REPORT REPORT REPORT

Network of Associations
of Local Authorities
of South-East Europe

Benchmarking on Solid Waste Management in South-east Europe

2015

NALAS MEMBERS:

- Association of Albanian Municipalities
- Association of Cities of the Republic of Croatia
- Association of Communes of Romania
- Association of Municipalities and Cities of the Federation of Bosnia and Herzegovina
- Association of Municipalities of the Republic of Croatia
- Association of Municipalities and Towns of Slovenia
- Association of Kosovo Municipalities
- Association of Towns and Municipalities of Republic of Srpska
- Association of the Units of Local Self-government of the Republic of Macedonia
- Congress of Local Authorities from Moldova
- National Association of Municipalities in the Republic of Bulgaria
- Romanian Federation of Local Authorities
- Standing Conference of Towns and Municipalities
- Marmara Municipalities Union
- Union of Municipalities of Montenegro

REPORT

Benchmarking on Solid Waste Management in South-east Europe

2015

December, 2016

This Report is a collaborative effort of the NALAS Task Force on Solid Waste and Water Management (TF SWWM)

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THE REPORT IN BRIEF:

The purpose of the 2015 Solid Waste Management Benchmarking Report was to give insight in the current situation with solid waste management at the national and local level in the SEE countries that are at the same time members of NALAS network. It also served to assess progress at both national and local levels towards the establishment of an integrated solid waste management system compared to the baseline year of 2014.

The main conclusions of this Report are as follows:

- The situation in the region concerning legal and institutional aspects of waste management did not change very much compared to 2014. Only few countries experienced legal changes that were aimed to harmonise their laws with those of the EU. Other countries have insufficient legislation or legislation that is only partially harmonised with that of the EU. In those countries that have a solid legislative basis, implementation is progressing slowly mainly due to the lack of human and financial capacities.

- Average municipal solid waste generation in SEE countries is 0.87 kg/cap/day, which is lower than the EU28 average. This is clearly a result of the poor economic situation and lower purchasing power in the SEE countries as confirmed by the average GNI of the SEE countries, which is only 15% of the average GNI of the EU28.

- Most countries were not even able to report on their recycling rate, given the lack of data. Those countries that do have data, reported relatively low recycling rates, i.e. less than 40%. This is related to the fact that countries predominantly landfill their waste, and that large amounts of waste go to illegal dumpsites, which lowers the possibility of recycling. Countries are currently showing interest to lower their illegal dumping and increase recycling; however, national targets will be hard to achieve.

- Due to the lack of adequate infrastructure, landfilling remains the only viable option currently, and thus, it is a preferred option for the countries in the region. Countries are striving towards regional landfilling; however, they are taking small steps to achieving the final goal.

- Data on local indicators are still difficult to find. Municipalities do not have any legal obligation, or a prescribed methodology for determination of waste quantity and composition, which is a large obstacle to appropriate planning of the integrated waste management system.

- The correlation between waste production and the % of population living in urban or rural areas can be established. The higher the urbanisation and number of inhabitants in urban areas, the higher the waste production.

- Waste collection service coverage in urban areas is satisfactory (in some municipalities reaching even 100%), while in rural areas it is still low.

- Up to 70% of the waste is composed of biodegradable and garden waste. Less than 10% is separated and reused/recycled. Waste is mainly disposed on landfills. The high percentage of biodegradable and garden waste and low quantities of recyclable waste indicate opportunities for waste utilisation instead of waste disposal at landfills. Some of the options include composting and production of refuse derived fuel (RDF).

- The tariff calculation system based on weight or volume is not employed in the region. Fee collection rates range from 18% to 98%.

- Informal waste pickers are present in the region. They usually collect metal and PET waste; however, the quantities are not known. They are usually not recognized by local governments, neither is their status regulated by law. The informal sector's involvement in the overall waste collection scheme is considered insignificant.

- Municipalities mainly dispose their waste at non-compliant municipal landfills. 9 out of 19 municipalities dispose their waste on regional sanitary landfills. Information on illegal dumpsites is usually not available, but estimations are that this number is very high.

INTRODUCTION 1

This Report has been prepared by the members of the Task Force on Solid Waste and Water Management (TF SWWM) of the Network of Associations of Local Authorities of South East Europe (NALAS). It is the second issue and presents the progress in solid waste management of the countries in South East Europe (SEE) for 2015, comparing it to the baseline year of 2014. Within this issue, improvements in the quality of data used in the Report have been made, and some errors contained in the previous issue have been corrected.

The Report helps NALAS members – local government associations in the countries of SEE region to gain an independent perspective of how well the SWM is performed compared to other countries and municipalities. It clearly identifies specific areas of opportunity, prioritizes areas of improvement, sets performance expectations and monitors change at the level of SEE region. Ultimately, it is about managing solid waste in a socially, environmentally and financially responsible manner.

The Report, just like its subject of analysis, is work in progress and over time, NALAS hopes to expand, improve and deepen its analysis in response to the needs of both its members and outside researchers.

This Report gives an overview of the present situation and presents data on 9 countries and 19 municipalities in the SEE (Table 1) to tap into realities of what solid waste management currently is, and how rural and urban municipalities deal with it in low-, middle- or high-income countries. The comparison of new data to that from 2014 gives an insight in recent achievements and whether the countries made progress in modernising and upgrading their waste management systems in order to be able to implement principles and goals of the EU and Directive 2008/98/EC on waste (Waste Framework Directive). Additionally, for the sake of comparison, the analysis at national level also include indicators for three EU countries Bulgaria, Croatia and Slovenia that are both found in the SEE.

Table 1: Research sample

Country	Municipality	Population
Albania	Lezhe	107,873
	Durres	309,190
Bosnia and Herzegovina	Bugojno	34,559
	Cazin	69,411
	Prijedor	97,588
	Laktasi	37,300
Kosovo[1]	Ferizaj/Urosevac	108,610
	Gjakova/Djakovica	94,556
Macedonia	Kumanovo	108,048
	Lipkovo	29,519
Moldova	Soldanesti	38,722
	Nisporeni	12,105
Montenegro	Bijelo Polje	46,051
	Herceg Novi	30,992
Romania	Târgoviște	79,100
Serbia	Pancevo	110,035
	Bajina Basta	26,022
Turkey	Kartepe	107,896
	Uzunkopru	63,193

1 "This designation is without prejudice to positions on status, and is in line with UNSC 1244 and the ICJ Opinion on the Kosovo declaration of independence."

1.1 Data, Terms, and Methodological Issues

Benchmarking of solid waste management performance at the national and local level was done by using a set of national and local indicators (Table 2). Two questionnaires were used to collect the necessary data for each of these indicators.

Table 2: List of SWM indicators at the local and national level

National level indicators	Local level indicators
Indicator no 1 – Total population	**Indicator no 1** – Population number
Indicator no 2 – Country income level	**Indicator no 2** – Urban/rural ratio
Indicator no 3 – MSW generation per capita	**Indicator no 3** – Population in urban areas
Indicator no 4 – Waste treatment indicator	**Indicator no 4** – Population in rural areas
Indicator no 5 – Recycling rate	**Indicator no 5** – MSW generation per capita
Indicator no 6 – Land disposal sites for solid waste	**Indicator no 6** – Waste composition
	Indicator no 7 – Population covered with MSW collection services
	Indicator no 8 – Population covered with MSW collection services in urban areas
	Indicator no 9 – Population covered with MSW collection services in rural areas
	Indicator no 10 – Population covered with packaging waste collection services
	Indicator no 11 – Recycling rate
	Indicator no 12 – Waste management fee
	Indicator no 13 – SWM informal sector
	Indicator no 14 – Land disposal sites for solid waste

National benchmarking is used as a common metric to examine the state's achievement of standards in solid waste management compared to the achievement levels of other SEE countries, as well as that of the EU member states. On the other hand, benchmarking at the municipal level has the potential to help local authorities to advance their performance of local services. Public officials compare their jurisdiction's service-performance statistics to those of an appropriate municipal counterpart, aiming to understand how the gap between desired and current performance could be overcome. The idea is to adapt policies and practices used by top-performing jurisdictions in order to realize a comparable level of performance. Therefore, local level benchmarking provides information for decision makers on priorities for interventions with limited funds available, which can raise the service they provide at the desired level of quality.

Data used in the Report has been provided by NALAS TF members and comes from line ministries and municipalities, statistical offices, reports etc. of the respective SEE countries. The data was checked for consistency and compared, where possible, with similar data from EuroStat, World Bank and other sources. In general, population numbers used in the Report are from the most recently conducted censuses. In Albania, Kosovo and Macedonia however, the results of recently conducted censuses have been abandoned or remain unofficial for political reasons. Since there has been a profound demographic decline in most of the region, the use of older census figures significantly inflates the actual number of citizens residing in a given country or entity[2].

