic.

Ukraine is located in the farthest part of Eastern Europe. It borders Russia to the east and northeast; Belarus to the north; Poland, Slovakia and Hungary to the west; and Romania, Moldova and the Black Sea to the south. The issue of waste management in Ukraine is particularly significant because of the traditional dominance of resource intensive and non-waste-use technologies in the national economy. Waste generated in the process of extraction, enrichment, chemical-metallurgical processing, transportation and storage of minerals is a secondary raw material reserve for the industrial, construction and energy sectors. Secondary raw materials from remnants of final consumption products (e.g. waste paper, polymers, glass, worn tires, etc.) also have considerable resource potential. Low tariffs on waste disposal services do not create incentives for businesses and local authorities to recycle waste.

Significant volumes of accumulated waste, absence of relevant infrastructure and lack of effective measures to prevent waste generation and introduce the integrated waste management approach deepen the ecological crisis and become a restraining factor in development of the Ukrainian national, regional and local economies.

Considering the context of the integrated MSW management concept, Ukraine is currently positioned at the lowest level of the waste hierarchy with the absent or limited preventing framework, prevailing mix waste collection in preparation for use, recycling in a limited scope, other recovery steps implemented just initially and disposal to landfills as the main waste management technique. New technologies' introduction is limited by the lack of integrated management decisions and by insufficient financial resources and economic incentives. A small number of innovative technologies, if any, are adopted.

According to the UKRSTAT data, over 295.9 million tons of waste was generated in Ukraine in 2016, including 289.5 million tons (97.8%) of waste generated by the industry and 6.4 million tons (2.2%) of waste generated by households. At this, 218 million tons (almost 74% of the generated waste) was generated by the mining and quarrying industry. Only households and the power-, gas- and heat- supply sector demonstrated growth in waste generation; with the agricultural and construction indicators almost at the same level as in 2015.

The situation with municipal solid waste management in Ukraine is still at a very basic level, when waste management consists of collection of mixed waste and landfill disposal. According to the Ukrstat data, of 11.6 million tons of MSW and similar waste generated in Ukraine in 2016, only 0.09% was recovered, 3.73% was incinerated and the rest 87.67% was landfilled.

Municipal solid waste (MSW) management is one of the key environmental challenges in Ukraine. Currently, less than 4% of the country's MSW is processed (just 2.5% is recycled), only 30-75% of the existing MSW treatment and recycling capacity (depending on the waste stream) is utilized, while 30 million tons of MSW end up in legal and illegal landfills.

Following the EU countries' move toward what is referred to as 'integrated solid waste management (ISWM), the National Waste Strategy 2030 signals going away from sole reliance on landfill disposal with an increased focus on recycling and recovery for certain waste streams while the residual waste is disposed of into EU-compliant landfills. It proposes a significant increase in the coverage of the population with organized MSW separate collection and a progressive movement toward increased levels of recycling and recovery.

5 Applied Economic Instruments in SEE Countries

Economic instruments encompass a range of policy tools, from waste taxes and marketable permits to DRS and PAYT systems. The main functions of economic instruments, applied to solid waste, are to finance management and operational services, influence the behavior of public managers,

productive sectors and the population, and internalize the impacts generated by the volume of waste produced.

A general overview and a categorization of the available economic instruments are shown in Figure 2. The taxonomy used is the one adopted by the United Nations Environment Program (UNEP) guidance on the environmentally sound management of household waste (UNEP, 2019)⁶. *Figure 5: Categorization of economic instruments (IFRA, 2019)*



Economic instruments can be an effective policy tool in the prevention, minimization and sound management of waste. Fees and charges are economic instruments that can be used to recover the costs of waste management and support the principle of user pays, helping to ensure the financial sustainability of waste management services. Economic instruments such as taxes and extended producer responsibilities support the principle of polluter pays by internalizing environmental and human health costs.

Economic instruments can be useful in encouraging the behavior changes (for example, waste reduction or investment in improved waste treatment technology) necessary to achieve waste policy objectives. A typology of economic instruments that may be used in waste management policy is based on the OECD's database on Policy Instruments for the Environment (OECD, 2017a).

Taxes increase the cost of polluting products or activities, and thereby discourage their consumption or production. In waste policy, they are used to internalize the environmental costs of waste treatment and disposal, making more environmentally harmful treatment methods costlier and creating incentives to use alternative treatment methods such as recovery and recycling, such as landfill and incineration taxes. In policies supporting a circular economy, taxes may be used to discourage the consumption of natural resources,

⁶ GIZ, 2020, Final Report - Economic Instruments Deposit Refund System in Greece

including biological resources, minerals and raw materials.

Fees and charges are used to recover the costs of providing goods or services. Unlike taxes, fees and charges are a requited payment, meaning that the person paying gets something in return in proportion to the payment, whereas taxes are unrequited payments. In waste management this may include items such as municipal waste service charges or landfill gate fees.

Deposit-refund systems place a surcharge on the price of a product likely to pollute the environment. In waste management, this may include measures used to internalize the environmental costs of end-of-life products, such as product levies, advanced recycling fees and extended producer responsibility measures (the latter are covered under Section 4.3).

Subsidies can be used in environmental policy to directly or indirectly reduce the use of something that has a proven, negative effect on the environment. In waste management, subsidies may be used to encourage better waste management, waste reduction and investments in improved waste management, and may take the form of direct subsidies or tax exemptions.

Other economic instruments used in waste management policy might include greenhouse gas emissions trading schemes for emissions from landfills and incineration facilities, financial reserves for remediation of former landfills, or feed-in tariffs for the generation of electricity from waste incineration.

Often these measures allow for the collection of revenue. How this revenue is used can be important in setting the right incentives for waste reduction and responsible waste management.

5.1 Waste tariffs

In most countries, the collection and treatment of municipal solid waste are locally organized by the municipalities, either through public or private waste management service operators.

On the revenue side, the costs of waste management may be either paid from the general municipal budget or passed on to the citizens, through either a local waste tax or user charges of tariffs for waste management services.

Depending on how these charges are calculated, they can be further divided into the sub-categories:

- Flat rate user charges:
 - Specifically, to cover the costs of waste management services.
 - All users pay the same amount independent of the quantity or quality of waste.
- Service-unrelated variable-rate user charges:
 - Variable rates unrelated (or indirectly related) to waste quality/ quantity.
 - Rate based on property tax, water or energy consumption, income tax, number of dwellers).
- Service-related variable-rate user charges (unit-pricing):
 - Vary with the amount or quality of waste generated, thus creating an environmental incentive for waste reduction and better separation.
 - A representative example of this branch is the PAYT system.

Experiences with waste charges

Albania

From the administrative point of view, the country is organized in 61 municipalities that have been established with the law 115/2014 "One the Administrative and Territorial Division of Local Self-Government units in the Republic of Albania" which constitute the first tear of local self-government and 12 regional councils standing at the second – lower tear and composed from constituting municipalities.

Municipal Solid Waste (MSW) management is defined as an own municipal function by the law 139/2015 "On local self-government". Municipalities have been assigned with the authority of calculating the cost of the service and they have the decision making competence, upon defining the size of the service charge – tariff and the mechanism of billing and collection, an authority which is given to the municipal council by the law 68/2017 "On local self – government finances".

Application of the waste charges

The law on local self-government finances is supported by a Decision of Council of Ministers (DCM) 319/2018 associated with an instruction on cost calculation of the MSW management services with a specific annex dedicated to "Models for calculation of MSW management tariffs". The model encourages establishment of a combined variable non related tariff setting system with respect to the principles of: (i) Cost coverage; (ii) Polluter's pay; (iii) Equality; (iv) Transparence, and (v) Simplicity.

The Model is based on the combination of data to include: (i) the number of household members; (ii) property surface, (including yard surface for houses); (iii) distance from the center of the city. Similar data are required for other user categories including businesses and institutions.

The model has been designed as an instrument to advances the idea for the level of impact on waste generation reduction and recovery of costs for MSW collection and disposal.

While some of the municipalities have found the instruction useful with regard calculation of service costs, application of variable tariff setting model has been found rather difficult to apply due to the amount and accuracy of data it requires, which has limited the use of the relevant DCM only to the cost calculation model.

In concrete terms, all municipalities still apply a "flat charge system" not necessarily related to any particular incentive but rather to recover as much as possible from the rendered costs.

Referring to data of 2019⁷, at the average country level, municipalities apply a tariff equal 1,457 ALL/HH/Year equivalent with 12 Euro/HH/Year with the highest values (Municipality of Tirana) equal 4,500 ALL/H/Year equivalent with 37 Euro/HH/Year and the smallest as low as 100 ALL/HH/Year equivalent 0.8 Euro/HH/Year (municipality of Tepelena).

Some of the municipalities apply differentiated flat rate charges for urban and rural areas; to mention for example municipalities of Lezha applying 3,000 ALL/HH/Year or the equivalent of 24 Euro/HH/Year in urban areas and 1,800 ALL/HH/Year or equivalent of 15 Euro/HH/Year in rural areas; similarly are doing the municipality of Korca applying 3,900 ALL/HH/Year or equivalent of 31.7

⁷ Ministry of Infrastructure and Energy, Sector of Waste Management Programs, 2019

Euro/HH/Year in urban areas and about 1,500 ALL/HH/Year or equivalent of 12 Euro/HH/Year in rural areas

Collection of charges is carried out based on various models and experiences; a group of municipalities have transferred collection of MSW charges to Water and Waste Water Utilities, while most of them, especially medium and small size municipalities carry tariff collection through their local tax and fee departments. The first group of municipalities exercises a better economic result as compared to the second group. The average rate of tariff collection at country level stands at about 59.6 % with some municipalities achieving 99 % (the case of Permet municipality) some other even 0% (such as the case of Kurbin but not only).

According to data released from INSTAT, in 2019 the service is provided to 87.9% of population, though improvements have been evidenced as compared to 2018 with an increase of about 22% at the country level, still MSW collection service coverage lags behind the total coverage.

Bosnia and Hercegovina

In accordance with the General Peace Agreement for BiH, signed in Dayton on 21 November 1995, Bosnia and Herzegovina (BiH) consists of two entities: Federation of BiH (FBiH), Republika Srpska (RS). Moreover, on 5th March 1999, the Brcko District of BiH (BD) was formed as a third separate administrative unit under exclusive sovereignty of the State.

In FBiH, the municipalities (and the Canton in case of Sarajevo Canton) are responsible for the creation of financially sustainable waste management systems. The municipality (and/or the Canton) might buy equipment or subsidize directly the waste collection company by taking over payments wholly or partly for operations of landfills, sorting lines, gate fee at regional landfills, etc.

In FBiH, the Law on Waste Management (Official Gazette of FBiH, no. 33/03 and 71/09) establishes a general framework for all aspects of solid waste management in FBiH, primarily: Waste management planning (competencies, roles and responsibilities of authorities, types of planning documents, permitting, financial guaranties, etc.); Responsibilities in waste management (generator responsibility, seller responsibility, responsibility of generator and holder of waste).

Meanwhile, in the Republic of Sprpska, currently enforced Law on Waste Management (Official Gazette of the Republic Srpska, number 111/13 and 106/15) regulates waste management planning on the fundamental principles laid down by the EU legislation. In order to establish a functional waste management system, a series of by-laws that need to be harmonized with EU legislation should be adopted, as well as developing and strengthening institutional capacities.

In both cases the municipalities are responsible and the authority of calculating the cost of the service and they have the decision making competence, upon defining the size of the service charge – tariff and the mechanism of billing and collection.

Application of the waste charges

In the case of FBiH the tariffs are the main revenues for collection, transport and disposal of waste. Various calculation methodologies are used to establish the tariff and consequently the tariff varies between the municipalities. Tariffs might be based on m² of usable surface, fixed amount per person per household, fixed amount per household, number of waste removals, etc. An overview of tariffs in various municipalities is given in Table A4-1.

The weighted average tariff/year for the served households is 52 euro/hh/year or 57 euro/ton (incl. VAT) assuming a family size of 3.09 persons (Census 2013) and a waste generation rate of 0.8 kg/cap/day or 0.9t/hh/year. While the average income of the households in 2019 was 501 euro/month. It can be concluded that the average tariff for waste management was amounting to 0.5% of the spendable income, while international norms indicate 1-1.5%, as is the case in most EU member states. The average tariff collection rate is 87% and in reality, it might be difficult to increase this percentage as approximately 18% of the population lives below national poverty line (460 euro/month)⁸.

Municipality	Tariff rate	Amount/hh/y	Fee coll. rate %
Zivinice	6/m	72	82
Zepce	0.14/m²/m	126	
Zavidovici	0.12/m²/m	108	98
Visiko	3.51/person/m	130	
Srebrenik	0.095/m²/m	86	76
Sarajevo	$0.11/m^2/m + fixed 1.06/m$	112	81
Sanski Most	10/hh/m	120	85
Lukovac	7.9/hh/m	95	92
Konjic	$0.1/m^2/m + fixed 1.5/m$	108	
Kupres	2.34/person/m	87	
Kljuc	2.5/m + 2.3 person	115	97
	/m		
Kiseljak	1.88/person/m	68	84
Doboj-Istok	4/m(2 removals) 7/m(4	48	
	removals)	84	
Busovaca	6/8/10/m	72/96/120	
Banovici	2.05/person/m	74	
Gracanica	8/hh/m	96	100
Zenica	$0.1/m^2/m + fixed 3.5/m$	132	80

Table 1: Waste charge and collection rate in Federation of BiH (BiH)

Tariffs for household type waste from the commercial and institutional sector are substantially higher than for households. In general, these tariffs are also based on m² and the amount depends on the type of activity. Proposals for new tariffs are prepared by the waste collector considering the cost developments. Tariff calculation guidelines are not available. The calculations are checked by the Municipal Department for Communal Affairs and subsequently submitted to the City Council for approval. However, in many cases the tariffs have not been increased for many years. In the tariff calculation, all operational and amortization costs should be included covering collection, transport and disposal. However, there is no legislation or guideline on the methodology to calculate the tariff. Currently all services are subject to 17% VAT both for the households and for the commercial, industrial and institutional sector. The companies have to transfer the VAT to the State Tax Department on basis of invoices issued and independent if the waste generator is paying the invoice.

Meanwhile, in the FS, The principle revenues for collection, transport and disposal of waste from households are the tariffs. Various calculation methodologies are used to establish the tariffs and consequently the tariff varies between the municipalities. Tariffs might be based on m² usable surface,

⁸ www.data.worldbank.org

fixed amount per person per household, fixed amount per household, number of waste removals, etc. An overview of tariffs in various municipalities is given in the following table.