The Report's primary object of analysis is first-tier local governments, meaning democratically elected authorities. It refers to the level of a municipality, city or canton. They constitute the most important level of sub-sovereign government in the region, but depend on which administrative level the country is regulating its household waste management system. In some countries, such as Bosnia and

[2] FISCAL decentralization indicators for South-East Europe: Report 2006-2014; NALAS (2016)-2014

Herzegovina, the system of household waste is regulated at the municipal level and at the cantonal level. A Canton is a small territorial and administrative district, which consists of several municipalities. Democratically-elected regional governments are also important in Moldova, Turkey and Romania.

Throughout South-East Europe, municipalities and communes bear the primary responsibility for maintaining and improving their local public infrastructure. This includes local roads, bridges, and parks, as well as water supply and solid waste management, public lighting, local public transport, and district heating. In a number of countries/entities, however, local governments are responsible for delivering important social sector services, particularly in education, but also in some places, healthcare. Issues discussed within this Report are related to the **Municipal Solid Waste Management** system. For the purpose of this Report, the following definitions are used:

- *"municipal solid waste"* covers waste from households, including bulky waste, similar waste from commerce and trade, office buildings, institutions and small businesses, yard and garden waste, street sweepings, the contents of litter containers, and market cleansing waste, but this definition excludes waste from municipal sewage networks and treatment, as well as from construction and demolition activities OECD (2010)[3];

- *"inert waste"* is the waste that does not undergo any significant physical, chemical or biological transformations. Inert waste will not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm human health. The total leachability and pollutant content of waste and the ecotoxicity of leachate must be insignificant, and in particular must not endanger the quality of surface water and/or groundwater. The solid component of the inert waste stream arises from the construction, demolition or refurbishment of buildings or infrastructure, but does not contain municipal solid waste, commercial and industrial waste, hazardous waste or radioactive waste.

- *"waste management"* means the collection, transport, recovery and disposal of waste, including the supervision of such operations and the after-care of disposal sites, including actions taken as a dealer or broker;

- *"collection"* means the gathering of waste, including the preliminary sorting and preliminary storage of waste for the purposes of transport to a waste treatment facility;

- *"treatment"* means recovery or disposal operations, including preparation prior to recovery or disposal;

- *"recycling"* means any recovery operation by which waste materials are reprocessed into products, materials or substances, whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations;

- *"waste management fees"* are the fees citizens pay for the SWM services provided by the Public Utility Company;

- The *"informal sector in solid waste management"* refers to individuals, families, and private sector (micro-)enterprises working in waste management services and valorisation, whose activities are neither organised, sponsored, financed, contracted, recognised, managed, taxed, nor reported upon by the formal solid waste authorities[4].

[3] OECD factbook 2010: Economic, environmental and social statistics.

[4] Economic Aspects of the Informal Sector in Solid Waste Management, Main Report: Volume 1, Research Report, 2010; prepared under a contract with GTZ and the CWG, 29 October 2010.

In many developing and transitional countries, the infrastructure and organizational system of waste management is insufficient. Waste management fees are low and not determined based on sound financial calculations taking into account all costs of running the system. Municipalities and formal service providers can thus neither provide collection service to all households, nor guarantee an effective recycling and an environmentally sound treatment or disposal of wastes.

Informal waste pickers in developing and transitional countries contribute significantly to waste management and resource efficiency by collecting, sorting, trading and sometimes even processing waste materials. The informal waste management sector is often not officially recognized and acknowledged, yet its members contribute significantly to the waste management of cities, by collecting, sorting, processing, storing and trading waste materials in the recycling value chain.

In accordance with the *Council Directive 1999/31/EC of 26 April 1999 on waste landfill*, waste must be sent to landfills which comply with the Directive's requirements. The Landfill Directive defines different categories of waste (municipal waste, hazardous waste, non-hazardous waste and inert waste) and applies to all landfills, defined as waste disposal sites for the deposit of waste onto or into land. Landfills are divided into three classes: 1) landfills for hazardous waste; 2) landfills for non-hazardous waste; and 3) landfills for inert waste. Considering the situation in most of the SEE region countries related to the types of **land disposal sites for solid waste**, NALAS TF members have proposed sub-categorization of these sites in the frame of the EU classified landfills for non-hazardous waste:

- Sanitary regional landfill—A landfill used for the disposal of municipal waste originating from more than one municipality which meets the requirements of the EU Directive on Waste Landfill;
- Non-compliant municipal landfill— A landfill used for the disposal of municipal and other types of waste originating from one municipality which does not meet the requirements of the EU Directive on Waste Landfill;
- Illegal Dumpsite— A landfill used for dumping of municipal and other types of waste originating from a settlement or group of settlements that is/are not covered with organized waste collection services.

In addition, the existence of **landfills for inert waste** was reviewed, having in mind that the establishment of such landfills, their maintenance, as well as collection and transportation of this specific waste, is a local competence.

The Report consists of four main sections:

I. Country reviews that provide a review of the current solid waste management system in 9 SEE countries analysed from the perspective of legal and institutional setup. They give information about recent country's achievements in the year 2015, and provide comparison of 2015 national solid waste management indicators to those from 2014 for each country.

II. Benchmarking of 12 SEE countries' solid waste management performance with a relevant discussion that gives insight into the overall situation of the region.

III. Municipality reviews that describe the situation with solid waste management in 19 municipalities in 9 SEE countries using 13 local level indicators.

IV. Benchmarking of 19 municipalities for their performance in solid waste management with a relevant discussion.

2 COUNTRY REVIEWS

2.1 Albania

2.1.1 Current solid waste management framework

Solid waste management in Albania is regulated by the following laws and decisions:

- *Law no. 10463/2011 "on integrated waste management";*
- *Decision of the Council of Ministers no. 945/2013 "on defining the state responsibility of the Ministry of Environment, Forests and Water";*
- *Decision of the Council of Ministers no. 47/2014 "on definitions and rules for the organization and functioning of the national agency and regional environmental agencies".*

The strategic direction in this field is given in the National Waste Strategy 2010-2025 and National Waste Management Plan 2010-2025.

Waste management in Albania is decentralized. According to the *Law no. 10463/2011 "on integrated waste management"*, the responsibility for drafting waste management legislation is given to the Ministry of Environment, Forests and Water Administration. The *Decision of the Council of Ministers (DCM) no. 945/2013 "on defining the state responsibility of the Ministry of Environment, Forests and Water"* provides a complete overview of the Ministry's responsibilities. Finally, *DCM no. 47/2014 "on definitions and rules for the organization and functioning of the national agency and regional environmental agencies"* regulates responsibilities and competencies of the State Inspectorate of Environment, Forestry and Water. The responsibility for waste management lies with local government units.

Based on DCM no. 47/2014, inspection and control are under the jurisdiction of the State Inspectorate of Environment, Forestry and Water. The National Agency on Environment is responsible for the Municipal Solid Waste Management Information System, data collection, and waste statistics and reporting.

Other levels involved in data collection are municipalities, regions, and line ministries (Ministry of Agriculture, Ministry of Health, Ministry of Infrastructure/Transport, and Ministry of Energy and Industry).

Albania has three sanitary regional landfills:

- Tirana, Sharra, (GPS coordinates – Latitude 41°17'N, longitude 19°45'E),
- Bushat, Shkodra, (GPS coordinates – Latitude 42°4'N, Longitude 19°31'E)
- Saranda, Bajkaj, (GPS coordinates – Latitude 39°57'N, Longitude 20°1'E).

The remaining municipalities are disposing on 89 non-compliant municipal landfills. The country reported the existence of 13 illegal dumpsites, although this number is much higher and even hard to estimate.
There are no landfills for inert waste. However, as a result of the implementation of the *DCM no. 575 of 24.06.2015 "on adoption of the requirements for management of inert waste"*, the country has shown interest in regulating this issue.

2.1.2 Recent achievements

Planning, coordination and implementation of policies on waste management is still progressing slowly, with limited administrative capacity. In order to further harmonise Albanian waste legislation with the EU Waste Framework Directive 2008/98/EC, the following laws were prepared in 2015[5]:

- *DCM no. 575 of 24.06.2015 on adoption of the requirements for management of inert waste;*
- *DCM no. 387 of 06.05.2015 on the rules on control of PCBs/PCTs disposal, decontamination or disposal of equipment containing PCBs/PCTs and or disposal of used PCBs/PCTs;*
- *DCM no. 687 of 29.07.2015 on approval of regulations for keeping, updating and publication of waste statistics.*

2.1.3 Assessment of progress

National indicators for 2015 indicate that there was an increase in the amount of solid waste disposed on landfills and a decrease of that disposed on illegal open dumps. There was also progress in waste recycling although the achieved percentage is still well below the national target for municipal solid waste recycling/composting set to be 25% by 2015 and 55% by 2020. Biological waste treatment is still not available as a treatment option.