Municipality	Tariff rate	Amount/hh/y1	Fee coll. rate %
Bijeljina	0.118/m²/m	106	65
Banja Luka	0.138/m²/m	124	92
Prijedor	0.145/m²/m	130	97
Mrkonjic Grad	0.129/m²/m	116	
Celinac	0.2/m²/m	180	79
Vlasenica	0.14/m²/m	126	70
Pale	0.22/m²/m	198	70
Gradiska	0.16/m²/m	144	87
Gacko	0.17/m²/m	153	98

Table 2: Waste charge and collection rate in Republika Srpska (BiH)

Proposals for new tariffs each year are prepared by the waste collector on basis of the costs of last year and any cost developments. The calculations are checked by the Municipal Department for Communal Affairs and subsequently submitted to the City Council for approval. However, in many cases the tariffs have not been increased since many years and the political will to increase the tariffs is rather low.

Tariffs for household type waste from the commercial and institutional sector are substantially higher than for households. In general, these tariffs are also based on m^2 and the amount depends on the type of activity. The tariff including VAT for the commercial, industrial and institutional sector in Prijedor is 2.75 times higher than that for households.

Greece

In Greece the waste charges are levied - as part of a general municipal tax - through household electricity bills. The waste levy is regulated by Law 25/1975 (Government Gazette A 74), amended by the laws of 429/74 (Government Gazette A 235), 1080/1980, Article 5 (Government Gazette 246/A/22-10- 1980), and 4555/2018 Article 185 (Government Gazette 133A), which states that "The single fee for cleaning and lighting shall apply to any property within the administrative districts of the municipalities and shall be exclusively intended to cover all costs relating to the provision of waste collection and management services, street lighting, squares, and all other public spaces, as well as any other service provided by the municipalities (...)".

Under Article 185 of the 2018 amendment, the municipalities are entitled to set general and special rates defining the implemented levy of each property for waste management. The levy is determined by multiplying the registered surface area of the residence with the general rates such as type of property (residential, non-profitable/charity, commercial), and any special rates the municipality might deem to apply to specific types of residences, considering economic and environmental factors.

For example, in Attica, housing multiplying factors range from $1.02 \notin m^2$ in Moschato to $2.94 \notin m^2$, in Filothei (Aftodioikisi, 2018). In the municipality of Thessaloniki, it varies from 1.30 to $1.72 \notin m^2$ for the B and A bands, respectively. Zone A includes all real estate outside Zone B, plus all buildings that have at least one facade on its streets, and the squares through which the roads pass these, irrespective of the entry point of the building. Zone B is residential. For retail stores, it ranges from 2.62 to 4.30 $\notin m^2$ for the B and A bands, respectively (Thessaloniki, 2019).

A house of 160 m2 in Corinth municipality, about an hour outside Athens, can expect to pay around 61.50€ in municipal charges every two months, for example. Water and sewerage charges are billed

separately by the municipality (Irish Times Newspaper, 2019).

The system is sufficient on the basis that these revenues cover the total cost of the municipality's waste management provision (Laws 1080/1980, Article 17, and 1828/1989, Article 25).

Kosovo

Currently, Kosovo has 38 municipalities, 1,467 settlements in which 1,780,021 live in an area of 10.896 km. Law Nr. 03/1-040 on local self-government provide the legal status of municipalities, their competencies and general principles of municipal finances, organization and functioning of the municipal bodies whereas the Law No.03/1-041 on administrative municipal boundaries set the basis for the local government organization. The Law on Local Self-Government provides three (3) types of municipal competencies: own competencies, delegated powers and enhanced competences, among which management of municipal waste is defined as an own function of municipalities.

Fee collection for the waste collection service is a problematic issue which determines to a certain extent the quality of service delivery by operators, as a result of poor fee collection at the country level. The low level of collection, except for being a consequence of non-payment by citizens, is also the result of the lack of a complete database of clients. Updating the client database is essential in order to have all clients who use this service included in the payment system.

Application of the waste charges

Kosovo applies a unit-based waste collection charge. Initially (2011) this charge was set by the Water and Waste Regulatory Office (WWRO) which was in charge of municipal waste tariffs. The household charge set by WWRO was unified for the whole country at the value of 4.5 Euro/household/month and collection was mandated to service operators.

Since 2011, WWRO has handed over the waste regulation mandate to municipalities and the Ministry of Environment and Spatial Planning (MESP) respectively based on the law of local self-governance and the new law on waste.

Currently most of the municipalities apply the same tariff for households as it was set by WWRO, whereas some of the municipalities have diverted tariff collection from operators to the municipalities, to mention at least municipalities of Prizren, Prishtina, Mitrovica South, Mitrovica North.

Collection of revenues for the waste collection service is a problematic issue which determines to a certain extent the quality of service delivery by operators, as a result of poor fee collection at the country level. The low level of collection, except for being a consequence of non-payment by citizens, is also the result of the lack of a complete database of clients. Updating the client database is essential in order to have all clients who use this service included in the payment system.

Kosovo municipalities, respectively RWCs have been struggling with financial sustainability for more than a decade now. The current fee collection rate in Kosovo is not sufficient enough to ensure a financial sustainability of the waste management system. The rate level is a clear indicator of clients' willingness to pay fees for waste collection services and/or the ability of municipalities to modernize and enforce fee payment.

It also provides an excellent opportunity for municipalities to reflect on the quality of waste collection services and therefore increase revenue collection efforts. According to the Municipal Waste Management Status Report (2018) the fee collection rate in Kosovë/Kosovo is 77.9 %. Gjilan/Gnjilane

region has the highest fee collection rate (89.1%), whereas Pejë/Peć region has the lowest one (67.9%).

For municipalities to ensure financial sustainability of the waste management system, they have to proactively engage in setting up an efficient fee collection system. In the last couple of years, some municipalities have taken up reforms and actions in order to increase the fee collection rate. Municipalities of Prizren, Prishtinë/Pristina and Mitrovicë/ Mitrovica, took over the fee collection form the RWCs. In these cases, tariffs fees became a 'municipal tax', allowing for easier enforcement namely through service conditioning.

Montenegro

The waste tariff in Montenegro varies from 0.06 Euro/m2 for households to 0.45 Euro/m2 for legal clients such as businesses and institutions. Howerver the municipality of Herceg Novi for the legal clients applies a tariff for number of containers and it is 28 Euro/container.

Tariff collection rate is still very low. Average tariff collection rate for households is 56.5%. Lowest tariff collection rate is 29% in city of Bar while highest fee collection rate is 80% in city of Herceg Novi. Average tariff collection rate for legal entities is 68%. Lowest tariff collection rate is 40.3% in city of Bar while highest payment collection rate is 95% in Podgorica.

Tariff changes in other cities are minor and do not follow increase of costs for consumables and other materials and changes in amount of waste. In some cities, especially in Podgorica, notable increase in collected quantity of waste did not result in increase of tariffs. According to received information only two PUCs have developed a methodology for tariff setting. Methodology was not provided and is not available publicly.

Serbia

Communal services are regulated in the Law on Consumer Protection from June 2014, primarily in Chapter X - Services of general economic interest, which indisputably and rightly include communal services.

This Law protects the interests of users (1) by mandatory formation of advisory bodies through which consumers are involved in the decision-making process, (2) greater rights in complaints and their resolution, and in the prices of utilities this Law prescribes (3) the obligation of decision makers to "Publicly and in advance informs the consumer about the changes no later than 30 days before the beginning of the application of the changed prices. (Article 88, paragraph 3)".

In the segment of prices and indebtedness of service users, the Law on Consumer Protection prescribes additional obligations to specify invoices (Article 91). Namely, that article states that "the trader is obliged to submit invoices for services provided of general economic interest without delay and within the deadlines that allow that the consumer monitors the realized consumption and indebtedness for the accounting period of maximum one month ", and in the next paragraph that the Merchant is obliged to state in the invoice for provided services of general economic interest the elements that enable the consumer to 1) check and monitor the amount of his indebtedness; 2) gain insight into current consumption in order to check the total consumption according to the provided quality of service".

In Serbia, there are attempts to improve the tariff system for waste management services, but to date no changes have been made. Considering that during the last decade there has not been much investments and renovations of the system, the progress in the terms of increasing the tariff was not even possible.

The lack of development in waste management system in Serbia is evidenced by the fact that in many, mostly rural areas where a third of the population lives, there are still areas not served with the collection service.

Application of waste charge

Waste Management is in most municipalities in Serbia is organized via mixed public utility companies, that aside of waste management perform other tasks as well. So, they are besides municipal budget, these companies also financed by payment for the other performed services. In some 25 municipalities in Serbia, waste management is entrusted to PPP contracts with private companies.

When it comes to households, the tariff is usually calculated based on the square footage of residence premises, but some municipalities also base the tariff on the number of household members and the volume of garbage bins, while there is also an example of combined tariff (fixed part for households, variable referring to members in the households).

Specific problem are legal persons that have higher tariffs then households, in average up to 2.5 time more expensive. There are also examples on lumpsum prices. So, there are several different prices for the same service provided.

The price of communal services is not in direct correlation with the discipline in paying bills and the level of collection. In waste management, the obligatory relationship with users in relation to some other communal services such as water supply or district heating is all the more complicated because these services are difficult to accurately measure and locate on users. Whatever tariff system is applied, there will be a certain level of averaging or spillover of costs from one group of users to another.

The service is not directly measurable and there are several units of measure, so it is not entirely clear to users what they are actually paying when they receive a bill for a waste management service. In Serbia that utility companies are financed, mostly from revenues from services provided, nut from municipal budgets, although there is a common understating that the municipalities are funding them.

With regard to waste management prices, the biggest problem, however, is that they are insufficient to cover all eligible costs from revenues. The prices of basic communal services in Serbia are significantly lower not only in relation to more developed countries, but also in the region. Average price per tone of waste management is ca.28 euros.

The average waste management account participates in the average net earnings in Serbia with only 0.7%. The average monthly bills is ca. 3 EUR, the equivalent price per one ton waste is ca. 32Eur, while the average monthly salary is calculated at 330EUR, thus the possibility for payment is 0.87 %.

In most municipalities in Serbia, the basic unit of measure for the service is the area of residential and business space, and there are municipalities where services are calculated and charged per household member or per family household. Also, in some municipalities (eg Vrbas or Negotin) it was switched to charge by the volume of waste, but that transition, similarly to Croatia, was not as much successful and a value added to the service since the collection of the waste was done by collective bins and there was no way to measure the waste dumped.

Table 3: Approximate monthly waste charge for a three-member household in Serbia

Municipality	Number of	Unit	Price per	Approximate amount of
	inhabitants		Unit	the monthly bill for a
				three-member
				household

			(V.	AT excluded)
Beograd	1,283,783	m2	0.038	2.27
Novi Sad	301,968	member	1.202	3.61
Niš	257,867	m2	0.047	2.82
Kragujevac	177,468	m2	0.038	2.28
Čačak	115,337	m2	0.044	2.66
Pirot	57,911	m2	0.037	2.24
Aranđelovac	46,079	m2	0.041	2.44
Požega	29,488	m2	0.084	5.04
Vrnjačka Banja	27,332	m2	0.030	1.78
Mali Zvornik	12,496	m2	0.053	3.17

Also, in several smaller municipalities, services are charged according to the register household regardless of the number of members (Secanj, Svilajnac), and there are examples of combined tariffs (eg Trstenik) where each household pays a certain fixed amount, which is then increased by the variable part calculated depending on of the number of members of that household.

The usable area of residential or commercial space as a basis for the calculation of the service is still represented by most of the municipalities in Serbia. All service measurement units that have been applied have shown certain advantages, but also disadvantages. The biggest problem is poor registry records, which means that many consumers are either not included in the billing system at all or have unrealistically lower debts. It happens that the billing system simply does not cover all users. It happens that the billing system simply does not cover all users. It happens that the billing system simply does not cover all users. In the collection segment, there is evidently indiscipline in Serbia in the payment of utility bills, which is not decreasing primarily due to inefficient legal protection of utility revenues. More than 60% of users do not pay their bills on time, and one third of users do not pay them at all or pay them with a large delay and by force.

In addition, the policy of low prices has been pursued for decades. Today in Serbia, utility companies are incapable of investment, so the question is how much the waste management system could be improved even if capital investments were financed from pre-accession EU funds or other non-refundable sources.

The tariff is collected via bills sent to the household addresses, or the companies, where in most cases it is combined with other communal services, but there are also examples where there are separate bills for waste management. They can be paid directly to the PUCs, banks or post office.

Box 2: Foreign experience with waste charge

The Netherlands diftar (DVR) Scheme

In the Netherlands, municipalities have responsibility for setting MSW fees, with the fee-setting approach varying across the country. Fees can be a fixed amount, set according to the size of the household, or based on the volume of waste (the diftar scheme). In 2013, 53% of municipalities used a levy based on the household size, 40% used the diftar approach and only 7% charged the same rates to each household. Use of the diftar system has expanded steadily, up from only 13% of municipalities in 1998. Municipalities use a number of different approaches in calculating the differentiated tariff, with the size of waste bins, the frequency of collection or the amount of unsorted waste often providing the basis for fee setting.

The performance review suggests that the diftar approach has been more efficient and more environmentally effective, with separate collection much higher in areas where a diftar is in place (60%, compared to as low as 7% in areas where a different fee setting approach is used).

Evaluation of the waste charge

When assessing the impact of current waste charge system, we find out that:

- Form the economic and revenue aspect, regardless the value of the charges or the rate of collection, none of municipalities are able to ensure full cost recovery of MSW management service delivery, basically nor is it serving to the purpose and in respect to the fulfilment of legal requirements. The charges are partly passed to the citizens through the user charges and partly are covered by the municipal budgets therefor they do not provide for any incentive and do not transmit any message to the user's behavior;
- From the environment point of view, though improvements have been evidenced, still MSW collection service coverage lags behind the total coverage, since a substantial increase of the service charges is required to ensure full service coverage and waste treatment; nor it incentivize user's to reduce waste generation or any other operation with regard separation at source and waste reduction.
- Increase of charges is very often subject of political debate to make acceptance rather difficult as it depends on the partisan decision making of municipal councils, therefor adjusting the national based regulations strengthening their implementation to avoid partisan decision making is necessary.
- Social effect; flat rate charge tent to be progressive and it do not differentiate for the social and economic conditions of households or other user categories, therefor charging the same financial burden despite the waste generation which is very often subject household size and business and so on, as well as convenience to user's incomes and consumption patterns; hence leading to a situation, where poorer households pay a greater proportion of their income, than households with higher income.
- Administrative costs are different depending on the mechanism each municipality is using; for those that collect charges through using Water Utilities, administrative costs are rather low on even inexistent given that such costs are charged with the water service fee; whereas for the other cases, administrative costs tent to be higher, they are very related to the rate collection and usually are covered from other resources of municipal budget.

Waste charge	
Environmental Effects	0
Revenue (Stability)	0
Market effects	+
Social Effects	-
Administrative Costs	++

Table 4: Short description of the effect of waste charge

5.2 Landfill charge

Landfill still remains the common destination and usually the cheapest mode of waste disposal in the short term in comparison to other treatment technologies such as mechanical biological treatment (MBT) and/or incineration.

Recent EU 28 experiences and new policies enshrined in the EU Waste Directive have given raise to

adaptation of new reuse-reduce objectives and application of various economic instruments that tent to divert and reduce wastes to landfills. The environmental and social costs of landfilling (for example, greenhouse gases (GHG), air emissions, and leachate production causing air, water and soil pollution) are borne by the general public and the communities neighboring disposal site. These costs are often not considered by local authorities, waste management services, and industrial waste producers when comparing the relative costs of different waste management options.

Different countries apply various charges to include landfill charge and some of them are using "gate fees". While landfill tax tent to incorporate and monetizes these factors into the price of waste disposal, gate fees are set as unit prices per ton of waste disposed mostly to cover operational costs of the landfill operator. The gate fee is subject to variation according to the landfill site used, and to other factors such as available capacity and market variations. Gate fees do not always cover an operators' cost due to the market situation at a given time.

Commonly, the higher the tax rate, the lower the percentage of waste landfilled. Most of EU 28 countries apply landfill tax as an instrument to incorporate covering costs for logistics and landfill operations (maintenance, leachate treatment, etc.), and serves as an incentive to channel MSW towards treatment and recycling alternatives, provided that the fee is sufficiently high to enable the development of other alternatives economically. Netherlands are among countries to apply high landfill charge, leading to make landfilling more expensive than incineration, resulting in increased recycling rates by companies in the service sector.

Experiences landfill charge

Albania

The Government of Albania has adopted the law 10463/2011 "On integrated waste management" as amended with Law no.156, date 10.10.2013. The law is a generic regulatory framework to regulate waste management in the country. The law transposes partially the Directive 2008/98/EC 'on Waste'. A set of DCMs have been issued to enforce the implementation of the law and transpose other directives, to include the DCM 452, dated 11.7.2012 'On waste landfills' which transposes the Landfill Directive 1999/31/EC. The transposition of legal acts is estimated at a good stage but the implementation is still at initial stage mostly due to the high financial costs for the constructions of waste deposit and temporal storage facilities.

Albania has also transposed DIRECTIVE 2000/76/E of 4 December 2000 on the incineration of waste which is transposed in the DCM no. 178, dated 06 March 2012 "On waste incineration".

In 2019, according to the annual report published by INSTAT, the MSW amount generated in Albania accounts for about 1.2 million tons including other type of wastes that are treated the same. Data provided by the Ministry of Infrastructure and Energy indicate that from the total amount generated, about 349,660 tons or 30% are disposed and treated in the existing landfills and the incinerator plant of Elbasan, some 13.4% or about 141,898 tons are untreated, whereas about 818,826 tons are disposed in approved municipal disposal sites and / or part of them are separated for recycling.

 Table 5: Amount of MSW disposed in the existing landfills and incinerator, 2019

Name of the waste treatment facility	Tons/year (2019)
Landfill of Sharrë (Tiranë)	239,142
Landfill of Maliq (Korçë)	29, 670
Landfill of Bajkaj (Delvinë)	16, 309
-------------------------------	----------
Landfill Bushat (Vau i Dejës)	64, 539
Total (Albania)	349, 660

Data from INSTAT report that about 18, 7% of the total waste generated in 2019 are recycled while Albanian Recycles Association (ARA) reports that the recycling level in Albania is at about 10% though none of the informants specify that the sources of waste recycled are separated from the waste generated in the country, and it is unclear if this amount includes imported recyclable waste especially metal scrap.

Application of landfill charges

Sharre (Municipality of Tirana)

Albania has 4 operational sanitary landfills and 1 which under construction that are assigned to cover five waste management areas (respectively landfill of Bushat in the north with the designated area of Shkoder and Lezha Regions, landfill of Maliq in the south – east designated to cover the region of Korca, landfill of Bajkaj in the south designated to cover southern part of Vlora Region and the region of Gjirokaster and the landfill of Sharra in Tirana designated to cover Tirana and Durres Regions and the landfill of Sherishta designated to cover northern part of Vlora Region).

Landfill (by location)Designed capacity
(m3)Gate fee
(Euro/ton as of 2019)Bushat (Municipality of Vau I Dejes)1,000,0008.59Maliq (Municipality of Maliq)1,046,00012Bajkaj (Municipality of Delvine)820,00012.5

Table 6: Current operational and under construction landfills in Albania, 2020.

Sherishte (Municipality of Vlora, under construction)

At least 5 other landfills should be construction each to cover a designated Waste Management Area (WMA), while the whole country is divided into 10 WMA in accordance with the "Integrated Waste Management Strategic Policy Document and National Plan 2020-2035" approved with a DCM, No. 418, dated 27.05.2020, and "National Sectorial Plan for Solid Waste Management", approved by the National Territorial Council with the Decision Nr. 1 dated 13.01.2020

1,800,000

1,000,000

29.5

NA

The landfill gate fees vary from as low as 8.5 Euro/ton (the case of Bushat) to as high as 29.5 Euro/ton (the case of Sharra, Tirane). The landfill operator charges a gate fees which is a unite price per tons of waste disposed by municipalities. Gate fee charges are calculated by the operators of the respective landfills and, depending on the location and the ownership over the shares of the landfill operating companies, are set by either the approval of the municipal councils or the regional councils.

Optimization measures

Albania is in the midst of its efforts to ensure safe and sound disposal and treatment of MSW and other waste categories, while advancing with introducing new techniques and new technologies. Along with improving and enforcing the legislation, introducing more environmentally friendly methods of waste disposal and encourage waste reduction would require substantial interventions along the whole chain

⁹ From January 1st 2021 the gate fee is raised to 13 Euro/ton

of waste management cycle to ensure that waste hierarchy is established.

While country moves towards eliminating all dumping sites and ensuring a safe and environmentally sound disposal of waste, landfill "gate fees" should firstly to "ensure that landfill waste disposal is properly priced so as to reflect its environmental cost", and secondly "to promote a more sustainable approach to waste management in which less waste is produced and more waste is either reused or has value recovered from it".

At a later time when waste disposal and treatment facilities shall be in place as planned in already approved strategy and national planning documents, the country might look towards replacing the "gate fee" system with a combined landfill and incinerator tax system¹⁰ that is set at the national level at the rate that will allow to:

- make investments in alternative non-landfill treatments such as recycling and anaerobic digestion more economically viable, and
- give waste producers a greater incentive to avoid the burden of increased tax on landfilling through diverting waste from landfill and by using separated waste collection services involving waste auditing and separation of waste at source. These will become relatively cheaper, leaving only residual mixed wastes requiring disposal.

Introducing a tax for waste disposed on landfill sites which meet certain environmental standards landfilling and for waste disposed in authorized dumpsites could be an alternative measure; rates of taxes depending on the type of waste disposal facilities should be differentiated with the second category higher than the first one, so that discouraging disposing wastes in authorized and non-authorized dumpsites from municipalities and other private and/public persons. The revenues generated by the landfill and incineration tax are earmarked to promote innovative means of waste treatment, to finance the upgrading of landfills and especially establishing recovery of waste for recycling and composting.

Greece

Landfilling is still dominant – over 80% of municipal waste is disposed of in legal and illegal landfills, an extremely high percentage compared to the EU average of less than 40% (Bipro, 2012). The country has been condemned during the last decade by the European Court of Justice for breaching EU legislation due to the existence of 70 illegal landfills and the lack of restoration of another 223 illegal landfills that have been closed. Since 2015 the Hellenic Republic has been ordered to pay fines of several million Euros per year for these infringements (Watson Farley & Williams, 2015). There are currently no serious economic incentives for households or the industry to reduce the amount of waste generated, since waste charges and landfill gate fees are flat and are not linked to the amount of waste produced. The major reason for this was the perception that the tax would impose an additional economic burden that would be politically hard to tolerate. In compliance with the EU Waste Framework Directive 2008/98/EC, the Greek Government adopted a law in 2012 which required (Article 43) that as of January 2014 organizations or enterprises disposing of untreated waste into landfills have to pay a tax starting at EUR 35/tons, increasing by EUR 5/tons every year up to a maximum of EUR 60/tons (Hellenic Republic, 2012).

¹⁰ See "Experiences with landfill taxes" under the "Economic instruments in the waste management sector; Experiences from OECD and Latin American Countries; prepared by Green Budget G". ermany for GIZ

Based on the fact that more than 500 kg of municipal waste are generated per capita in Greece every year (Eurostat, 2016) and 80% of these quantities are disposed of in landfills, this tax – if passed through to final consumers – would amount to an additional cost of EUR 50-150 per year for each Greek household. However, this tax has not been implemented yet because subsequent laws postponed the start of implementation of the landfill tax until at least 31 December 2016.

In 2012, the Greek government adopted Law 4042/2012, in order to comply with the EU Waste Framework Directive 2008/98/EC, introducing a landfill tax. Starting from 2014, organizations/ enterprises disposing untreated municipal waste into landfills would have to pay a landfill tax, which would initiate at 35 \notin / tonne. The tax was envisaged to raise 5 \notin /tonne annually until 60 \notin /tonne was reached (Hellenic Republic, 2012).

According to Article 43 of Law 4042/2012, all revenues from the landfill tax should be deposited in the "National Green Fund", set up by the Greek government in 2010, aiming to finance waste recovery and disposal projects with the raised funds. Taking into account that the amount of municipal waste generated per year is around 5,450,000 tonne/yr and that around 80% of this waste is disposed of in landfills (Eurostat, 2017), a landfill tax of 35€ to 60 € per tonne might lead to revenues of approximately EUR 140 to 250 million euros per year (Zachariadis, 2016).

However, landfill tax has never been implemented; instead, since its adoption in 2014, a series of legal suspensions occurred (Laws 4257/2014 – Article 77, Legal Act Government Gazette A'182 - Article 77, 4447/2016 – Article 35, and 4508/2017 – Article 39).

The primary reason for these postponements (commonly shared by the government and other stakeholders) is that the tax would impose an additional economic burden that would have a negative financial and political impact. Local authorities (municipalities and communities) that must pay the landfill tax would have to choose between:

- forwarding this tax through to households and enterprises, thereby risking aggravating political reactions or even social equity problems; or
- absorbing the costs of this tax without changing the waste charges to individuals, which would nevertheless put financial pressure on local authorities.

Besides, an increase in the cost of official waste disposal might also lead to a rise in illegal dumping, thereby causing failure to achieve both environmental and revenue-raising objectives

The landfill tax (law 4042/2012, Article 43) was permanently repealed and replaced by an environmental levy, the "Circular Economy Levy" (CEL), under Law 4609 in 2019 (Government Gazette 67/A/3-5- 2019). According to this, the cost of waste management is calculated annually by the solid waste management organization ("FoDSA", in Greek) and distributed respectively to the affiliated municipalities. In case municipalities or legal persons act as FoDSA, then the cost will be included in their annual budget.

The CEL starts at 10 €/tonne and increases gradually per 5 €/tonne until it reaches a maximum cost of 35€/tonne. The levy shall be recalculated every 6 months, accounting for (Law 4609/2019 – Article 55):

- actual quantities of the untreated waste being landfilled;
- calculated reduction regarding the progression of the RWMP foreseen actions for treatment facilities (if applicable);
- the capacity of the aforementioned facilities.

This levy can be reduced if the FoDSA implements the foreseen by the Reginal Waste Management Plan (RWMP) actions. The reduction starts at 35% if an environmental impact assessment permit is

issued for an MBT or/and bio-waste facilities, and a 70% if there is a contract for the construction of an MBT. If all the foreseen projects from the RWMP are in an operational stage, no levy will be issued to the FoDSA (Law 4609/2019).

Currently, there are FoDSAs such as the ones in West Macedonia and Epirus, which are in accordance with the current EU Directives on waste treatment. However, most of them are either partially implementing the EU requirements (e.g., only landfilling) or in some instances not in line with the EU and national policies by using illegal dumpsites for the disposal of their waste (RES-EIA SA., 2018).

Kosovo

The landfill charge in Kosovo is applied for household waste and hazardous waste (animal and animal by-products and medical waste). The fee are flat rates, but there is no data on how they are calculated. The fee is charged per ton of waste being landfilled. The revenues from the charge serves only for landfill maintenance, but not for further capital investments. The charge is seen as not sufficient for environmentally sound landfill, having in mind that the landfills are overloaded and have exceeded their capacities.

Application of landfill charges

When it comes to waste disposal fee, there is an ongoing debate going on between KLMC and MESP, as according to the first institution this fee is very low. The charge for a long time has been \in 5.31 which was not enough to cover the costs of companies. All four landfills were funded by European Development Agency and as a conclusion the international experts considered that the price level for the landfill fee should be \in 8.60, excluding VAT. But, unfortunately, with the increase in the level of waste generation, the main shareholder, i.e. WWRO, reduced the tariff to \in 5.26 regardless of the factors affecting the additional costs required to treat the waste generated. KLMC, has filed a complaint for the increase of this fee.

Optimization measures

The KMLC has not received any answer for their complain. According to the Policy Unit and Monitoring of Publicly Owned Enterprises, department in MED, stated that due to the standards of low in Kosovo and social welfare, this fee was not increased because in addition to increasing spending collection companies, consumers would suffer the most. In addition, it was claimed that government should cover other expenses of KLMC.

However, to prevent illegal dumping, penalties should be applied by inspectors in terrain. Although the law on waste approves penalties, MESP and municipal inspectorates do not have sufficient personnel and resources, while the monetary value charged to the natural person or legal is very low. Since most municipalities do not have a functioning inspectorate for waste, MESP strongly suggests the establishment of such entities.

Montenegro

In present most of municipal solid waste collected in Montenegro is landfilled. The are currently two sanitary landfills under operation one in the Bar Municipality, Mozura Sanitary Landfill, and one in the Municipality of Podgorica, Livade Sanitary Landfill. In addition to these two sanitary landfills there are 19 non-compliant landfills currently under operation, out of which two of them are only for construction

and demolition waste (Kotor – Dragalj and Budva – Brajici). Out of the rest of 17 non-compliant landfills, eight of them are controlled (i.e. fencing, partially levelling of the disposed waste). Out of the eight non-compliant controlled landfills, two of them are also engineered (meaning that they have fence, gate, scale and some civil works have been carried out before disposal of waste, like embankment preparation, access road etc.).

These two non-compliant engineered landfills are

- Niksic Mislov Do; and
- Andrijevica Suceska.

There are some 13 non-compliant landfill that are currently closed out of which five have been rehabilitated.

The rehabilitated non-compliant landfills are:

- Bar, Café (Volujica);
- Kotor Tresnicki Mlin;
- Kotor Lovanje III;
- Kotor Lovanje II;
- Tivat Lovanje II.

There are currently four projected sanitary landfills, being in different status of designing and funding availability for construction:

- Niksic Budos;
- Herceg Novi Duboki Do;
- Bijelo Polje Celinska Kosa;
- Berane Vasov do.