Table 3: Waste management indicators for Albania (2014 – 2015)

Indicator number	Indicator	Unit	2014	2015	Source of data
1	Total population	Number	2,893,005	2,892,303	http://www.instat.gov.al/
2	Country income level (GNI)	$	4,440	4,280	http://data.worldbank.org/
3	MSW generation per capita	kg/cap/day	0.6	0.6	NALAS TF questionnaire, National Strategy on SWM, Albanian Agency for Statistics
4a	MSW landfilled	%	30	40	NALAS TF questionnaire, National Strategy on SWM, Albanian Agency for Statistics
4b	MSW in illegal open dumps	%	60	50	NALAS TF questionnaire, National Strategy on SWM, Albanian Agency for Statistics
4c	Waste recovered by recycling	%	10	15	NALAS TF questionnaire, National Strategy on SWM, Albanian Agency for Statistics
4d	MSW biological treatment	%	0	0	NALAS TF questionnaire, National Strategy on SWM, Albanian Agency for Statistics
4f	MSW treated in thermal plants	%	0	0	NALAS TF questionnaire, National Strategy on SWM, Albanian Agency for Statistics
5	Recycling rate	%	33	30-35%	NALAS TF questionnaire, National Strategy on SWM, Albanian Agency for Statistics
6a	Sanitary regional landfills	Number	N/A	3	NALAS TF questionnaire, National Strategy on SWM, Albanian Agency for Statistics
6b	Non-compliant municipal landfills	Number	N/A	89	NALAS TF questionnaire, National Strategy on SWM, Albanian Agency for Statistics
6c	Illegal dumpsites	Number	N/A	13	NALAS TF questionnaire, National Strategy on SWM, Albanian Agency for Statistics
6d	Landfills for inert waste	Number	N/A	0	NALAS TF questionnaire, National Strategy on SWM, Albanian Agency for Statistics

[5] Annual Progress Report 2015, Albanian Contribution – Input II, May – September 2015, Albanian Ministry for European Integration, pg 235

2.2 Bosnia and Herzegovina

2.2.1 Current solid waste management framework

Development and implementation of the waste management policy in Bosnia and Herzegovina is at the entity level and level of Brcko District (BD).

Solid waste management regulation in Bosnia and Herzegovina consists of:

- *Law on Waste Management in the Republic of Srpska (Official Gazette (O.G.) RS 111/13 and 106/15)*
- *Law on Waste Management in the Federation of BiH (O.G. FBiH 33/03, 72/09)*
- *Law on Waste Management in BD (O.G. BD 72/09, 25/04, 1/05, 19/07, 2/08 and 9/09).*

Responsible institutions are:

- Ministry of Environment and Tourism of the Federation of BiH (FBiH),
- Ministry of Physical Planning and Civil Engineering and Ecology of Republic of Srpska (RS)
- Department for Physical Planning and Proprietary Affairs of the Government of Brcko District (BD).

Data collection on MSW is not well structured in the country, due to the highly complex government structure and interconnected levels that gather data. Law on Waste Management of the Republic of Srpska defines that the competent authority for waste management data collection and waste data register is the Fund for Environmental Protection and Energy Efficiency of RS. The Rulebook on the methodology for waste data collection and waste data register was adopted in 2015 (Official Gazette of RS no. 71/15). The FBIH and BD laws on waste management do not regulate data collection and registering issues. The Federal Fund for Environmental Protection performs, unofficially, the collection of data on waste in FBiH.

The Federal Fund for Environmental Protection and the Fund for Environment of the Republic of Srpska are collecting data from Cantons (in FBiH only), municipalities, public and private communal enterprises and landfill sites. This includes data on waste generation and types of waste. This data is used for the purpose of understanding the situation concerning waste management in both entities. For statistical purposes, entity agencies for statistics collect data on solid waste collected and disposed in BiH. This data is conveyed to the national Agency for Statistics of BiH, which compiles data and reports to EUROSTAT.

Inspection and control are performed at several administrative levels in FBiH, RS and BD. Currently, inspection is under the jurisdiction of the following bodies:

- Federal Directorate for Inspection Affairs and Cantonal Directorates for Inspection Affairs in the FBiH
- Directorate for Inspection Affairs of the Republic of Srpska and the municipal communal police in the RS.
- Inspection is performed at the District level by the Inspection Department in BD.

Municipal solid waste management faces numerous problems regarding waste collection and treatment and disposal. Currently, Bosnia and Herzegovina has 5 active regional sanitary landfills and 1 under construction:

- "Smiljevići", Sarajevo; (GPS: latitude 43°21'N and longitude 18°21'E)
- Regional landfill "Ramići", Banja Luka; (GPS: latitude 44°86'N and longitude 17°15'E)

- "Brijesnica", Bijeljina; (GPS: latitude 44o45'N and longitude 19o10'E)
- "Mošćanica", Zenica; (GPS: latitude 44°10'N and longitude 18°00'E)
- "Uborak", Mostar; (GPS: latitude 43°38'N and longitude 17°88'E)
- Regional sanitary landfill Kurevo, Prijedor (still under construction); (GPS: latitude 44°93'N and longitude 16°64'E)

It is estimated that 93 non-compliant municipal landfills are found in the country. There is only one landfill for inert waste located in the Municipality of Neum. The number of illegal dumpsites is high. Current estimates indicate the existence of 340 illegal dumpsites in FBiH and 250 in RS. However, the Federal Waste Management Plan 2012-2017 and Draft Waste Management Strategy in RS 2016 – 2025 estimate that there are as many as 1,800 illegal dumpsites.

2.2.2 Recent achievements

Collection of data on municipal solid waste is generally not well structured in the country. As of 2015, significant changes have been made in RS to better regulate MSW data collection at all levels. Recent achievements in municipal solid waste management in RS are related to the adoption of amendments to the Law on Waste Management (O.G. RS 106/15) which regulates waste packaging and the packaging waste management system, as well as 16 relevant Regulations that include:

1. *Regulation on waste lists and documents for transport of waste across the border (O.G. RS 86/15)*
2. *Regulation on amendments to the regulation on fees for disposal of packaging waste into the environment (O.G. RS 76/15)*
3. *Regulation on the methodology of waste data collection and record keeping (O.G. RS 71/15) including waste recording data sheets*
4. *Rulebook on conditions and the manner of collection, transport, storage and treatment of waste used as a secondary raw material or for energy purposes (O.G. RS 61/15)*
5. *Rulebook on the manner of waste storage, packaging and labelling of hazardous waste (O.G. RS 49/15)*
6. *Rulebook on the content, management and layout of the register for waste management licenses (O.G. RS 43/15)*
7. *Rulebook on the content and layout of the waste management licence (O.G. RS 43/15)*
8. *Rulebook on the content of the programme of measures, including the dynamics of harmonisation of existing landfills (O.G. RS 41/15)*

9. *Regulation on packaging and packaging waste management (O.G. RS 36/15), including the system of packaging material classification, and labelling and reporting by producers, importers and packaging and delivery entities*

10. *Regulation on waste disposal at landfill sites (O.G. RS 36/15)*

11. *Regulation on amendments to the Regulation on fees for disposal of packaging waste into the environment (O.G. RS 36/15)*

12. *Rulebook on the datasheet of waste movement and guidelines for its use (O.G. RS 21/15)*

13. *Rulebook on the datasheet of hazardous waste movement and guidelines for its use (O.G. RS 21/15)*

14. *Rulebook on the repeal of the Rulebook on transport of hazardous waste (O.G. RS 21/15)*

15. *Rulebook on categories, testing and classification of waste (O.G. RS 19/15)*

16. *Rulebook on the Request for permit regarding storage, treatment and disposal of waste (O.G. RS 18/15)*

The World Bank's Second SWM Project was completed in 2015, and it resulted in the improvement of operation of the existing regional sanitary landfills in RS and construction of a new one in Prijedor, as well as capacity building on the local level.

2.2.3 Assessment of progress

Data in 2015 shows that there is a decrease in waste generation per capita, from 0.95 to 0.89; however, the total amount of waste disposed at landfills increased. The recycling rate remains low and well below the set targets, which are 30% recycling rate in the Federation of Bosnia and Herzegovina by 2018 (set by the Strategy for Environmental Protection of the Federation of Bosnia and Herzegovina 2008-2018) and 23% in the Republic of Srpska by 2026 (Solid Waste Management Strategy of the Republic of Srpska 2016-2026). Landfilling is still the preferred option where 70% of waste is disposed at sanitary or non-compliant municipal landfills. Only a small fraction of the waste generated is treated in MBT plants in the Municipality of Tuzla and the Municipality of Konjic. Disposal of waste at illegal dumpsites remains an issue.