There is no information on the landfill charges in Montenegro.

Serbia

MSW is disposed to landfills and dumps. Considering the development of modern landfills, it is estimated that 25 per cent of MSW is disposed to sanitary landfills, 45 per cent is delivered to registered municipal dumpsites and 30 per cent ends up in uncontrolled dumpsites. There are 164 registered landfills and dumpsites and 4,481 illegal dumpsites according to the National Waste Management Strategy for the period 2010–2019 (although SEPA states 3,300 illegal dumpsites). About 70 per cent of all active dumpsites do not meet basic operational standards and are not stipulated through spatial planning documents, and no EIA of them has been developed; nor do they have the necessary permits.

Modern sanitary landfills are emerging as a result of international projects and private investments. The number of sanitary landfill sites is increasing. For example, A.S.A. has operated a landfill at Kikinda since 2008 and Lapovo since 2009. PWW developed a landfill at Leskovac in 2011. Several regional sanitary landfills were developed: the landfill in Sremska Mitrovica opened in 2014, and since 2013 there has been an operational regional landfill in Pirot. Several other regional landfills are under preparation, but completion of a national network of sanitary landfills is not expected in the near future. SEPA is developing a national database of disposal sites. Each municipality is requested to submit a report on disposal sites in its territory. This report includes information not only on site identification, size, volume and type of waste, but also on potential impact on human health and the environment.

Currently, there is no tax on landfill, but such a tax has been proposed by the Waste Management Strategy "Possibilities to develop and implement a fee system for landfilling and/or additional fees for

waste management was elaborated in section 8.4.3. The idea that stands in the system of differentiated, growing fees was developed in Czech and Slovakia in the nineties. Certain specificities of such a system may vary, but they are basically composed of two parts:

- Basic tariff per tonne of waste landfilled in licensed landfills (A-tariff), and
- Additional fee based on fee per tonne landfilled in licensed landfills that are not harmonised with technical requirements that are applied to new landfills (B-tariff)."¹¹

Box 3: Foreign experience with landfill charge

The final disposal tax in Norway

Czech Republic A landfill tax applies, with a low tax applied to general waste and a significantly higher tax imposed on hazardous waste.

Estonia Waste disposal tax applied to landfilled waste, calculated according to the hazard level.

Hungary Tax is applied to landfill of MSW and industrial waste.

Israel Levy applied to landfilled waste, calculated according to the type of waste.

Japan A landfill tax on industrial waste is applied in 27 (of 47) prefectures, and one city.

Korea Currently local authorities can impose a charge on landfilling to cover operational costs and post-closure costs. The new Framework Act on Resource Circulation will apply a disposal tax to waste that is landfilled or incinerated without energy recovery.

Netherlands Disposal tax applied to landfilling and incineration of waste, calculated according to the treatment method and type of waste.

Norway Final disposal tax was applied to incineration 22 and landfilling of waste, with taxes differentiated according to the environmental harm.

Poland Tax applied to landfilling of waste.

Slovenia Tax applied to landfilling of waste.

Evaluation of the landfill charge

When assessing the impact of current waste charge system, we find out that:

• From an environmental and social impact point of view, landfilling of untreated waste is generally associated with a number of negative environmental and social impacts: emission of greenhouse gases; the danger of leakage of hazardous substances; negative amenity effects for neighbouring communities, and negative environmental effects arising from transport.

Moreover, landfill charge are environmental incentive taxes with the objective to change the behavior of producers and/or consumers. The intended environmental effect is to influence individual choices through the price mechanism. By increasing the price for landfill disposal relatively to other methods of waste treatment and disposal, municipalities and waste management operators are incentivized to opt for increased recycling and reuse. As municipalities and private

¹¹ The National Waste Management Strategy for The Period 2010-2019 ("Official Gazette of RS" no. 29/2010)

operators can be expected to pass the additional costs on to the consumer, these are also incentivized to increase waste separation and decrease overall waste generation (if unit-prizing schemes are in place).

Accordingly, the environmental effectiveness of landfill charge is determined by the degree to which they prove to be capable to divert waste streams away from landfill (and incineration) and towards increased recycling. The expected functional chain is that, through the increase in prices for landfill depositing, the relative prices of incineration and especially separated collection and recycling decrease so that the separate collection and recycling of recyclable waste becomes cost efficient for municipalities.

- For the revenue generation aspect, the actual charges hardly cover the costs of the waste treatment, very often reducing the quality of service by leaving many phases uncovered such as might be leachate and/ or gas control. For this reason, even if there is a positive revenue out of these charges, it is still largely underestimated;
- From political and institutional point of view, although landfills are built with financing from state budget and sovereign loans, their administration is carried out at either municipal or regional council level, therefor administration is still confusing, while an institutional standard is gradually raising based on municipal cooperation grounds, recently supported from the law on local self-governance. In one side citizens are not aware for the momentary benefits and when landfilling becomes problematic, while on the other side policy makers are reluctant to enforce higher charges and therefor political acceptance is of rather high sensitivity.
- As regards **administrative costs**, fees are collected from landfill operators, therefor does not represent any burden to the municipalities, nor they represent any cost for the citizens.

• Market impact is rather weak; no market competition is affected by landfill gate fees. *Table 7: Short description of the effect of landfill charge*

Landfill charge			
Environmental Effects	+		
Revenue (Stability)	+		
Market effects	0		
Social Effects	-		
Administrative Costs	++		

5.3 Incineration taxes

Thermal treatment, especially incineration, has been widely applied in the EU, as an effective way of achieving the EU recycling targets (Williams, 2005). For the past decades, Waste to Energy (WtE) technologies have been extensively applied throughout Europe as an accepted and successful process for treating MSW, especially in the West and Northern Europe (Williams, 2005).

Notably, there is a distinction in the charges concerning incineration, as in landfill charges (Bio Intelligence Service S.A.S, 2012):

- incineration tax: a tax imposed by a public authority for the treatment method of MSW through incineration; and
- gate fee: a charge on the provision of service from the operator of the facility (incinerator).

Several opinions have been expressed on the costs of an incineration tax. Mainly the tax is focusing on the exhaust gas treatment and the externalities of MSW incineration. Nonetheless, several actors agree that an incineration tax should be lower than the landfill tax, so as to avoid reverting back to landfilling (Eunomia, 2011).

The advocates of an incineration tax firmly support that the imposition of such a tax shall have the same effects as the tax on landfilling, and therefore incentivize Member States to minimize incineration of their waste. To be more precise, the tax would force countries, profoundly dependable on incineration, to increase their efforts on enhancing other treatment methods which are higher in the waste hierarchy (Dubois, 2014).

So far, there is no flat tax on incineration at EU level. Several Member States (MS) have adopted incineration taxes based on the environmental externalities of incineration plants, such as the emissions of air pollutants other than GHG (GIZ, 2015).

Experiences Incineration taxes

Albania

As earlier is described, the Government of Albania has adopted the law 10463/2011 "On integrated waste management" as amended with Law no.156, date 10.10.2013. The law is a generic regulatory framework to regulate waste management in the country and recognizes incineration as waste treatment method within and the terms following definitions of waste hierarchy. The law transposes partially the Directive 2008/98/EC 'on Waste'. A set of DCMs have been issued to enforce the implementation of the law and transpose other directives, to include the DCM no. 178, dated 06 March 2012 "On waste incineration", which transposes the DIRECTIVE 2000/76/E of 4 December 2000 on the incineration of waste. The transposition of legal acts is estimated at a good stage but the implementation is still at initial stage mostly due to the high financial costs for the constructions of waste deposit and temporal storage facilities.

Data as reported from INSTAT for 2018 indicate that about 36.558 tons of MSW have been incinerated in Elbasan; whereas this amount has dropped at about 1.744 tons constituting only 0.2 % of the total MSW generated for the same year.

Application of incineration charges

Subsequent to the approval of the DCM no. 178, dated 06 March 2012 "On waste incineration", three incinerators are designed, out of which one has become operational since 2019 in Elbasan municipality and two of other facilities are under construction respectively in Fier and Tirana municipalities. For all three facilities technologies of Waste to Energy are applied.

 Table 8: Operational and designed incinerators in Albania, 2020

Incinerators (by location)	Designed capacity	Gate fee /Charge
	(ton/day)	(Euro/ton as of 2020)
Elbasan (Municipality of Elbasan)	140	NA
Fier (Municipality of Fier)	240	NA
Tirana (Municipality of Tirana)	940-1180	NA

Investment costs of construction and operation of the incinerators are covered by the state budget as two

of the facilities are being constructed and operated under the Public Private Partnership (PPP) contracts, specifically for the case of Elbasan and Fier and concession contract as it is the case of Tirana Municipality. De facto, within next 3 to 5 years Albania shall have three incinerators with a total capacity to vary from 1,320 tons/day to 1,560 tons/day, which amount stands for about 47% of the MSW generated in 2019.

For the case of Elbasan and Fier, once the PPP contracts are over, incinerators shall be transferred to the ownership of respective municipalities, while operational cost are expected to be covered with revenues generated from the energy to be generated and the gate fees as will be charged to municipalities and therefor, transferred to the citizens through the waste collection charges.

The incinerator of Elbasan has become operational since 2016 with PPP contract which will terminate in 2021. Not any incineration charge is yet levied from the operator of the incinerator in Elbasan. Once the facility is transferred to the Municipality, the government will seize financing operation costs of the facility; obviously a charge shall be imposed to municipalities that shall take the waste they collect to the facility. So far, the type and rate of the charge are unknown.

Optimization measures

Currently Albania is coming close to the need for imposing effective regulations for both incineration and landfilling of waste, so that introduction of any economic incentive in the form of taxes or even gate fees shall start to have impact on various aspect to mention especially environmental and social features.

As the country is looking into increasing the MSW diverting in existing and future WtE facilities, an incineration tax would most likely be an additional barrier in the attempt of promoting incineration, along with the political and social acceptance of the process.

A way to adhere to the political opposition would be the implementation of continuous communication and dissemination actions regarding WtE at a national and local level, especially in the areas where such facilities are situated. Open and inclusive stakeholder consultations are essential tools to achieve political and social acceptance.

Principally, the government should ensure the enforcement of EU and national regulations concerning the externalities of the process (prevention of air-pollution), standards for the accepted materials, as well as on health and safety issues that might occur, along with imposing implementation of waste hierarchy in the sight of the concepts of circular economy.

Optimization measures as given for the landfilling should be taken into consideration and in harmonisation when introducing any form of economic instruments for incineration.

Other countries

While the incineration in Kosovo, Montenegro and Serbia is not applied at all and there are no in-country development in this regard, Greece is the only EU member country that is lacking MSW of incineration facilities. Thermal treatment methods have been implemented on agricultural waste, bio-waste, non-recoverable hazardous waste, and medicinal hazardous waste (NWMP, 2015).

The country incinerates 58,000 tonnes per year, according to Eurostat's latest data (Eurostat, 2019), counting with one incineration facility for the treatment of hazardous medicinal waste, while the rest of the incinerated waste is majorly exported to EU incineration facilities (NWMP, 2015).

There is an on-going debate on whether incineration facilities should be built in the country to tackle the vast amounts of landfilled waste. However, due to the recently voted "Cohesion Fund post- 2020"

proposal, from the European Commission (EC), in which the funding of residual treatment facilities would be cut (including incinerators), this option seems unlikely, unless the funding of such a facility would come by the country's own means.

Nonetheless, domestic co-processing facilities (cement and ceramic industries, paper mills, etc.), should be prioritized, as stated in the NWMP. No foreseeable action has been made so far due to the aforementioned social and political oppositions.

Box 4: Foreign experience with incineration charge

The final disposal tax in Norway

Norway introduced a final disposal tax for the landfill and incineration of waste in 1999. Reduced tax rates are applied to incineration with energy recovery and landfills with good environmental practices. Hazardous wastes were initially exempted from final disposal tax to avoid incentives for illegal treatment.

Following a 2003 review that suggested that incineration tax rates did not effectively cover the full environmental costs of emissions from incineration, the incineration tax was based on emissions, rather than amount of energy recovered.

The Norway performance review reported that the tax has decreased the amount of waste landfilled and led to a reduction of emissions from incinerations. Nonetheless, the incineration tax was abolished in 2010 due to increasing exports of waste to Sweden for incineration, where taxes were not in place.

Evaluation of the Incineration charge

- Environmental impact of the incineration at the current situation and relevant charges are quite non-existing. Introduction of an incineration tax currently would have no effect. However, as the country attempts to prioritise the WtE potentials of co- incineration, and divert combustible waste from being landfilled, the imposition of such a tax would be neutral due to the quantities led for incineration, provided that the charge would not exceed the landfill charge.
- The revenue potential from imposing an incineration tax is evaluated low considering that the limited amount of combustible waste to be diverted from landfilling to the incinerators as compared to the designed capacity of the incinerators which are under development.
- Social impact is also estimated low or insignificant due to the low quantities that would be conducted to incineration, at least in the beginning.
- The administrative cost for the implementation of an incineration levy would be comparable to revenue incurred from the imposition of such a tax. The reason would be again the limited quantities of waste that would be led for incineration.
- If the tax rate would be within affordable limits from the citizens at large and that they are becoming aware for the environmental benefits from effective and efficient use of incineration technology, a tax would most likely not be opposed by the public. It is very potential that opposition is posed regarding the process itself rather than the taxation, as previously stated. Certainly, an additional tax that will burden the middle and low- income households would not be readily accepted and, as such, it would be enforced with reluctance by the policy makers.

Table 9: Short description of the effect of incineration charge

Incineration charge			
Environmental Effects	++		
Revenue (Stability)	+		
Social Effects	+		
Administrative Costs	+		

5.4 Extended producer responsibility (EPR) schemes

Extended Producer Responsibility (EPR) is a policy approach under which producers are given a significant responsibility – financial and/or physical – for the treatment or disposal of post-consumer products. Assigning such responsibility could, in principle, provide incentives to prevent waste at source, promote product design for the environment and support the achievement of public recycling and materials management goals. (OECD, 2019)

This policy can be applied for several types of waste streams such as packaging, waste electrical and electronic equipment (WEEE), used tires and oil, batteries, end-of-life vehicles (ELV), amongst others. Even though EPR schemes assess a vast number of waste streams, this guideline will focus on packaging waste due to its impact on the MSW management in Greece.

The role of EPR schemes is to absorb the producer's legal obligation (imposed by the Member States) to meet national packaging recycling and recovery targets. EPR schemes do this by ensuring that packaging waste is collected, sorted, and recycled according to pre-defined targets. This activity is funded by the material-specific fees paid by producers/importers to EPR schemes for the packaging that they place on the national market. These fees are usually charged based on the tonnage (weight) and/or type of packaging the producer puts on the market and, consequently, incentivize material optimization (EUROPEN, 2019).



Figure 6: Deposit-Refund System Application

As shown in Figure 6, industrial stakeholders usually set up Producer Responsibility Organizations (PROs). PROs are collective or individual entities, set up and partially or fully owned by the industry that is liable to participate in such a scheme.

PROs have contracts with the local authorities, to ensure transparency but also services like collection and, in some cases, recycling, with the waste producers, which finance the system, and with waste management companies, which are also connected to the collection and/or treatment schemes. Not all PROs have the same functions. As EPR requirements differ between countries, the role of PROs varies as well.

5.4.1 Pay-As-You-Throw (PAYT) Systems

Experiences with PAYT Systems

Greece

PAYT systems in Greece have only been implemented in pilot programs. The first was in the municipality of Elefsina with the objectives to (Life, 2011):

- develop and implement a demonstration project for the application of such a system in a Greek context;
- create synergies between the national waste management stakeholders to optimize the system; and
- raise public awareness and achieve recycling targets of 20% in packaging waste, 4kg per capita on WEEE, 20% of composting from bio-waste and reduce waste ending up in landfill by a minimum of 20%.

The programme was implemented in an area of 1.500 households, where weighing equipment was purchased and installed on garbage collection trucks. The programme resulted in a diversion of waste of 25.8% from landfill, an increase in recycling up to 56% on packaging waste, a 4.6kg per capita recycling of WEEE, and a composting of organic waste of 17.1%.

Despite the success of the pilot, the programme didn't expand nor continued to be implemented.

More recently, the municipality of Vari-Voula-Vouliagmeni has initiated a PAYT scheme sack-based. The municipality implements the separate collection of five waste streams:

- bio-waste brown bin;
- packaging glass waste "Blue Bells" and door-to-door collection;
- printed paper and packaging paper door-to-door collection;
- metals and packaging waste of beverages and milk door-to-door collection;
- residual (mixed) waste green bin; and
- green waste green points.

The project was financed by the municipality's own resources and the European Interreg Programme. According to a very detailed cost accounting, the total costs for waste management in 2018 were calculated as approximately 7.5 million euros, 75% of the municipality's total budget.

Operational costs for cleaning and recycling services per inhabitant in the municipality amounts to (Vari-Voula-Vouliagmeni, 2015):

- direct costs of 38.36€ per inhabitant; and
- indirect costs of 78.32€ per inhabitant.

Other Countries

According to the law in force Albania, Kosovo, Montenegro and Serbia, all have adopted the law that introduces the principle of "Extended producer responsibility" meaning that producers and owners are obliged to comply with the Law on Waste. However, none of these countries have introduced the PAYT as an economic instrument for the waste management, although the experience from other countries have shown that it reduces the amount of waste that is deposited in the landfill as well as it increases the recovery rate of recyclable and biodegradable waste.

Box 5: Foreign experience with PAYT system

The PAYT system in Argentona, Spain.

On the first of February of 2010, the PAYT system was launched, after a three months' period of trial. It was implemented for two fractions: packaging waste and the rest of waste that cannot be recovered (refuse).

The charge is divided into two parts, a general part (95 \in / year for residents and for commercial activities depending on the businesses category) collected by bill and a variable part charged in the price of the standardized waste bags of obligatory use, both for homes and shops. These standardized bags have the logo of the council. Waste recovery was 65% in the period February-March 2009 (without PAYT system). In the same period in 2010 (implementation period) waste recovery increased to 66.9%.

Waste decreased by 7% during the trial period compared to the rest of the year (January-September 2009). During the implementation period (February-April 2010) waste was reduced by 6%. Due to the reduction of waste, treatment costs decreased by approximately 3%. Cost savings in Argentona so far exceed the implementation costs of the PAYT system.

Evaluation of the PAYT System

When assessing the impact of current PAYT system, we find out that:

- On the environmental point of view, even though there is an imminent risk of increased illegal dumping due to the higher associated costs, as the implementation progresses and the citizens become more engaged, this shall be stabilized at minimum levels.
- From the economic point of view, revenues in PAYT systems can be identified as service revenues, the fees addressing the households and commercial businesses, the by-product revenues derived from the sales of marketable product s such as recyclables and compost, the tax revenues from the imposed tax indirectly linked to waste management and as well as the expected savings of landfill charge.
- With the implementation of a PAYT scheme, the main incentive to citizens is the tax reduction in waste charges. With awareness increase, this system shall have a positive social impact.
- The political accept of the PAYT system will show that initially, the citizens will certainly perceive a new system with discontentment and mistrust, especially due to its complexity in comparison with the existing one. Opposition on such a scheme may be offered by commercial

producers and especially restaurants and hotels, who are generating large quantities and will be called upon paying accordingly in comparison to a traditional flat rated system.

• The implementation of a PAYT system has higher administrative costs compared to a traditional waste management system. Usually, not only additional personnel are required, but also investments in waste bins, trucks, changes in logistic schemes, and billing form. In some cases, the adoption of a PAYT system resulted in administrative cost savings, only where most of the per forming tasks required for the implementation of the system were already been applied (EPA, 2016). In Greece on the other hand, such an implementation would result in higher administrative costs.

Table 10: Short description of the effect of PAYT System

PAYT Sytem		
Environmental Effects	++	
Revenue (Stability)	++	
Market effects	-	
Social Effects	+	
Administrative Costs		

5.4.2 Taxation on raw materials and products

Taxation of specific types of products with high environmental impact is a method used in order to minimize their use and optimize their production. The main goal is to internalize the environmental costs of such products and to deterrent their demand by the consumers.

In 2015, the EU adopted the 2015/720 Directive, amending the packaging Directive 94/62/EC, emphasizing the EU's introducing measures for the MS to reduce single-use thin plastic bags consumption. In 2019, the EU has progressed further by adopting the Single-use Plastic Directive (2019/904) under the Circular Economy package attempting to tackle plastic pollution and to reduce the impact of certain single-use plastic products.

Experiences with taxation in raw materials and products

Albania

The law No. 178/2013 on some changes on the law No. 9975, 28.7.2008 "On National Taxes" the plastic packaging taxes was set at 100 ALL/kg and applies both to import and to domestic production. Only for the domestic recycling industry, the packaging tax generated by the recycling of locally generated plastic waste is set at 50 ALL/kg.

In date, 03.12.2018 has entered into force the law No. 93/2018 on some changes on the law No. 9975, 28.7.2008 "On National Taxes". The law No. 93/2018 entered into force the value of the fee and the subject is changed. The tax on plastic materials / plastic articles and plastic packaging imported in Chapter 39 of the Nomenclature is 35 ALL / kg, with the exception of raw materials in primary forms, imported into headings 3901 to 3914 of the Nomenclature. In addition to Chapter 39, this tax applies even where the plastic material covers at least 51 % of the total packing volume packing other imported products classified in chapters, headings, subheadings and other tariff codes of the Combined Nomenclature of Goods.

The tax of raw material in primary forms imported in headings 3901 to 3914 of the Nomenclature and used for the production within the country of plastic products is 25 ALL/kg.

In case of import, the tax on plastic materials, raw materials in primary forms for the production of plastic materials, as well as plastic packaging, is calculated and collected by the customs administration at the time of import.

For plastic packaging, which are exported and for which the tax was paid at the moment of their import/production, the customs administration reimburses the amount of the tax paid. Refunds are made according to the procedures set out in the Minister of Finance's instruction.

The new law does not apply any tax for the plastic material that comes from the recycling activity in the country. This means that the recycling industry is favored in this regard because previously the tax on the plastic material that came from recycling activities in the country was 50 ALL / kg, now it is 0.

In both cases, the tax is collected by the customs administration at the moment of import, when imported, from the tax administration in cases where the glass and plastic packaging are produced in Albania.

Actually, the product tax on glass and plastic products goes to the Ministry of Finance and Economy, which then becomes a part of the state budget and does not go directly to fund environmental programs.

Referring to the data from Bulletin of Foreign Trade, March 2018, General Directorate of Customs Fiscal Analyses Unit the import of plastic and product of plastic for the year 2016 is 16.919 t and 2017 is 17.626 t. By making a general estimation, we can say that the value obtained from the tax on plastic products is per 2016 - 1.691.900 All and per 2017 - 1.762.600 All.

The Taxes on glass and plastic packaging are applicable for both importing and domestic products:

- The plastic packaging tax is 35 ALL/kg.
- The plastic materials that are under the headings 3901 3914 of the Nomenclature the tax is set at 25 ALL/kg.
- For the domestic recycling industry, the tax for the packaging products coming from the recycled packaging waste in Albania is 0 ALL/kg.

Greece

Before 2017, no applicable taxation on single-use products, plastic, or otherwise was imposed. This changed when the Greek government passed the 4496/2017 law under which an environmental levy of $\notin 0.03$ ($\notin 0.04$ including VAT) would be imposed from January 2018 with a prediction to increase the rate the following year to $\notin 0.07$ ($\notin 0.09$ including VAT). The generated amounts from the tax are being deposited in an exclusive account of the HRA, which is used to fund environmental actions through the municipalities, such as the free provision of re-usable bags to citizens.

Additionally, the law banned the oxo-degradable (thin) plastic bags, which are considered responsible for the dispersion of micro plastics and therefore contribute to environmental degradation. The law was supposedly, temporarily, excluding kiosks and food markets from the imposition of the tax; however, this exemption hasn't yet been removed.

With the imposition of this environmental levy, according to the Research Institute of Retail Consumer Goods (IELKA), the use of thin plastic bags has been significantly reduced by 80.3% from 2017 to 2018, in supermarkets and by 54% of the total reduction of thin plastic bags per capita (IELKA, 2019).

These encouraging results are showing a change in consumer's behaviour, and an increase in generated revenues as a result of the implementation of the law. However, the legislation offers some loopholes which are being exploited by certain chain supermarkets.

The law imposes the environmental levy on thin plastic bags with a thickness between 15μ m and 50μ m. Additionally, the law states that plastic bags of 50μ m to 70μ m are subjected to pricing and not to the environmental levy, meaning that these bags would be charged to the consumer but not as part of the levy, and thus the raised amount would not be attributed to the Green Fund, but it would be included to the supermarkets profits. Moreover, the law states that biodegradable plastic bags would be excluded from the environmental levy.

Within this frame, certain chain supermarkets have chosen to introduce and promote thicker plastic bags as re-usable or bio-degradable plastic bags, not paying the environmental levy and increasing their revenues. These types of phenomena are resulting in the mistrust of the citizens in the imposition of any type of environmental levy.

As of the date of this report's release, no taxation on single-use plastic products and beverage containers are under consideration.

Serbia

According to the report on Economic Instruments for Environmental Protection in the Republic of Serbia (2018) the state budget revenues from the environmental services amounted to RSD 7,795.54 million or approx. \in 66,468,841 (0.15% of GDP). These include fees for: pollution of the environment; for ozone depleting substances and plastic bags; for emissions and disposed waste (60% of the fee amount), as well as fees for products that become special waste streams after the use thereof, and for packaging waste (100% of the fee amount).

Tax on plastic bags

A charge for the import or domestic production of plastic (polyethylene) bags was introduced in autumn 2010 and applied as from 2011. Those subject to the tax are the legal persons that import or produce these bags in the domestic economy. The tax base is the weight in tons of the bags placed on the domestic market (table 3.1).

The tax rate in 2013 amounted to some $\in 8.80$ for biodegradable bags and some $\in 177$ for other plastic bags. Introduction of the tax was delayed due to the lack of adequate domestic technical capacities for determining the chemical characteristics of plastic bags, i.e. whether they are biodegradable or not. The introduction of the tax was controversial and accompanied by strong resistance of enterprises to paying. Total payments due in 2011 amounted to some 7.7 million dinars ($\notin 0.07$ million) but only some 30 per cent was paid. In 2012, some 30 enterprises disputed the amount of this tax.

Charges on products that after use become special waste streams

The system of pollution charges was enlarged in 2010 by the introduction of charges on products that, after use, have become rapidly increasing special, and often also hazardous, waste streams. Those subject to the tax are the domestic producers or importers of these products, which comprise motor vehicle tyres, products containing asbestos, batteries and accumulators, mineral and synthetic oils and lubricants, electric and electronic products, and motor vehicles.

The tax base is either the number of units of the corresponding product (such as tyres) or another measure (such as kg for batteries). Rates per unit are indexed to annual consumer price inflation. In principle, charges imposed are to cover the costs of management of the corresponding waste products. Taxes have to be paid when these products are imported or first placed on the domestic market. The taxation system is part and parcel of a system designed to collect the corresponding waste products with the aim of treatment and/or recycling, with specific medium-term targets for collection and recycling rates.

These functions have been entrusted to specialized waste operators that have obtained a corresponding license from the ministry in charge of environmental protection. These charges on special waste streams were complemented by charges for packaging and packaging waste, which have to be paid by companies that place packaging or packaged products on the domestic market. The collection of packaging charges started in 2012.

Other countries

As for **Kosovo** and **Montenegro** the taxation on raw materials and products are not applied, although in the specific law of customs in these countries product charges exist, which are levied to enable producers and importers to fulfil the waste management duties related to their 'producer responsibility'. However, the range of these charges are not identified.

Box 6: Foreign experience with tax on raw materials

Various countries apply product taxes to products that generate waste. The most widely taxed product categories include: batteries; packaging and (plastic) carrier bags; miscellaneous disposable products, such as tableware; fluorescent lamps containing mercury; and electr(on)ic appliances. South Korea is probably the country with the widest range of waste related product charges, which cover, among others, products such as chewing gum, diapers, and plastic construction materials and furniture.

It is not always clear if the product tax is intended as an incentive for waste reduction (by reducing demand for the taxed product and stimulate the sales of alternatives that are less waste-intensive). It seems that in most cases the primary function is a revenue-raising one, either for the general budget or to raise funds for the management of the waste from the taxed product. Only in a few cases (such as the Irish tax on plastic bags) a clear incentive function is explicitly stated as well as empirically observed in practice.

Evaluation of the taxation on raw materials

When assessing the impact of current system for the taxation on raw materials, we find out that:

- On the environmental point of view, the taxation on raw materials and packages and materials that produce waste at the end of live should lead to the improvement of the product's design. Besides, it should affect waste generation and contribute to a transition towards less consumption by minimizing the utilization of single-use packaging products and promote the broader use of reusable/refillable products. In this aspect, the effect would be very positive.
- From the economic point of view, even though revenue generation should not be the primary goal, it will undoubtedly be considered as such. If implemented correctly, the instrument should offer a consistent initial revenue, which would gradually reduce until it stabilizes.
- From the social point of view, an indirect impact on income distribution may rise on producers, fillers, importers, retailers, and the waste management industry. This tax would probably be passed on to the consumers. These, on the other hand, have the option of choosing products without taxation. The impact, in this case, would be neutral.
- The market would probably be impacted since the Costs would most likely be passed onto the consumers, affecting the competitiveness and leading to a favorable choice over the non-taxed materials (e.g., glass over plastic). This will bring for th opposition from the producers. Taxation shall be discussed with the involvement and contribution of the industry.