Table 4: Waste management indicators for Bosnia and Herzegovina (2014 – 2015)

Indicator number	Indicator	Unit	Bosnia and Herzegovina 2014	Bosnia and Herzegovina 2015	Data source
1	Total population	Number	3,827,343	3,531,159	Census of Population, Households and Dwellings in Bosnia and Herzegovina, 2013, Final Results. Agency for Statistics of Bosnia and Herzegovina, Sarajevo, June 2016.
2	Country income level (GNI)	$	4,820	4,670	http://data.worldbank.org/
3	MSW generation per capita	kg per day	0.95	0.89	NALAS TF questionnaire, Agency for statistics of Bosnia and Herzegovina, First release, Public transportation and disposal of municipal waste, 20.10.2016.
4a	MSW landfilled	%	75	76.44	NALAS TF questionnaire, Agency for statistics of Bosnia and Herzegovina, First release, Public transportation and disposal of municipal waste, 20.10.2016.
4b	MSW in illegal open dumps	%	24.6	23.5	NALAS TF questionnaire, Agency for statistics of Bosnia and Herzegovina, First release, Public transportation and disposal of municipal waste, 20.10.2016.
4c	Waste recovered by recycling	%	0.28	0.28	NALAS TF questionnaire, Agency for statistics of Bosnia and Herzegovina, First release, Public transportation and disposal of municipal waste, 20.10.2016.
4d	MSW biological treatment	%			
4f	MSW treated in thermal plants	%			
5	Recycling rate	%	14	N/A	NALAS TF questionnaire
6a	Sanitary regional landfills	Number		6	NALAS TF questionnaire, Bosnia and Herzegovina State of Environment Report 2012. Federal Waste Management Plan 2012. Draft of the Waste Management Strategy in RS, 2016. – 2025.
6b	Non-compliant municipal landfills	Number		93	NALAS TF questionnaire, Bosnia and Herzegovina State of Environment Report 2012. Federal Waste Management Plan 2012. Draft of the Waste Management Strategy in RS, 2016. – 2025.
6c	Illegal dumpsites	Number		Approx. 590	NALAS TF questionnaire, Bosnia and Herzegovina State of Environment Report 2012. Federal Waste Management Plan 2012. Draft of the Waste Management Strategy in RS, 2016. – 2025.
6d	Landfill for inert waste	Number		1	NALAS TF questionnaire, Bosnia and Herzegovina State of Environment Report 2012. Federal Waste Management Plan 2012. Draft of the Waste Management Strategy in RS, 2016. – 2025.

2.3 Kosovo

2.3.1 Current solid waste management framework

Solid waste management in Kosovo is regulated by the following laws:

- *Law on Waste no. 04/L-060;*
- *Law on Environmental Protection no. 03/L-025.*

The jurisdiction of the Ministry of Environment and Spatial Planning is defined by UNMIK Regulations No. 2002/5 and 2005/15. This Ministry is responsible for policy and plans development, permit issuance, coordination and supervision, and implementation of international conventions. It has 7 Departments, 2 Institutes and the Environmental Protection Agency.

The Kosovo Agency for Environmental Protection consists of three directorates:

- Directorate of Environmental Information System;
- Directorate of Environmental Monitoring; and
- Directorate of Designing Reports, Plans and Environmental Programs.

The Republic of Kosovo Strategy on Waste Management was adopted in 2012 for a period of 10 years in line with the requirements set in the *Law on Waste No. 04/L-060 and Law on Environmental Protection No. 03/L-025.*

The Ministry of Environment and Spatial Planning is the main authority for drafting legislation, policies and strategies at the national level. Municipalities are responsible for drafting local waste management plans, regulation on waste management within the municipal territory, regulation on taxes, fees and tariffs (which include waste fees). Municipalities share the responsibility for legislation enforcement with the inspectors of the Ministry. In accordance with the *Law on Waste No. 04/L-060*, a waste management information system must be set up, but it is not established yet.

Data collection on the national level is performed by the Kosovo Agency for Environmental Protection, on an annual basis. Data collection on the local level is performed by the Ministry of Local Government Administration. Data on waste management is collected by municipalities on a bi-annual basis and two main indicators are calculated "% of households and settlements included in waste collection" and "% of fee collection".

Kosovo has 5 sanitary regional landfills:

- Prishtine, (GPS coordinates: latitude 42°39'N and longitude 21°02'E)
- Gjilan (GPS coordinates: latitude 42°26'N and longitude 21°29'E)
- Prizren (GPS coordinates: latitude 42°15'N and longitude 20°41'E)
- Mitrovice (GPS coordinates: latitude 42°52'N and longitude 20°54'E)
- Peje (GPS coordinates: latitude 42°40'N and longitude 20°17'E)

Data indicates that there are 61 non-compliant municipal landfills. Information on the number of illegal dumpsites is not officially available. There was an initiative in Gjakova/Djakovica community to map illegal dumping sites, where volunteers reported about approximately 700 such locations. Inert waste landfills have not been built in Kosovo.

2.3.2 Recent achievements

Waste management in Kosovo is currently undergoing important reforms. Activities are focused on the fee collection system reorganisation, transferring the fee collection responsibility from publicly owned enterprises to municipalities. Some of the municipalities have undergone this transition, while others are currently preparing for this transfer. Fee collection mechanisms are also a big issue for Kosovo. There are no existing mechanisms to penalise citizens who are not paying the fee. One of the key reasons why the transfer of waste collection fee is made is because municipalities have methods to enforce payment. One of the additional benefits of transferring the fee collection responsibility is that waste collection coverage can be expanded. Municipalities are currently trying to expand waste collection to remote areas, where most of illegal dumpsites can be found. By increasing the coverage, local governments hope to remove and close many of these illegal dumpsites.

2.3.3 Assessment of progress

No significant changes in terms of waste indicators have been reported in Kosovo. The generation of MSW remains unchanged compared to the baseline year. Data indicates that 90% of waste is disposed on landfills, while only a small percentage is recycled and a negligible amount is treated biologically. It was not possible to calculate the recycling rate as the data was not available.

Table 5: Waste management indicators for Kosovo (2014—2015)

Indicator number	Indicator	Unit	Kosovo 2014	Kosovo 2015	Data source
1	Total population	Number	1,812,771	1,797,151	http://data.worldbank.org/
2	Country income level (GNI)	$	4,010	3,970	http://data.worldbank.org/
3	MSW generation per capita	kg/cap/day	0.9	0.9	NALAS TF questionnaire, Kosovo Statistical Office
4a	MSW landfilled	%	90	90	NALAS TF questionnaire, Strategy of the Republic of Kosovo on Waste Management 2013 – 2022
4b	MSW in illegal open dumps	%	0	0	NALAS TF questionnaire, Strategy of the Republic of Kosovo on Waste Management 2013 – 2022
4c	Waste recovered by recycling	%	9	9	NALAS TF questionnaire, Strategy of the Republic of Kosovo on Waste Management 2013 – 2022
4d	MSW biological treatment	%	1	1	NALAS TF questionnaire, Strategy of the Republic of Kosovo on Waste Management 2013 – 2022
4f	MSW treated in thermal plants	%	0	0	NALAS TF questionnaire, Strategy of the Republic of Kosovo on Waste Management 2013 – 2022
5	Recycling rate	%	N/A	N/A	NALAS TF questionnaire, Strategy of the Republic of Kosovo on Waste Management 2013 – 2022
6a	Sanitary regional landfills	Number	5	5	NALAS TF questionnaire, Strategy of Republic of Kosovo on Waste Management 2013 – 2022.
6b	Non-compliant municipal landfills	Number	N/A	61	NALAS TF questionnaire, Strategy of the Republic of Kosovo on Waste Management 2013 – 2022
6c	Illegal dumpsites	Number	N/A	Approx. 700+	NALAS TF questionnaire, Strategy of the Republic of Kosovo on Waste Management 2013 – 2022 www.opendatakosovo.org
6d	Landfill for inert waste	Number	N/A	0	NALAS TF questionnaire, Strategy of the Republic of Kosovo on Waste Management 2013 – 2022

2.4 Macedonia

2.4.1 Current solid waste management framework

Solid waste management in Macedonia is regulated by the following laws:

- *Law on Waste Management (O.G. of RM no. 9/11, 51/11, 123/11, 147/13, 163/13, 156/15),*
- *Law on Management of Packaging and Packaging Waste (O.G. of RM no. 161/09, 136/11, 17/11, 47/11, 6/12, 39/12, 163/13)*
- *Law on Management of Electric and Electronic Equipment and Management of Electric and Electronic Equipment Waste (O.G. of RM no. 6/12, 163/13)*
- *Law on Batteries and Accumulators and Waste Batteries and Accumulators (O.G. of RM no. 140/10, 47/11, 148/11, 39/12, 163/13)*

Responsibilities in waste management are divided among several institutions. The institution responsible for policy making and planning is the Ministry of Environment and Physical Planning. Municipalities are implementing a municipal solid waste management system at the local level. Municipalities are responsible for organising the collection, transport and disposal of municipal waste; deciding on the location of waste management facilities; issuing local waste management regulations; financing and supervising dump/landfill closures and closing down waste management facilities.