Table 11: Short description of the effect of taxation on raw materials

Taxation on raw materials			
Environmental Effects	++		
Revenue (Stability)	++		
Market effects	-		
Social Effects	++		
Administrative Costs	0		

5.4.3 Deposit - refund systems

A **deposit-refund system** is essentially a combination of a tax and a subsidy. The consumer of packaging/container materials is given the right to a refund if he/she returns the waste product to the seller, i.e., to an authorized recycling/reuse point. For this right the consumer may have had to pay a formal deposit at the time of the purchase or have paid a higher product price. The superficial evidence drawn from schemes that have actually been implemented (most for beverage containers) suggests that DRSs may impose net costs on society. Actual schemes have led to only relatively small reductions in the volume and cost of waste disposal and litter reduction cost savings have usually been experienced but their magnitude as varied quite widely and such schemes have also been expensive to operate and have pushed up product prices. DRS may be market-generated systems or schemes imposed by law. This latter category of government-initiated systems can operate with or without the govern

Deposit refund system is an additional payment that the customer pays for the packaging above the price of the product when he buys a product. The packaging price is specified in the invoice that the customer receives at the time of purchase and he has the right to be reimbursed at the time the item is returned to the point of purchase without damaging the packaging. This system aims to encourage the recycling of packaging waste, to reduce the amount of waste deposited in municipal containers and to discourage the dumping of packing materials. With the application of this system, citizen awareness is increased because the materials they previously considered like waste now have value. The quality of the packaging material recycled with this system is higher since it is collected differentiated from other household wastes. This system can be applied to certain types of packaging such as PET bottles, aluminum cans, glass bottles etc.

Deposit refund system has been implemented in various EU countries to reduce the amount of packaging waste. Deposit refund can be mandatory, schemes imposed by the government, like in Denmark, Germany, Sweden and or voluntary industry initiatives like in Norway, Netherlands and Finland.





Experiences with deposit - refund systems

Currently in Albania there is not any application of Deposit Refund Systems (DRS). The recyclable material from plastic packaging is collected from waste pikers that work for the recycle companies or from the informal sector directly from the municipal waste containers. Albania does not apply separate waste collection and has a problem in managing waste because still an important quantity of waste ends up in uncontrolled in deposit sites.

A DRS could a possible solution to reduce the amount of plastic packaging waste that is deposited in the municipal waste collection system; to reduce the amount of waste deposited in dumpsites and landfills, improve recycle, to raise awareness for the damage that packaging waste cause to the environment.

INSTAT data for 2019 indicated that organic waste represent the main component of MSW and other similar wastes standing for about 58.4 % of the total; the rest of the waste or about 41.6% constitute the other type of waste of which the highest percentages are composed from plastic (undivided) 9,%, paper/cardboard 7.6 %.

Waste Component	% of components	Amount (tones)
Organic	58.40%	634,628
Paper & cardboard	7.60%	82,589
Plastic	9%	97,802
Glass	3.20%	34,774
Metal	1.80%	19,560
Wood	2.40%	26,081

Table 12: Composition of MSW. Albania, 2019

Textile	5.60%	60,855
HHZ	0.10%	1,087
WEEE	1.40%	15,214
Inert	7.70%	83,675
Medical	1.10%	11,954
Other	1.70%	18,474
Total	100%	1,086,692

Source: INSTAT	" "Waste Management Report	t", 2020
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Optimization measures

For applying a DRS in Albania we have to refer to experiences for other EU member states. From different application we have focused on three models: (i) model of Finland, which has a voluntary deposit refund system, (ii) model of Sweden that has a centralized mandatory deposit refund system; and (iii) Germany that has a decentralized mandatory deposit refund system.

DRS can be applied through:

Reverse Vending Machines, which are digital collection machines for packaging from PET bottles, glass bottles or aluminum cans. The consumer places in the machine the empty packaging and the machine returns the value of the packaging that the consumer paid as a deposit fee at the time of the purchase, or the consumer receives an invoice with the amount of money that he should get from the retailer.

Manual collection, the consumer brings back to the retailer the packaging waste and is refunded the value of the packaging that the consumer paid as a deposit fee at the time of the purchase.

Despite the type of the system, the scheme might be operated either from a private operator under various forms of contracting, or it can be set on voluntary bases. The introduction a deposit refund system could solve the problem of data collection and management regarding packaging material. Depending on what kind of packaging will be included in the deposit refund system, Albania may benefit better data:

- on quantities of material entering the country used in food and beverage industry: glass, metal, plastic
- on typologies and quantities of packaging entering the country and then placed on the market;
- on packaging waste quantities and types.

Introduction of the RDS scheme in Albania could lead to several positive aspects:

- High Recycling rate
- High quality of recycled material
- Reduction of the impact of packaging waste on the environment
- Better data management for waste materials waste
- Direct fulfilment of Producer's Extended Responsibility

Application of a DRS in Albania would initially require a feasibility study that should contain a multi criteria analysis for the selection of the most viable DRS scheme, and based on that, revision of the legislation and further development as required to enforce its application.

Greece

DRS is the voluntary system implemented by the Athenian Brewery under the Heineken N.V Group, the biggest producer and importer of beer in the country. The corporation implemented the system as part of the company's policy of sustainable development by applying a refunded deposit of 0.14ε per 0.5L refillable glass bottles. According to the company's annual report, the firm is reusing 120 million glass bottles, which accounts for 60% of its sales (Athenian Brewery, 2019).

Montenegro

The extended responsibilities of producers and importers, with regards to specific waste types, are not being fulfilled to a satisfactory standard, in accordance with the 2011 Law on Waste Management, and neither are the requirements to register the amounts of special wastes collected and treated, due to the lack of consistent inspection of producers and importers. The bottling companies Trebjesa, Coca-Cola, and Knjaz Miloš-Montenegro have joined forces to create a producer responsibility scheme, Recomont, in which they each hold an equal share.40,41 Recomont launched the Every Can Counts programme in 2013 which is aimed at encouraging the recycling of beverage cans in two coastal municipalities, Tivat and Kotor.

No information could be obtained about the overall performance of Recommondant it is not clear whether the members of the organisations are still obliged to pay the required frees for placing packaging on the market. When prices for secondary material are high enough, separate collection of packaging wastes increases as private enterprise start to collect more materials. However, there is no formalised and widespread system for the collection of packaging materials at present.

Serbia

According to the Environmental Protection Agency of Serbia, the introduction of a deposit system in Serbia could be considered to be implemented, which should regulate the return, i.e. collection of packaging and its disposal. To date the study of which model of waste management, i.e. which type of deposit scheme has been developed and is being publicly discussed.

The introduction of the deposit system, first of all for cans and packages, should encourage citizens, as well as the businesses, to protect the environment. Also awareness of citizens about the importance of such waste collection should be raised, but also the economy should be prepared for this type of waste disposal, which is becoming a practice in many EU countries. Any decision regarding the deposit system will be made in cooperation with the business sector which will help to strive forward the system, but it will be guided by the national interests of environmental protection.

The German Deposit-Refund System

In Germany, a deposit-refund system on reusable beverage containers has been in place for a long time. The deposit is passed on from the beverage companies to wholesale and retailers. The retailer sells the beverage including deposit, the consumer then receives a refund upon return of the container. Finally, container and refund are passed down the chain in the other direction. For reusable beverage containers the deposit depends on the size of the bottle and is between 0.08 and 0.15 Euro per item.

An additional deposit refund-system on one-way beverage containers was introduced in 2003. For one-way beverage containers, distributors have to raise a deposit of 0.25 Euros for each container of volumes ranging from 0,1 to 3 liters and take back the bottle from end users in exchange for a refund of the same amount. Containers for fruit-juices, milk and spirits (other than beer) are exempt from this regulation. For collection and recycling, retailers have to make individual contracts with recycling companies. The background of the introduction of this second deposit-refund system for one-way beverage containers was that the German packaging decree (Verpackungsverordnung) of 1991 foresees a mandatory deposit to be introduced when the percentage of reusable beverage containers of overall sales drops below 72 per cent.

This was the case in 1997 for the first time and did not change in the following year. Consequently, the German government finally introduced the deposit-refund system on one-way beverage containers in 2003. The original mandatory deposit comprised several critical exceptions. Taken into consideration some of the former problems, an amendment came into force in 2006 mandating a deposit of 0.25 Euro on all one-way drinks packaging subject to the mandatory deposit and containing between 0.1 and 3 litres. The objective is, to make one-way bottles less attractive in comparison to reusable bottles as the latter are considered to have a significantly less severe

Evaluation of the Deposit-Refund System

When assessing the impact of current system for the DRS, we find out that:

- The objective of deposit-refund systems is to create incentives for consumers to separate and return recyclable products. This way deposit-refund systems aim at supporting the increase of recycling quotas and as a side-effect also at reducing the amount of littering. Generally speaking, deposit-refund systems can have a significant impact on collection and recycling rates, if the products or materials concerned are charged with a sufficiently high deposit. For bottles, of course, this does not have to be very high, as long as a certain level of convenience is provided for consumers to return the products.
- Deposit-refund systems are non-revenue instruments. Accordingly, there is no revenue effect for the state.
- Since deposit-refund systems are cost neutral for consumers, and the administrative costs for retailers are too small to have significant effects on product prices if passed on to consumers, (negative) social effects of deposit-refund systems are not significant. However, it should be mentioned that the introduction of the DRS can open up small scale additional income opportunities for poor people.

Table 13: Short description of the effect of DRS

Deposit-Refund System			
Environmental Effects	++		
Revenue (Stability)	0		
Social Effects	++		
Administrative Costs	0		

5.4.4 Subsidies and fiscal incentives

Governments frequently use incentives and subsidies to induce certain behaviors among firms and households. In particular, subsidies and tax exemptions are often used to promote investment in improved waste management infrastructure. A number of countries also used product taxes and advanced disposal fees as a part of EPR schemes. Other incentives reported in the performance reviews included measures taken by (usually national) governments to encourage certain practices at other levels of government. These include financial payments to municipalities and treatment facilities that improve the efficiency of waste treatment, subsidies for prefectures that implement a waste management plan, and the payment of "host fees" to local authorities that agree to host a landfill in their municipality, calculated per ton of waste disposed of at the landfill.

Other incentives include payments to firms or households to encourage recycling and sound waste management practices. These include preferential interest rates for firms from the national development bank according to the firm's environmental rating, which included waste management practices as a factor, subsidies for home composting in the form of reduced waste collection charges or reduced-price compost bins, and the consideration of cash incentives for households who recycle waste in cities with particularly low recycling rates. Another system is the deposit fee system for construction and demolition waste.

Product fees are a further economic instrument that may be used in waste management to shift incentives away from products that are more likely to result in environmental damage, such as increased waste. These can be seen in Hungary, where environmental product fees are applied to a number of products including tyres and single-use plastic bags. The performance review noted that these fees have been important in reducing the use of plastic bags. However, there is a risk that these fees can be used as revenue-raising instruments without environmental benefits. This was also observed in the performance review for Hungary, where it was noted that the recent extension of the fees to new product categories, such as photovoltaic panels, may undermine environmental objectives. It was also noted that a relatively limited portion of revenue from product fees (between 22% and 31%) is used for end-of-life product management costs.

Experiences with subsidies and fiscal incentives

Albania

Currently albania has not set in place a stable subsidy and economic incentive for the waste management serctor. However, according to the National Sectorial Plan for Waste Mangement in Albania, in some cases, municipalities have received support from the national level and/or donors regarding the financing of advanced waste management infrastructure (eg regional sanitary landfills).

In most cases, support is received for investment financing, while municipalities must take care of operating costs

and reinvest. Only in a few exceptional cases provided subsidies for operating costs, as for example (for a certain period) for the operation of the new Sanitary Landfill in Bajkaj (south of Vlora district).

Financing of waste incinerators, which are already under construction or under construction different planning deviates greatly from previous projects. For example, for the Elbasan incinerator, the contract (concession) is concluded between the Ministry of Environment and the Private Party, while the municipality of Elbasan is not committed for any financial obligation, neither for investments nor for operating expenses.

Overall, it is currently unclear:

- What are the costs of municipal waste management covered by the national level?
- What are the eligibility criteria to qualify for these subsidies?

Greece

Council Regulation (EEC) No 880/92 of 23 March 1992 on a Community ecolabel award aimed at establishing an optional eco-labelling scheme, whose goal was to: a) promote products with reduced environmental impacts during the entire life cycle of the product, and b) provide consumers with better information on the environmental impact of products. "Within five years of the entry into force of this Regulation the Commission shall review the scheme in the light of the experience gained during its operation [and] propose any appropriate amendments to this Regulation" (Article 18).

By virtue of this provision, Regulation (EC) No 1980/2000 of the European Parliament and the Council of 17 July 2000 on a revised Community eco-label award scheme was published. Then, for reasons of clarity and security law, Regulation (EC) 66/2010 of the European Parliament and the Council of 25 November 2009 on the EU Ecolabel entered into force.

The EU Ecolabel scheme is part of the sustainable consumption and production policy of the Community, which aims at reducing the negative impact of consumption and production on the environment, health, climate and natural resources.

There are several countries which have a legal basis for ecolabel as an incentive for the reduction of waste being disposed in landfill or/and for the protection of environment while Greece is applying it. But, information on types and the impact of incentives and subsidies applied for the ecolabel is not available and would require a further exploration of the potential.

Kosovo

The Government of Kosovo, notable the Ministry of Local Government Administration (MLGA), has developed a Performance Based Grant Scheme (PBGS) with the objective to recognize the need for local good governance to develop sustainable municipal services. This Performance Grant (PG) is conceived to serve as a suitable and systemic mechanism aimed at incentivizing municipal solid waste management performance, named "PG Clean Environment".

The PG Clean Environment is based on best practices: The Clean Environment Race (CER) supported by the Ministry of Environment and Spatial Planning (MESP) in cooperation with the German Development Cooperation (GIZ) on the one side and the MLGA's own performance based grant scheme (PBGS) supported by Helveta's Decentralization and Municipal Support Project (DEMOS) on the other.

Application of subsidies and fiscal incentives

The PG Clean Environment targets all 38 municipalities of the Republic of Kosovo. In line with the spirit of the Paris Declaration and the Busan Partnership Agreement: ownership by the government; enhancing alignment to government policies; increasing harmonization among donors and managing for results. The PBGS fund is core element of an integrated approach to capacitate municipalities for better service delivery. Its purpose intends to incentivize municipal performance in service delivery and to provide funds for infrastructure investments. It consists of various merged financial resources from Ministries and development partners.

CER finalized its first round in December 2016. The MLGA/DEMOS PBGS (with the title "Performance Grant Good Governance" or PG GG) started its first round of disbursements in 2018. Both performance grants are now jointly implemented under the roof of the Performance Grant for Municipalities

The first annual round of currently planned three rounds is based on performance as documented in the calendar year 2018. It provides the definition and scoring of indicators against which the performance of Municipalities is measured, the monitoring and reporting procedures and the mechanisms of fund allocation in relation to the respective performance. It is supposed to serve as an instructive guide for the participating Municipalities. The overall, comprehensive description of the rules and procedures of the Performance Grant are described in the document: "Rules of the Performance Grant for the fiscal year 2019" as issued by the MLGA and MESP.

Figure 8: Overview of Performance Grant for Municipalities

Performance Grant – 1 PG – 2 funding channel



The assessment of the municipalities is based on four areas and a maximum number of 100 points can be obtained under the PG Clean Environment. The points are distributed as in the following areas:

- Municipal Good Governance (Indicators and their results transferred from the PG GG)
- Compliance with legal and policy framework on solid waste management
- Solid Waste Management Service access, quality and efficiency
- Circular Economy development

Serbia

According to available data and in accordance with the revised method of calculating the indicators for 2018, allocated incentives, subsidies and donations for environmental protection amounted to a total of RSD 3,032.8 million, which equals to 0.06 % of GDP, and is a decrease compared to 2017, when it amounted to RSD 3,400.01 million.

The largest incentive funds were awarded by the Ministry of Environmental Protection - Green Fund of the Republic of Serbia for the reuse and utilization of waste (recycling industry) in the amount of RSD 2,187 million or € 18,648,795 which comprises 72.08% of the total allocation.

Moreover, a scheme, which was established in 2010, provides financial incentives designed to support the reuse, recycling and use of waste as secondary raw materials and for energy production, based on the Regulation on the amount and conditions for the allocation of subsidies (OG 88/09, 67/10, 101/10, 86/11, 35/12). The scheme covers waste tyres, waste electrical and electronic equipment (WEEE) and waste oil, as well as batteries and accumulators.

The subsidies are awarded to the corresponding specialized waste operators per kg or ton of the collected waste products. The incentive system also comprises a subsidy for the domestic producers of reusable plastic bags (with handles), with a higher subsidy for plastic bags that contain biodegradable additives. The waste collection operators for waste electrical and electronic equipment (WEEE) can benefit, moreover, from special incentives for investments in equipment for the disposal of this kind of waste. The amount of the investment subsidy depends on the size (small, medium, large) of the enterprise.

The scheme was based on the Law on Environmental Protection Fund (OG 72/09, 101/11). It was also operated by the Environmental Protection Fund, which selected waste operators based on public tenders and also paid the corresponding subsidies. The scheme has been managed by the ministry in charge of environmental protection since the abolition of the Fund at the end of September 2012. The new legal base of the scheme will be provided by the (still draft) law on amendments to the Law on Environmental Protection.

Box 8: Foreign experience with subsidies and economic incentives

Support for the circular economy: The Eco Town Programme in Japan

Financial support from the government budget to activities that contribute to waste reduction and better waste management is given in a variety of ways across countries. Examples include direct grants (for R&D or investments), conditional money transfers to lower authorities, 'soft' loans, and tax reductions.

Japan has financed several programmes that implement the national 3Rs (reduce, reuse and recycle) approach. The Eco Town Programme combines town planning and community recycling and outreach with financing for recycling investments: it has subsidized private companies to put in place innovative recycling projects for MSW and for key waste streams including organic waste, plastic waste and Waste Electrical and Electronic Equipment (WEEE) (government support covered on average about one-third of investment costs). The programme has encouraged other companies to make recycling investments in the designated Eco Towns.

Evaluation of the Subsidies and Financial Incentives

When assessing the impact of current system for Subsidies and Financial Incentives, we find out that:

- From the environmental point of view, the subsidies and financial incentives seem to be in conflict with the 'polluter pays principle'. However, they can still play a useful role in waste policy, because of positive externalities (e.g. innovation). Also it provides means and tools to modernize the waste management system.
- In relation to the revenue generation criteria, the subsidies and financial incentives are not very related although the subsidy and financial incentives enable the operators to expand their service, meaning that more clients will be willing to pay for the service due to modernization and enhancement of the service delivery (i.e. the case of Kosovo).
- As for the market effect the subsidy and the financial incentive do not have big impact.
- As for the social effect, the subsidies and financial incentives (i.e. the case of eco-label in Greece) generate strong incentives to make people behave in a more environmentally friendly way, and to move waste streams to higher levels in the waste hierarchy.
- Subsidies and financial incentive is an instrument that is well-known for high administrative costs given resources from different sources should be used for the system.

Table 14: Short evaluation of the effects of subsidies and financial incentives

Subsidies and Financial Incentives				
Environmental Effects +				
Revenue (Stability)	+			
Market effects	0			
Social Effects	++			
Administrative Costs	-			

6 Comprehensive analysis of the effectiveness of economic instruments

Table 15 below, summarizes the analysis conducted in the above chapters on the use of specific economic instrument and their impact in environment, financial, market and social as well as the impact on administrative costs.

	Environment al Impact	Revenue Generation	Market Effect	Social Effect	Administrativ e Costs
Waste charge	0	0	+	-	++
Landfill charge	+	+	0	-	++
Incineration charge	++	+	?	+	+
PAYT System	++	++	-	+	
Taxation on raw materials	++	++	-	++	0
Deposit-Refund System	++	0	?	++	0

Table 15: Short Evaluation Summary of Economic Instruments

Subsidies and Fiscal			0		
Incentives	+	+	0	++	-

The analysis for the effectiveness of each economic instruments between each other cannot be performed due to different purpose, however the combination of these instruments provide the best results as for the protection of the environment on one hand, as well as for the financial and social benefits on the other.

7 Summary and Recommendations

7.1 Waste charge

Summary

- As user charges, municipal waste charges are an important contribution to realizing the polluter pays principal and strengthening municipal waste management services.
- Municipal waste charges have the potential to create incentives for waste minimization and better separation if they are implemented as unit-pricing models, where the rate varies with the amount of waste collected by individual household. Generally speaking, the strength of the incentive increases (1) with the rate of the charge, and (2) with the accuracy with which the charge is adapted to the volume collected.
- The most significant impact on waste generation and separated collection is coming from weight-based systems of user charges. However, collection and billing systems needed for weight based charging are comparably complicated and costly.
- Container subscription systems, where households can choose from different size containers create a modest incentive for waste minimization and better separation but are comparably easy to manage.
- Waste charges are regressive in nature as long as they are not based on income or property value. If they are calculated on the basis of actual collection costs for individual neighborhoods like for example in Serbia this may actually lead to situations where the poor pay more for waste collection than the wealthy because waste collection may be more time-consuming and costly in poorer neighborhoods.
- Political acceptance of waste charges is generally high as waste management is widely considered a public good. Nevertheless, there is frequent opposition when charges are raised. Unit pricing systems have the merit that they offer considerable transparency and are perceived as fair.

Recommendations

- If there is political will to raise municipal waste management charges in order to strengthen cost-recovery, the introduction of unit-pricing models is favored as those models not only best realize the polluter-pays principle but also generally enjoy a higher acceptance in comparison with flat or unrelated variable charges.
- In order to minimize the risks associated with the potential revenue volatility of unit-pricing

models, hybrid systems should be introduced, where a basic charge covers the structural costs of waste management services and an additional variable charge covers the operational service costs.

• Waste charges should be complemented by some element to cushion the regressive effects of the charges. In hybrid models, the basic charge can be adjusted to household income or property value. Another option are exemptions for poorer households.

7.2 Landfill Charge

Summary

- Landfill charge are an effective instrument to correct market failures and help internalize external costs, which are caused by the dumping of waste through methane emissions, potential leakage of fluids, amenity costs to neighboring communities and increased transport. Through the price signal, landfill charge can contribute to diverting waste streams away from landfills to recycling.
- The effectiveness of the environmental incentive of landfill charge depends on the tax rate. Rates are very different in those countries surveyed for this report. Most of these countries introduced landfill charge together with command and control instruments like landfill bans for certain substances or more ambitious landfill standards.
- Like with most environmental taxes the administrative costs for landfill charge are comparably low.
- In the experience of EU countries, in order to internalize these external costs, landfill / incinerator gate fee charges are replaced with a landfill tax (or an incinerator tax) which is a levy on the disposal of waste in landfill sites is a possible instrument to internalize these external effects in the prices for waste disposal and to create incentives for waste producers and waste management operators to use more environmentally friendly methods of waste disposal, to recover more value from waste, for example through recycling or composting and, ultimately, to reduce waste generation.
- Since over a decade, most of the EU 28 countries¹² have seized from charging a gate fee for waste disposal in a landfill, rather, they have been replacing it with a landfill tax. Current EU policies encourage even higher landfill charge versus incineration taxes, so that to discourage landfilling of waste and influence user's behaviour towards more waste reduction through waste recycling and composting.

Recommendations

• Landfill charge can be implemented as a revenue generating tool creating additional incentives to support command-and-control regulation concerning landfilling, like for example mandatory landfilling and recycling quotas. In these cases, landfill charge create incentives to potentially outperform the quotas mandated by law.

¹² Economic instruments in the waste management sector; Experiences from OECD and Latin American Countries; prepared by Green Budget Germany for GIZ,

- Tax rates should be significantly high in order for the tax to create meaningful incentives.
- As for the case of the countries that do not apply a landfill tax, it should be established and be played by the landfill user.
- The introduction of landfill charge should be integrated in a holistic EFR approach, where the introduction of this tax is coupled with a parallel reduction in social security contributions.
- Confronted with the problem of unregistered dumpsites, a regulation making the owner of the land responsible for paying the tax in the case no operator can be identified seems to be practicable.

7.3 Incineration charge

Summary

• No incineration charges are currently imposed in Albania. Cost of operation for Elbasan and later for the Fier incinerators shall be covered by the state budget until both facilities are transferred under ownership of respective municipalities. While the incinerator of Tirana municipality is being developed under a concession contract; once the facility is in place and operational, the operator with the approval of the municipal council shall come with a unit price gate fee for the services rendered.

Recommendation

• Principally, the government should ensure the enforcement of EU and national regulations concerning the externalities of the process (prevention of air-pollution), standards for the accepted materials, as well as on health and safety issues that might occur.

7.4 Pay-As-You-Throw (PAYT) System

Summary

• Municipalities that have already initiated a pilot programme should be encouraged to continue implementing and expanding it further until a 100% coverage is reached. At the same time, communication and dissemination actions should be intensified in order to ensure citizens engagement.

Recommendations

• A gradual establishment of PAYT systems at a municipal level should be established, taking into consideration the conditions and specificities of each municipality and according to international experiences (e.g., Salacea, etc.). The implementation should be planned effectively and with cautiousness as to avoid illegalities such as the disposing of waste from one region to neighbouring regions without similar charge systems.

7.5 Tax on raw materials

Summary

• Taxes on primary raw materials can contribute to a reduction in the use of such materials and to a better competitive position of recycled or renewable alternatives. In order to be effective, they should be part of a coherent policy package and should be designed so as to minimize possible unintended side effects. Likewise, product taxes will need to address the environmentally undesirable properties of the product as closely as possible.

Recommendations

• Taxes on raw materials can support the objectives of a circular economy by encouraging more efficient resource use. Where rates are low, however, these taxes will mainly have a revenue-raising function. Based on the research it needs to be highlighted that the opportunities to increase the tax on raw materials will promote the resource efficiency

7.6 Deposit-refund Systems

Summary

- Deposit-refund systems have proven very successful in increasing collection and recycling rates for the products which they are covering.
- Deposit-refund systems usually address specific products and usually burden the administrative costs on the industry. This increases the probability of significant lobbying and resistance from the affected industry.

Recommendations

• Deposit-refund systems are effective instruments to increase the recycling rate for specific products. They should be increasingly introduced not just for packaging waste but also for other products where the risk for and/or costs of illegal dumping are significant (e.g. batteries).

7.7 Subsidies and Financial Incentives

Summary

• Subsidies for activities that promote waste prevention may be justified where they lead to behaviors that generate financial savings to the public purse and/or environmental benefits which exceed the level of subsidy being granted. Also the subsidy scheme of the municipalities with high performance will enable these municipalities to increase their performance even more due to the increased infrastructure

Recommendations

• It is recommended that the subsidy and the financial incentives toward the local government units also toward certain categories of businesses and private operators should be introduced to scale up the incentivation and to enable the collection and the treatment of a larger specter of waste streams as well as to further expand the waste collection system to areas that this service is lacking.

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Annex: Questionnaire for the collection of information

GREECE

1. What type of waste recovery is used?

Recycling and composting mainly in centralised facilities (MBTs)

Types of economic instruments used:

2. Waste tariff

yes⊠ no □

2.1 Level of application?

National level

2.2 For which category of waste?

All household waste

2.3 How is calculated the tariff?

Under Article 185 of the 2018 amendment, the municipalities are entitled to set general and special rates defining the implemented levy of each property for waste management. The levy is determined by multiplying the registered surface area of the residence with the general rates such as type of property (residential, non-profitable/charity, commercial), and any special rates the municipality might deem to apply to specific types of residences, considering economic and environmental factors.

2.4 How the tariff is collected?

Waste charges in Greece are levied - as part of a general municipal tax - through household electricity bills.

2.5 Addressee of the tariff?

All households and companies.

2.6 Relevant law and regulations?

The waste levy is regulated by Law 25/1975 (Government Gazette A 74), amended by the laws of 429/74 (Government Gazette A 235), 1080/1980, Article 5 (Government Gazette 246/A/22-10-1980), and 4555/2018 Article 185 (Government Gazette 133A),

2.7 Direct and Indirect Economic Impact of Application of Instrument?

The revenues cover the total cost of the municipality's waste management provision (Laws 1080/1980, Article 17, and 1828/1989, Article 25).

3. Landfill fee

yes□ no ⊠

3.1 For which category of waste?

all household waste, hazardous waste, packaging waste, biodegradable waste, etc.

3.2 How is calculated the fee?

3.3 Direct and Indirect Economic Impact of Application of Instrument?

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What is the revenue generated from the fee?

3.4 Direct and Indirect Ecological Impact of Application of Instrument:

Environmental steering effect, e.g. volume of waste generation, recycling rate, pollution, etc.

3.5 General acceptance of the system?

Is the instrument generally seen as successful or are there strong needs for reform or improvements?

* In 2012, the Greek government adopted Law 4042/2012, in order to comply with the EU Waste Framework Directive 2008/98/EC, introducing a landfill tax. According to Article 43 of Law 4042/2012, all revenues from the landfill tax should be deposited in the "National Green Fund. However, landfill tax has never been implemented; instead, since its adoption in 2014, a series of legal suspensions occurred (Laws 4257/2014 – Article 77, Legal Act Government Gazette A'182 - Article 77, 4447/2016 – Article 35, and 4508/2017 – Article 39).