The core policy documents on waste management at the national level are the National Waste Management Strategy for the period 2008-2020 (O.G. of RM no. 39/08) and the National Waste Management Plan for the period 2009-2015 (O.G. of RM no. 77/09). The National Waste Management Strategy of Macedonia defines that collection of data on hazardous waste management shall be organized by the Ministry of Environment and Physical Planning as a part of the overall Macedonian Environmental Information System. The Ministry is responsible for creating a network for data gathering, including waste management data from ministries, organizations, scientific and research institutions, legal and physical persons managing waste and other entities.

Municipalities and the City of Skopje organize data collection on the local level and collect data about the general situation related to non-hazardous waste management. Data is processed and sent to the Macedonian Environmental Information Centre (MEIC), which is an expert institution in the field of environment. MEIC processes data and submits it to the public administration responsible for environmental affairs. The main role of MEIC is to provide systematized and standardized information on key environmental media. Macedonia has been reporting to EEA since 1997, and reports are submitted through the Ministry of Environment and Physical Planning.

"Many municipalities in the Republic of Macedonia did not fulfil their legal obligations and their mayors did not submit annual reports on municipal solid waste management and other types of non-hazardous waste; actually more than 50% of Macedonia's population is not covered by reports, so this creates a lack of possibility to make accurate conclusions regarding the management of municipal and non-hazardous waste in the Republic of Macedonia"[6].

Competent authorities for inspection and other enforcement tasks at the central level are the State Environmental Inspectorate and the Inspection Council as an independent body. Competent authorities for inspections at the local level are municipality inspection departments.

Macedonia has 1 sanitary regional landfill located in Drisla, Batinci (GPS coordinates: latitude 41°55'N and longitude 21°28'E).

6 Quality of the Enviornoment in the Republic of Macedonia – Annual Report 2015; (June 2016), Ministry of Environment and Physical Planning of the Republic of Macedonia, prepared by the Macedonian Environmental Information Centre in accordance with the Law on Environment.

Data obtained from 2015 Environmental Statistics, shows that there are 47 non-compliant municipal landfills. Illegal dumpsites are not registered, but estimations are that there are around 1000 illegal dumpsites. Landfills for inert waste are built in the Municipality of Bitola (Meglenci), Municipality of Struga (Vranista), Municipality of Gjorce Petrov (Novo Selo) and Municipality of Strumica (Trkajne).

2.4.2 Recent achievements

Significant achievements in 2015 were made in the establishment of an integrated waste management system. The development of Regional Solid Waste Management Plans started in four Macedonian Regions: Skopje, Pelagonia, Vardar and South-West Region. Additionally, in Eastern and North-Eastern Region of Macedonia, the construction of new regional landfills has come to its final stage.

2.4.3 Assessment of progress

There are no significant changes in the indicators provided on Macedonia. Waste generation per capita is 1 kg/day. Macedonia is still a country with 99. 4% rate of waste disposal on landfills. Small amounts of waste are recycled.

Table 6: Waste management indicators for Macedonia (2014—2015)

Indicator number	Indicator	Unit	Macedonia 2014	Macedonia 2015	Data source
1	Total population	Number	2,069,172	2,071,278	NALAS TF Questionnaire
2	Country income level (GNI)	$	5,190	5,140	http://data.worldbank.org/
3	MSW generation per capita	kg/cap/day	1.0	1.06	NALAS TF questionnaire, National Statistics
4a	MSW landfilled	%	99.4	99.4	NALAS TF questionnaire, National Statistics
4b	MSW in illegal open dumps	%	N/A	N/A	NALAS TF questionnaire, National Statistics
4c	Waste recovered by recycling	%	0.6	0.6	NALAS TF questionnaire, National Statistics
4d	MSW biological treatment	%	0	0	NALAS TF questionnaire, National Statistics
4f	MSW treated in thermal plants	%	0	0	NALAS TF questionnaire, National Statistics
5	Recycling rate	%	12	11	NALAS TF questionnaire, National Statistics
6a	Sanitary regional landfills	Number	1	1	NALAS TF questionnaire, Republic of Macedonia State Statistical Office, Environmental Statistics 2015
6b	Non-compliant municipal landfills	Number	47	47	NALAS TF questionnaire, Republic of Macedonia State Statistical Office, Environmental Statistics 2015
6c	Illegal dumpsites	Number	N/A	Approx. 1000	NALAS TF questionnaire, Republic of Macedonia State Statistical Office, Environmental Statistics 2015
6d	Landfill for inert waste	Number	N/A	0	NALAS TF questionnaire, Republic of Macedonia State Statistical Office, Environmental Statistics 2015

2.5 Moldova

2.5.1 Current solid waste management framework

Solid waste management in Moldova is regulated by the following laws:

- *Law on Production of Household Waste, no. 1347-XIII, 1997*
- *Law on Environmental Protection, no. 1515-XII, 1993*
- *Law on Ecological Expertise and Environmental Impact Assessment, no. 851-XIII, 1996.*

The Law on *Production of Household Waste* regulates waste management at the local level. The Law is out of date and incompatible with the current European trends, and would need to be harmonised with the European waste classifications.

The National Solid Waste Management Strategy of the Republic of Moldova (2013-2027) was developed in line with the EU Directives and sets waste management goals in line with the EU principles and clear objectives and implementation measurement. It includes requirements to start restructuring the legal and institutional framework and develop an integrated system comprising technical and environmental regulation in the field of separate waste collection, recycling, recovery, storage and waste disposal. The Strategy aims to establish regional waste management in eight regions.

Data collection on waste is under the jurisdiction of the National Statistical Bureau of Moldova. Local governments are responsible for the organization of waste collection and disposal systems.

The current waste management statistical system only partially reflects the situation with household waste management, while the information on the flows of special waste streams such as waste oil, end of life motor vehicles, waste tires, accumulators and batteries, waste electrical and electronic equipment, as well as household waste, remains unreliable.

The situation in the solid waste management system remains characterized by existing but underdeveloped SWM services in towns and bigger villages, lack of equipment for waste collection and transportation, increasing quantity of waste, lack of capacities for waste disposal, no organized recycling system, and low level of public awareness about waste management.

2.5.2 Recent achievements

Moldova reported no significant changes or recent achievements in 2015. The State still struggles with insufficient and old legal framework which needs to be harmonised with the EU regulations. The Government of Moldova needs to develop a new legal and institutional framework on waste management in line with the EU principles, which would be economically efficient and would take into consideration human health and the environment.

According to the National Waste Management Strategy, the following is yet to be implemented:

- integrated management of waste, based on a regional approach, territorial division of the country in eight waste management regions,
- regional infrastructure development for SWM disposal and transfer stations,
- development of collection systems and treatment of specific waste flows (packaging, tires, batteries), promoting and implementing the principle of „extended producer's responsibility" and "the polluter pays" principle

- development of collection systems and treatment of hazardous waste (medical waste, waste oils, etc.) (one collection point at each region's level).

The Ministry drafted and the Government approved the new Law on Waste in September 2014. It was supposed to be approved by the Parliament and enforced after the elections in 2015. However, the Law has not been passed yet.

2.5.3 Assessment of progress

Moldova is not keeping track of municipal waste management statistics and reporting to Eurostat yet. In the 2015 National Report on Natural Resources, data on waste production in the commercial sector was given; however, it is not relevant for the benchmarking. Thus, municipal data is not available as estimated and it was difficult to assess any progress compared to 2014.

Table 7: Waste management indicators for Moldova (2014—2015)

Indicator number	Indicator	Unit	Moldova 2014	Moldova 2015	Data source
1	Total population	Number	3,556,397	3,554,150	http://data.worldbank.org/
2	Country income level (GNI)	$	2,560	2,240	http://data.worldbank.org/
3	MSW generation per capita	kg/cap/day	0.6	0.6	NALAS TF questionnaire, National Waste Management Strategy 2013 - 2027
4a	MSW landfilled	%	0	0	NALAS TF questionnaire, National Waste Management Strategy 2013 - 2027
4b	MSW in illegal open dumps	%	100%	100%	NALAS TF questionnaire, National Waste Management Strategy 2013 - 2027
4c	Waste recovered by recycling	%	0	0	NALAS TF questionnaire, National Waste Management Strategy 2013 - 2027
4d	MSW biological treatment	%	0	0	NALAS TF questionnaire, National Waste Management Strategy 2013 - 2027
4f	MSW treated in thermal plants	%	0	0	NALAS TF questionnaire, National Waste Management Strategy 2013 - 2027
5	Recycling rate	%	0	0	NALAS TF questionnaire, National Waste Management Strategy 2013 - 2027
6a	Sanitary regional landfills	Number	N/A	0	NALAS TF questionnaire, National Waste Management Strategy 2013 - 2027
6b	Non-compliant municipal landfills	Number	N/A	0	NALAS TF questionnaire, National Waste Management Strategy 2013 - 2027
6c	Illegal dumpsites	Number	N/A	0	NALAS TF questionnaire, National Waste Management Strategy 2013 - 2027
6d	Landfill for inert waste	Number	N/A	0	NALAS TF questionnaire, National Waste Management Strategy 2013 - 2027

2.6 Montenegro

2.6.1 Current solid waste management framework

Solid waste management in Montenegro is regulated by the following laws:

- Law on Environment (O.G. of Montenegro, no. 48/08, 40/10, 40/11, 27/14)
- Law on Nature Protection (O.G. of Montenegro, no. 51/08, 62/13)
- Law on Waste Management (O.G. of Montenegro, no. 64/11);
- Law on Inspection (O.G. of Montenegro, no. 39/03, 76/09, 57/11, 18/14, 11/15);
- Law on Communal Utilities (O.G. of Montenegro, no. 12/95).

At the state level, the Ministry of Sustainable Development and Tourism is responsible for the development of national legislation and policy framework in the field of waste management. The main departments responsible for waste management at the Ministry of Sustainable Development and Tourism are:

- *Directorate for Waste Management and Local Development*—responsible for all aspects of planning and waste management;
- *Directorate of Industrial Pollution Control and Management of Chemicals*— performs harmonization of legislation with the EU regulations in the field of treatment of industrial waste, and participates in the work of international conventions and relevant authorities for that area;
- *Department of International Cooperation*—international and bilateral cooperation and cooperation with international organizations, as well as in the preparation and implementation of relevant international agreements.

The Law on Environment regulates the establishment of an environmental information system. The waste management system is an integral part of the environmental information system. Reporting to EEA is not regulated by any legal document.

According to the *Law on Statistics (O.G. of Montenegro, no. 18/12)*, the Agency for Statistics of Montenegro (MONSTAT) is responsible for collection of all the data needed for statistical purposes. The Agency decides which data will be collected based on their annual Statistics Program. Currently, there is double counting of waste data since both MONSTAT and the Environmental Protection Agency of Montenegro are collecting waste data in two separate processes. The Agency reports to the Ministries and Government.

The current National Waste Management Plan recognizes several constrains to the successful implementation of the data collection system. Issues related to monitoring and reporting are:

- Public Utility data is not reported regularly and reporting channels are fragmented;
- Data collection at the local level is overlapping between multiple institutions;
- Data is inconsistent due to double counting.

Montenegro has 2 sanitary regional landfills:

- Livade, Podgorica (GPS coordinates: latitude 42°41'N and longitude 19°30'E)
- Možura, Bar (GPS coordinates: latitude 42°04'N and longitude 19°16'E)

Other municipalities are disposing on 10 non-compliant municipal landfills. Additionally, approximately 300 illegal dumpsites are registered in Montenegro. No landfills for inert waste have been established officially.

2.6.2 Recent achievements

Recent achievements in Montenegro are reflected in the adoption of the National Waste Management Strategy 2015 – 2030 and National Waste Management Plan 2015 – 2020. Although Montenegro is an EU candidate country and its regulations are continually being amended through an on-going process of harmonization with the EU Acquis, waste management laws did not change in 2015.

The National Waste Management Plan 2015 – 2020 concludes that the current method of collection of information on waste quantities is unsatisfactory, and that the Government must create a stable data collecting system which will have a stricter control regime. The proposal is to have the Statistical Office of Montenegro (MONSTAT) as the only officially recognised institution for gathering and publishing data on waste quantities.

When it comes to waste management, the preliminary plan is to establish three preferred management options, and that data on waste is tracked on a yearly basis. The three mentioned management options are as follows:

Option 1: Formation of five regional waste management centres

- Region Centre 1— includes Podgorica, Cetinje and Danilovgrad;
- Region Centre 2—includes Niksic, Pluzine and Savnik;
- Region North—includes Bijelo Polje, Mojkovac, Kolasin, Pljevlja, Zabljak, Berane, Rožaje, Plav and Andrijevica;
- Coast Region 1—includes Bar and Ulcinj;
- Coast Region 2—includes Herceg Novi, Kotor, Tivat and Budva.

Option 2: Formation of three regional waste management centres

- Region Centre—includes Podgorica, Cetinje, Danilovgrad, Niksic, Plužine and Šavnik;
- Region North—includes Bijelo Polje, Mojkovac, Kolasin, Pljevlja, Zabljak, Berane, Rožaje, Plav and Andrijevica;
- Coast Region— includes Bar, Ulcinj, Herceg Novi, Kotor, Tivat and Budva.

Option 3: Establishment of a single Centre for Waste Management

- Singular centre – which would include waste from all municipalities, stationed in Niksic.

2.6.3 Assessment of progress

National waste management indicators reported for 2015 show no significant change compared to 2014. The recycling rate is reported to be higher by 1%, which may be a result of new investments in the recycling system. Landfilling is still the only and preferable option for waste treatment. Information on other types of waste treatment was not available.

Table 8: Waste management indicators for Montenegro (2014—2015)

Indicator number	Indicator	Unit	Montenegro 2014	Montenegro 2015	Data source
1	Total population	Number	621,521	622,099	NALAS TF Questionnaire
2	Country income level (GNI)	$	7,320	7,220	http://data.worldbank.org/
3	MSW generation per capita	kg/cap/day	1.46	1.44	NALAS TF questionnaire, National Statistics
4a	MSW landfilled	%	86%	86%	NALAS TF questionnaire, National Statistics
4b	MSW in illegal open dumps	%	11	12	NALAS TF questionnaire, National Statistics
4c	Waste recovered by recycling	%	0	0	NALAS TF questionnaire, National Statistics
4d	MSW biological treatment	%	0	0	NALAS TF questionnaire, National Statistics
4f	MSW treated in thermal plants	%	0	0	NALAS TF questionnaire, National Statistics
5	Recycling rate	%	5%	6%	NALAS TF questionnaire, National Statistics
6a	Sanitary regional landfills	Number	2	2	NALAS TF questionnaire, National Statistics
6b	Non-compliant municipal landfills	Number	10	10	NALAS TF questionnaire, National Statistics
6c	Illegal dumpsites	Number	Approx. 350	Approx. 300	NALAS TF questionnaire, National Statistics
6d	Landfill for inert waste	Number	0	0	NALAS TF questionnaire, National Statistics

2.7 Romania

2.7.1 Current solid waste management framework

Solid waste management in Romania is regulated by the following laws:

- Government Emergency Ordinance No. 195/2005 on environmental protection, as amended (GEO 195/2005);
- Law No. 211/2011 on waste regime (Law 211/2011);

The Law 211/2011 entered into force on 28 November 2011 and transposed the Waste Framework Directive (WFD) into the national legislation. The Ministry of Environment and Climate Change is the competent authority for coordination of the implementation of the WFD and resulting Romanian legislation.

Data collection on MSW indicators and waste statistics is regulated by a set of laws:

- Law 211/2011 regarding waste regulation,
- Law 51/2006 regarding public utility services,
- Law 101/2006 regarding city sanitation,
- HG 856/2002 regarding waste management.

The Romanian Environment Protection Agency is responsible for collection of waste data, national reporting and reporting to the EEA as regulated by the Law 51/2006.

The responsibility for collection and management of municipal solid waste belongs to municipalities. Local authorities are involved in the practical implications of setting up systems for separate collection, processing, storing, etc., as well as the coordination of activities in the field of separate collection and organization of waste recycling.

Romania faces many challenges regarding MSWM. Municipalities have noticed that the current system is not adequate to resolve issues with waste management. Most of the started projects are not finished. Inhabitants living in rural areas do not pay any fees for waste collection. All rural companies that collect waste have issues with fee collection. The solution proposed for these problems is imposing a sanitation fee, the system that proved successful in 3 districts in Romania.

Currently, the country has 34 sanitary landfills and no non-compliant municipal landfills. Inert waste is disposed on sanitary landfills. No separate landfill for inert waste is constructed in Romania. There is no data on illegal dumps.

2.7.2 Recent achievements

Romania has not made significant progress in solid waste management and many challenges remain – primarily, the weak capacity to implement and manage projects. As the economy develops and consumption expands, waste volumes grow steadily and current landfills are not enough. Many areas still lack adequate solid waste management infrastructure, particularly remote rural areas, and even where infrastructure exists, there is no improvement toward achieving an integrated waste management. Markets for extraction and sales of recyclables and compost are not developed.

In general, strong political will exists to promote sound SWM practices as waste management remains among Romania's primary environmental challenges. However, the institutional framework has not yet seen adequate changes that will allow Romania to fully implement all tasks in the National Waste Management Strategy. There are some existing advances by some municipalities, but at the state level, no significant changes are observed.

While the implementation of good SWM practices has not been very strong in Romania, it cannot become more efficient without the appropriate infrastructure in place. The implementation of any changes remains slow due to various bottlenecks (social, economic and political). This creates a closed loop and would require the country to break out of the current system and start to adequately respond to SWM challenges.