4. Incineration fee

4.1 For which category of waste?

all household waste, hazardous waste, packaging waste, biodegradable waste, etc.

4.2 How is calculated the fee?

4.3 Direct and Indirect Economic Impact of Application of Instrument?

What is the revenue generated from the fee?

4.4 Direct and Indirect Ecological Impact of Application of Instrument:

Environmental steering effect, e.g. volume of waste generation, recycling rate, pollution, etc.

4.5 General acceptance of the system?

Is the instrument generally seen as successful or are there strong needs for reform or improvements?

5. Deposit-refund system

5.1 For which category of waste?

The only applicable DRS is the voluntary system implemented by the Athenian Brewery under the Heineken N.V Group, the biggest producer and importer of beer in the country.

5.2 How is calculated the profits?

The corporation implemented the system as part of the company's policy of sustainable development by applying a refunded deposit of 0.14€ per 0.5L refillable glass bottles.

5.3 Direct and Indirect Economic Impact of Application of Instrument?

According to the company's annual report, the firm is reusing 120 million glass bottles, which accounts for 60% of its sales (Athenien Brewery, 2019).

5.4 Direct and Indirect Ecological Impact of Application of Instrument:

Environmental steering effect, e.g. volume of waste generation, recycling rate, pollution, etc.

5.5 Details on the instrument

yes⊠ no □

yes□ no ⊠

6. Taxation on raw material

yes□ no ⊠

6.1 For which category of waste?

hazardous waste, packaging waste (which category), biodegradable waste, etc.

6.2 How is calculated the fee?

6.3 Direct and Indirect Economic Impact of Application of Instrument?

What is the revenue generated from the fee?

6.4 Direct and Indirect Ecological Impact of Application of Instrument:

Environmental steering effect, e.g. volume of waste generation, recycling rate, pollution, etc.

6. Pay-as-you-throw (PAYT) System

yes□ no ⊠

6.1 For which category of waste?

6.2 How is calculated the fee?

6.3 Direct and Indirect Economic Impact of Application of Instrument?

What is the revenue generated from the fee?

6.4 Direct and Indirect Ecological Impact of Application of Instrument:

Environmental steering effect, e.g. volume of waste generation, recycling rate, pollution, etc.

*Implementation only in pilot areas.

Please provide necessary documents for the above-mentioned information such as strategies, national action plans, studies etc.

Unfortunately, most studies are in Greek language, however please check the GIZ report on Economic instruments and DRS in the following link:

https://www.giz.de/en/downloads/Final%20Report_A2.2_Economic%20InstrumentsDeposit-Refund%20System_20200518_final.pdf
SERBIA

1. What type of waste recovery is used?

e.g. waste deposit, incineration, recycling, composting, Deposit refund systems etc.

At the municipal level, recycling and composting is used at the very low level.

The following table summarizes the main waste treatment facilities in Serbia existing so far¹³:

Type of treatment	Number	Minimum Capacities (t/year)
Industrial installations ¹ with permit for co-incineration	2	~ 300,000
Compliant regional sanitary landfills ²	10	n. a.
Non-compliant landfill sites ³	180	n. a.
Physico-chemical treatment and treatment of waste oils	13	n. a.
Dismantling/pre-treatment of WEEE and ELV	min. 5	n. a.
Recycling of mineral construction and demolition waste	min. 3	n. a.
Plastic and rubber recycling	min. 30	min. 50.000
Metal recycling	min. 15	n. a.
Paper and cardboard recycling	min. 18	n. a.
Glass recycling	1	30,000
Used batteries and accumulators treatment	1	~ 22,000

Min... Minimum; ~... Approximately

1... No incinerator for waste treatment has been installed up to now. 2... Four out of them having licence for disposal of hazardous waste with a capacity for hazardous waste of more than 290,000 t/a.

3... In addition, approximately 3,400 unsecured dump-sites are known on the whole territory of Serbia.

Types of economic instruments used:

2. Waste tariff

yes⊠ no □

2.1 Level of application?

e.g. national, municipal, administrative unit

Municipal

¹³ Source: Draft National Waste Management Strategy including National Waste Management Plan for the period 2020-2025

2.2 For which category of waste?

all household waste, hazardous waste, packaging waste, biodegradable waste, etc.

All household waste.

2.3 How is calculated the tariff?

Waste Management is in most municipalities in Serbia is organized via mixed public utility companies, that aside of waste management perform other tasks as well. So, they are besides municipal budget, these companies also financed by payment for the other performed services. In some 25 municipalities in Serbia, waste management is entrusted to PPP contracts with private companies.

When it comes to households, the tariff is usually calculated based on the square footage of residence premises, but some municipalities also base the tariff on the number of household members and the volume of garbage bins, while there is also an example of combined tariff (fixed part for households, variable referring to members in the households).

Specific problem are legal persons that have higher tariffs then households, in average up to 2.5 time more expensive. There are also examples on lump sum prices. So, there are several different prices for the same service provided.

The price of communal services is not in direct correlation with the discipline in paying bills and the level of collection. In waste management, the obligatory relationship with users in relation to some other communal services such as water supply or district heating is all the more complicated because these services are difficult to accurately measure and locate on users. Whatever tariff system is applied, there will be a certain level of averaging or spillover of costs from one group of users to another.

The service is not directly measurable and there are several units of measure, so it is not entirely clear to users what they are actually paying when they receive a bill for a waste management service. In Serbia that utility companies are financed, mostly from revenues from services provided, nut from municipal budgets, although there is a common understating that the municipalities are funding them.

With regard to waste management prices, the biggest problem, however, is that they are insufficient to cover all eligible costs from revenues. The prices of basic communal services in Serbia are significantly lower not only in relation to more developed countries, but also in the region. Average price per tone of waste management is ca.28 euros.

The average waste management account participates in the average net earnings in Serbia with only 0.7%. The average monthly bills is ca. 3 EUR, the equivalent price per one ton waste is ca. 32Eur, while the average monthly salary is calculated at 330EUR, thus the possibility for payment is 0.87 %.

2.4 How the tariff is collected?

from the municipality, water utility, post office etc.

The tariff is collected via bills sent to the households addresses, or the companies, where in most cases it is combined with other communal services, but there are also examples where there are separate bills for waste management. They can be paid directly to the PUCs, banks or post office.

2.5 Addressee of the tariff?

Payer e.g. public institutions, companies, consumers, etc.

Addressees are the consumers, companies.

2.6 Relevant law and regulations?

Identification of relevant legal texts. (please add links)

Communal services are regulated in the Law on Consumer Protection from June 2014, primarily in Chapter X - Services of general economic interest, which indisputably and rightly include communal services.

This Law protects the interests of users (1) by mandatory formation of advisory bodies through which consumers are involved in the decision-making process, (2) greater rights in complaints and their resolution, and in the prices of utilities this Law prescribes (3) the obligation of decision makers to "Publicly and in advance informs the consumer about the changes no later than 30 days before the beginning of the application of the changed prices. (Article 88, paragraph 3) ".

In the segment of prices and indebtedness of service users, the Law on Consumer Protection prescribes additional obligations to specify invoices (Article 91). Namely, that article states that "the trader is obliged to submit invoices for services provided of general economic interest without delay and within the deadlines that allow that the consumer monitors the realized consumption and indebtedness for the accounting period of maximum one month ", and in the next paragraph that the Merchant is obliged to state in the invoice for provided services of general economic interest the elements that enable the consumer to 1) check and monitor the amount of his indebtedness; 2) gain insight into current consumption in order to check the total consumption according to the provided quality of service".

2.7 Direct and Indirect Economic Impact of Application of Instrument?

What is the revenue generated from the tariff?

The public utility companies are not able to collect one third of their incomes. The data show that the total unpaid receivables burden the operations of PUCs in the amount of ca. 70% of operating revenues, which means that the utility company should work for a full 8 months during the year only to earn money that is actually missing due to uncollected services.

3. Landfill fee

yes□ no ⊠

3.1 For which category of waste?

all household waste, hazardous waste, packaging waste, biodegradable waste, etc.

3.2 How is calculated the fee?

3.3 Direct and Indirect Economic Impact of Application of Instrument?

What is the revenue generated from the fee?

3.4 Direct and Indirect Ecological Impact of Application of Instrument:

Environmental steering effect, e.g. volume of waste generation, recycling rate, pollution, etc.

3.5 General acceptance of the system?

Is the instrument generally seen as successful or are there strong needs for reform or improvements?

4. Incineration fee

yes□ no ⊠

4.1 For which category of waste?

all household waste, hazardous waste, packaging waste, biodegradable waste, etc.
4.2 How is calculated the fee?
4.3 Direct and Indirect Economic Impact of Application of Instrument?
What is the revenue generated from the fee?
4.4 Direct and Indirect Ecological Impact of Application of Instrument:
Environmental steering effect, e.g. volume of waste generation, recycling rate, pollution, etc.
4.5 General acceptance of the system?
Is the instrument generally seen as successful or are there strong needs for reform or improvements?

5. Deposit-refund system

yes□ no ⊠

ves□ no ⊠

5.1 For which category of waste?

hazardous waste, packaging waste (which category), biodegradable waste, etc.

5.2 How is calculated the profits?

5.3 Direct and Indirect Economic Impact of Application of Instrument?

What is the revenue generated from the fee?

5.4 Direct and Indirect Ecological Impact of Application of Instrument:

Environmental steering effect, e.g. volume of waste generation, recycling rate, pollution, etc.

5.5 Details on the instrument

6. Taxation on raw material

6.1 For which category of waste?

*hazardous waste, packaging waste (which category), biodegradable waste, etc.*6.2 How is calculated the fee?

6.3 Direct and Indirect Economic Impact of Application of Instrument? *What is the revenue generated from the fee?*

6.4 Direct and Indirect Ecological Impact of Application of Instrument: *Environmental steering effect, e.g. volume of waste generation, recycling rate, pollution, etc.*

6. Pay-as-you-throw (PAYT) System

yes□ no ⊠

6.1 For which category of waste?

all household waste, hazardous waste, packaging waste, biodegradable waste, etc. 6.2 How is calculated the fee?

6.3 Direct and Indirect Economic Impact of Application of Instrument?What is the revenue generated from the fee?6.4 Direct and Indirect Ecological Impact of Application of Instrument:Environmental steering effect, e.g. volume of waste generation, recycling rate, pollution, etc.

Please provide necessary documents for the above-mentioned information such as strategies, national action plans, studies etc.

KOSOVO

1. What type of waste recovery is used?

Currently there are only pilots of home composting in 7 municipalities and pilots on separation at source on 7 municipalities. (report on home composting attached in the e-mail)

Types of economic instruments used:

2. Waste tariff

yes⊠ no □

2.1 Level of application?

For household waste, tariffs are on a municipal level.

For special waste streams including hazardous waste a special tariff is applied depending on the waste producers.

2.2 For which category of waste?

The household waste is collected as mixed waste, hence a flat tariff is applied.

For other waste streams e.g. animal by-products waste, a special agreement between the utility company and waste producer is required.

2.3 How is calculated the tariff?

The tariff is calculated based on all direct and indirect costs of waste management. The tariff is a flat rate applied to all the citizens in urban and rural areas. (methodology attached in the email)

For special waste streams, the tariff is calculated based on the amounts of waste produced.

2.4 How the tariff is collected?

It is mainly collected by the utility companies. Although now there are cases where the Municipalities take charge on collection of tariffs in the form of a Municipal tax.

2.5 Addressee of the tariff?

In cases where the Municipalities are in charge of waste tax collection, it is the Municipalities who collect the revenue after which the utility companies are paid. Municipalities usually are in charge only for household fee collection.

In the other cases it is the utility companies who bill the citizens, private sector, and public institutions.

2.6 Relevant law and regulations?

https://gzk.rks-gov.net/ActDetail.aspx?ActID=2829

Law on Waste: Article 14, paragraph 2 and 3 and Article 15, sub-paragraph 1.8.

2.7 Direct and Indirect Economic Impact of Application of Instrument?

The revenue derives mainly from the territorial coverage of the services and the number of served households. The revenues serve only for the cost recovery of the services, and in many cases, it is not properly achieved. The utility companies have no financial capacities for capital investments within their companies, hence they rely on subsidies.

3. Landfill fee

There is no tax on landfills, hence the fee in itself does not have an impact on ecological challenges.

landfilled.

3.5 General acceptance of the system?

3.1 For which category of waste?

3.2 How is calculated the fee?

The fee is seen as not sufficient for environmentally sound landfill, having in mind that the landfills are overloaded and have exceeded their capacities.

The fee are flat rates, but there is no data on how they are calculated. The fee is charged per ton of waste being

The revenues from the fee serves only for landfill maintenance, but not for further capital investments.

4. Incineration fee

4.1 For which category of waste?

all household waste, hazardous waste, packaging waste, biodegradable waste, etc.

Household waste and hazardous waste (animal and animal by-products and medical waste)

4.2 How is calculated the fee?

4.3 Direct and Indirect Economic Impact of Application of Instrument?

3.3 Direct and Indirect Economic Impact of Application of Instrument?

3.4 Direct and Indirect Ecological Impact of Application of Instrument:

What is the revenue generated from the fee?

4.4 Direct and Indirect Ecological Impact of Application of Instrument:

Environmental steering effect, e.g. volume of waste generation, recycling rate, pollution, etc.

4.5 General acceptance of the system?

Is the instrument generally seen as successful or are there strong needs for reform or improvements?

5. Deposit-refund system

5.1 For which category of waste?

hazardous waste, packaging waste (which category), biodegradable waste, etc.

5.2 How is calculated the profits?

5.3 Direct and Indirect Economic Impact of Application of Instrument?

What is the revenue generated from the fee?

5.4 Direct and Indirect Ecological Impact of Application of Instrument:

Environmental steering effect, e.g. volume of waste generation, recycling rate, pollution, etc.

5.5 Details on the instrument

6. Taxation on raw material

ves□ no ⊠

70

yes□ no 🛛

yes□ no 🖾

6.1 For which category of waste? *hazardous waste, packaging waste (which category), biodegradable waste, etc.*6.2 How is calculated the fee?
6.3 Direct and Indirect Economic Impact of Application of Instrument? *What is the revenue generated from the fee?*6.4 Direct and Indirect Ecological Impact of Application of Instrument: *Environmental steering effect, e.g. volume of waste generation, recycling rate, pollution, etc.*

6. Pay-as-you-throw (PAYT) System

yes□ no ⊠

6.1 For which category of waste?

all household waste, hazardous waste, packaging waste, biodegradable waste, etc.

6.2 How is calculated the fee?

6.3 Direct and Indirect Economic Impact of Application of Instrument?

What is the revenue generated from the fee?

6.4 Direct and Indirect Ecological Impact of Application of Instrument:

Environmental steering effect, e.g. volume of waste generation, recycling rate, pollution, etc.

Please provide necessary documents for the above-mentioned information such as strategies, national action plans, studies etc.