2.7.3 Assessment of progress for Romania 2014 – 2015

Romania remains a country in the SEE with the highest MSW generation. No changes were reported in 2015. Romanian government is currently focused on closing non-compliant landfills and diverting waste to sanitary landfills, but the process will take time and is still in its early phases. Data on illegal dumpsites is not reported. Their number is difficult to estimate since most of the illegal dumpsites are located in rural areas which are not covered with municipal waste collection services.

Table 9: Waste management indicators for Romania (2014—2015)

Indicator number	Indicator	Unit	Romania 2014	Romania 2015	Data source
1	Total population	Number	19,550,000	19,550,000	NALAS TF Questionnaire, Romanian Statistical Office
2	Country income level (GNI)	$	6,195	6,500	NALAS TF Questionnaire, Romanian Statistical Office
3	MSW generation per capita	Kg per day	1.5	1.5	NALAS TF Questionnaire, Romanian Statistical Office
4a	MSW landfilled	%	85	85	NALAS TF Questionnaire, Romanian Statistical Office
4b	MSW in illegal open dumps	%	5	5	NALAS TF Questionnaire, Romanian Statistical Office
4c	Waste recovered by recycling	%	7	7	NALAS TF Questionnaire, Romanian Statistical Office
4d	MSW biological treatment	%	3	3	NALAS TF Questionnaire, Romanian Statistical Office
4f	MSW treated in thermal plants	%	0	0	NALAS TF Questionnaire, Romanian Statistical Office
5	Recycling rate	%	29	29	NALAS TF Questionnaire, Romanian Statistical Office
6a	Sanitary regional landfills	Number	17	34	NALAS TF Questionnaire, National Statistics
6b	Non-compliant municipal landfills	Number	46	43	NALAS TF Questionnaire, National Statistics
6c	Illegal dumpsites	Number	N/A	N/A	NALAS TF Questionnaire, National Statistics
6d	Landfills for inert waste	Number	N/A	0	NALAS TF questionnaire, National Statistics

2.8 Serbia

2.8.1 Current solid waste management framework

Environmental regulations related to SWM and data collection in Serbia are:

- Law on Waste Management (O.G. no. 36/09 and 88/10), Article 75;
- Law on Packaging and Packaging Waste (O.G. no. 36/09);
- Law on Ratification of the Basel Convention on Transboundary Movements of Hazardous Wastes and Their Disposal (O.G of the Federative Republic of Yugoslavia no. 2/99)
- Ordinance on the methodology for the preparation of national and local registry of pollution sources, as well as the methodology for types, ways and terms of data collection (O.G. no. 91/10);
- Ordinance on the form of daily records and annual reporting on waste, with instructions for its implementation (O.G. no. 95/10);
- Regulation on categories, testing and classification of waste (O.G. no. 56/10);

The Ministry of Agriculture and Environmental Protection is in charge of the development of a national waste policy.

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 (O.G. no. 135/2004, 36/2009, 36/2009, 72/2009, 43/2011 and 14/2016). The Statistical Office of RS reports on waste generation and population served. However, the figures are outdated and refer to 2008. Reporting to the EEA is regulated by Article 5 of the Law on Ministries (O.G. no. 44/2014, 14/2015, 54/2015). Serbia currently recycles 7% to 8% of its communal waste such as glass, wood, and paper, plastic and metal, while the remaining 7-8% is recycled from the commercial sector.

Waste management in Serbia was based only on collection and waste disposal mainly on non-compliant municipal landfills or small open dumps. In order to change the existing practice, the main goal of waste management in Serbia is to increase the selection and separation of recyclables, especially of packaging waste, and disposal of the remaining waste at sanitary landfills.

Serbia has 5 sanitary landfills, 165 non-compliant municipal landfills and over 3000 illegal dumping sites. It is estimated that 20% of the waste generated is disposed at illegal dumps. There are 5 more regional sanitary landfills under construction and several municipality landfills which are under closure.

2.8.2 Recent achievements

No major changes or improvements are reported in 2015.

2.8.3 Assessment of progress

According to the reported waste management indicators for 2015, no significant change is observed. The amount of waste generated per capita has slightly decreased, however this might be a result of statistical calculations. Serbia reported the highest recycling rate of all SEE countries.

Table 10: Waste management indicators for Serbia (2014—2015)

Indicator number	Indicator	Unit	Serbia 2014	Serbia 2015	Data source
1	Total population	Number	7,186,862	7,186,862	NALAS TF Questionnaire, Statistical Office of the Republic of Serbia
2	Country income level (GNI)	$	5,820	5,143	NALAS TF Questionnaire
3	MSW generation per capita	kg/cap/ day	0.92	0.81	NALAS TF Questionnaire, Statistical Office of the Republic of Serbia
4a	MSW landfilled	%	65	65	NALAS TF Questionnaire
4b	MSW in illegal open dumps	%	20	20	NALAS TF Questionnaire
4c	Waste recovered by recycling	%	15	15	NALAS TF Questionnaire, Statistical Office of the Republic of Serbia
4d	MSW biological treatment	%	0	0	NALAS TF Questionnaire
4f	MSW treated in thermal plants	%	0	0	NALAS TF Questionnaire
5	Recycling rate	%	0	0	NALAS TF Questionnaire, Statistical office of the Republic of Serbia
6a	Sanitary regional landfills	Number	N/A	5	NALAS TF Questionnaire, Statistical Office of the Republic of Serbia
6b	Non-compliant municipal landfills	Number	N/A	165	NALAS TF Questionnaire, Statistical Office of the Republic of Serbia
6c	Illegal dumpsites	Number	N/A	3000+	NALAS TF Questionnaire, Statistical Office of the Republic of Serbia
6d	Landfill for inert waste	Number	N/A	N/A	NALAS TF Questionnaire, Statistical Office of the Republic of Serbia

2.9 Turkey

2.9.1 Current solid waste management framework

In Turkey, the primary legislation consisting of laws is constituted in the Turkish Parliament and executed by the Turkish Government, whereas the secondary legislation consisting of regulations is constituted and executed by the corresponding Ministry in charge. The secondary legislation on waste management is defined and executed by the Ministry of Environment and Urbanization. The secondary legislation is in line with the "EU Integrated Environmental Approximation Strategy for Turkey (2007-2023)"

Environmental regulations related to solid waste management in Turkey are:

- Law on Environment No. 2872;
- Law on Renewable Energy Resources for Electrical Energy Production No. 5346;
- Law on Municipalities No. 5393;
- Law on Metropolitan Municipalities No. 5216.

Municipalities are responsible for providing all services regarding collection, transportation, separation, recycling, disposal and storage of solid wastes or for appointing others to provide these services (ETC/SCP, 2009). It is observed that their collection and transportation services are not at the desired level and they do not pay the required level of attention to introduce improvements in the municipal solid waste management system. Municipalities can appoint other legal entities to conduct waste collection and transport services.

Municipalities, rural directorates of the Ministry and the Ministry itself have their distinctive roles in the collection of data on solid waste. Data is transferred to the Turkish Statistical Institution (TURKSTAT), which publishes the Annual Report on Waste Statistics. The Ministry prepares both national reports and reports for the EEA.

Turkey has 82 sanitary regional landfills, and 701 non-compliant municipal landfills. Data on illegal dumpsites was not provided.

2.9.2 Recent achievements

In 2015, a sufficient number of technical guidelines was published by Turkey Municipalities Union and Istanbul Metropolitan Municipality for employees at landfills and generally, in the waste management sector. Most of these books contain analyses of waste management:

- *WEEE practical guidebook for municipalities,*
- *Regulations of packaging waste practical guidebook for municipalities,*
- *Experimental design and statistics for environmental engineers within municipalities,*
- *Compost handbook,*
- *Solid waste management and EU harmonised implementations,*
- *Landfill management guidebook,*
- *Wastewater management: Energy Efficiency and good practises for Wastewater Treatment Plants (addressing the sludge management).*

In 2015, a non-profit organisation that gathered waste producers (retails and industries) in the recycling sector was established by the following organizations:

- AGED: Association of Paper and Cardboard Producers (for packaging waste),
- ELDAY: Association of Electronic Equipment Producers and Recyclers (for WEEE),
- TÜBİSAD: Association of Informatics Industrialists (for WEEE),
- AGİD: Association of Lighting Equipment Manufacturers (for WEEE),
- TÜMAKÜDER: Association of Importers and Producers of Batteries (for waste batteries),
- PETDER: Association of Oil Industry (for waste oils).

Local governments intensively work on awareness rising activities aimed at inhabitants and students related to separate collection of waste at its source.

2.9.3 Assessment of progress

Municipal solid waste generation per capita was slightly reduced in 2015, by 0.18 kg/cap/day. Data indicates that, compared to 2014, Turkey increased its amount of waste that is landfilled by 10%, while waste that is thrown away at illegal dumping sites decreased by 8%. The number of sanitary landfills increased by 6. A small amount of waste is recycled and treated biologically. The recycling rate is reported to be very high, 38%.

Table 11: Waste management indicators for Turkey (2014—2015)

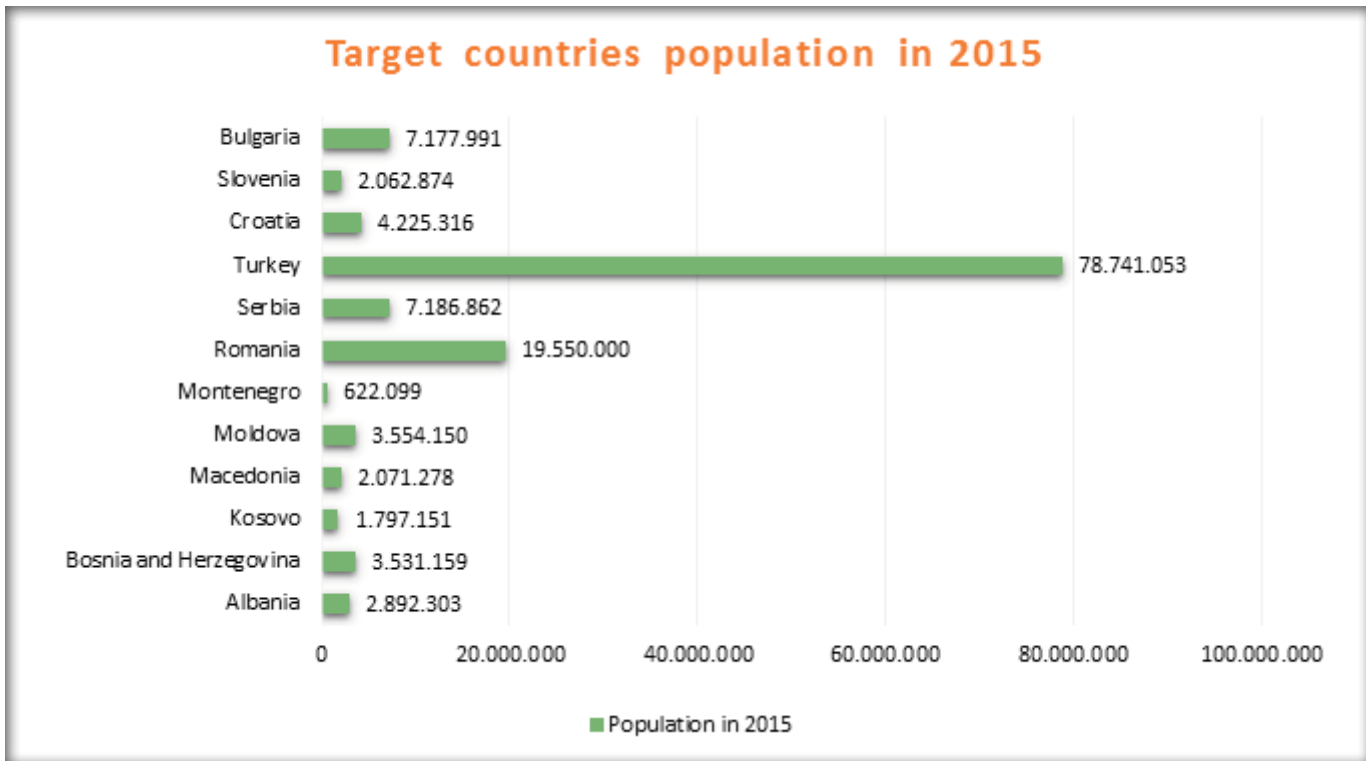
Indicator number	Indicator	Unit	Turkey 2014	Turkey 2015	Data source
1	Total population	Number	77,695,904	78,741,053	NALAS TF Questionnaire, TURKSTAT
2	Country income level (GNI)	$	10,840	10,005	http://data.worldbank.org/
3	MSW generation per capita	kg/cap/day	1.12	0.94	NALAS TF Questionnaire, TURKSTAT
4a	MSW landfilled	%	60%	70%	NALAS TF Questionnaire, TURKSTAT
4b	MSW on illegal open dumps	%	38%	30%	NALAS TF Questionnaire, TURKSTAT
4c	Waste recovered by recycling	%	0.6%	0.02%	NALAS TF Questionnaire, TURKSTAT
4d	MSW biological treatment	%	0	0.57	NALAS TF Questionnaire, TURKSTAT
4f	MSW treated in thermal plants	%	0	0	NALAS TF Questionnaire, TURKSTAT
5	Recycling rate	%	N/A	38	NALAS TF Questionnaire, TURKSTAT
6a	Sanitary regional landfills	Number	76	82	NALAS TF Questionnaire, TURKSTAT
6b	Non-compliant municipal landfills	Number	N/A	701	NALAS TF Questionnaire, TURKSTAT
6c	Illegal dumpsites	Number	N/A	N/A	NALAS TF Questionnaire, TURKSTAT
6d	Landfill for inert waste	Number	N/A	N/A	NALAS TF Questionnaire, TURKSTAT

3 BENCHMARKING OF NATIONAL INDICATORS

3.1 Indicator 1: Population number

This indicator provides information on the total number of population that generates waste and that should be included in waste collection services. This indicator has no benchmark value. The population number was used to calculate values of other indicators such as: waste generation, coverage, etc. Data used to describe this indicator is taken from the submitted questionnaires and double-checked with the information available online at the web sites of national Agencies for statistics and/or EUROSTAT.

Chart 1: Country population in 2015

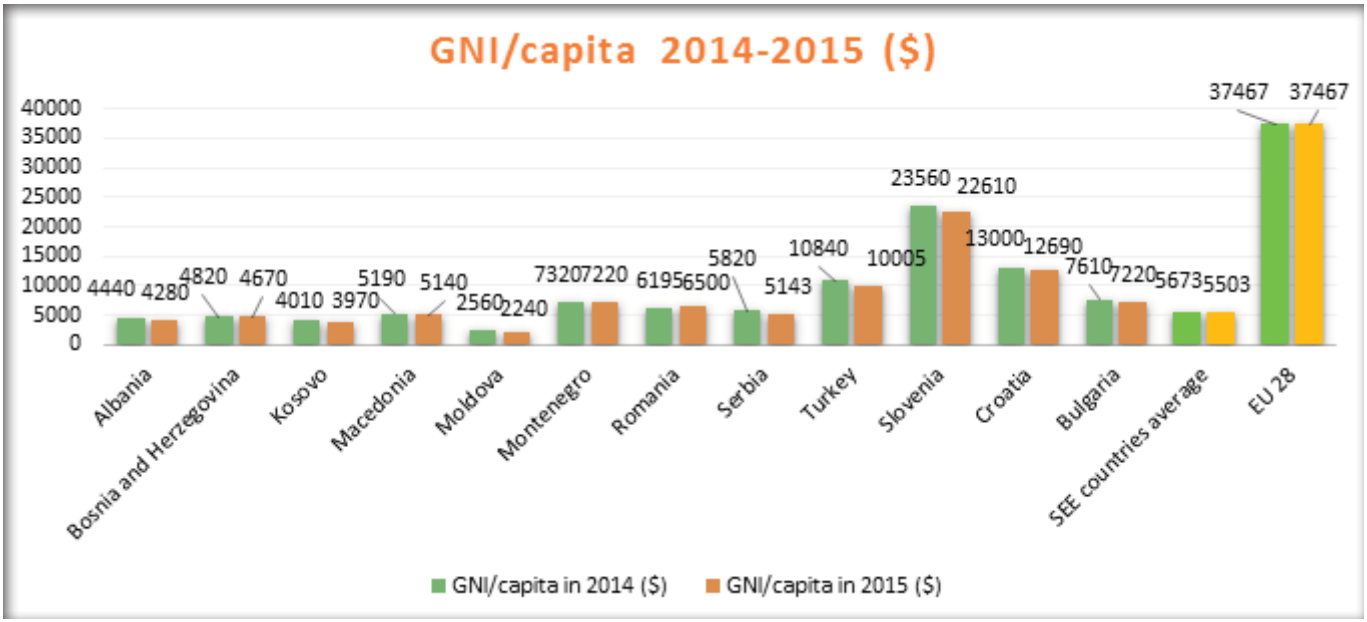


As shown in the graph, Montenegro is the least populated and Turkey the most populated country in the SEE region. Other countries have a similar population size, which also makes them easily comparable in terms of solid waste benchmarking.

3.2 Indicator 2: Country income level

Waste generation per capita increases with the increase in the development level (expressed by the Human Development Index) and income level (GNI/capita) of a country. Therefore, the GNI increase in the NALAS countries, coupled with the population increase, will inevitably increase the amount of waste generated that should be paired with adequate solid waste management infrastructure.

Chart 2: GNI/capita for the SEE countries (2014-2015)



When comparing the GNI of the target countries, we can see that countries in the region have similar economic situations with the exception of Turkey, Slovenia and Croatia. Turkey and Croatia have almost double GNI when compared to 6 countries in the region. Similar population sizes and economic situations in the region make the SEE countries easily comparable in terms of solid waste benchmarking.

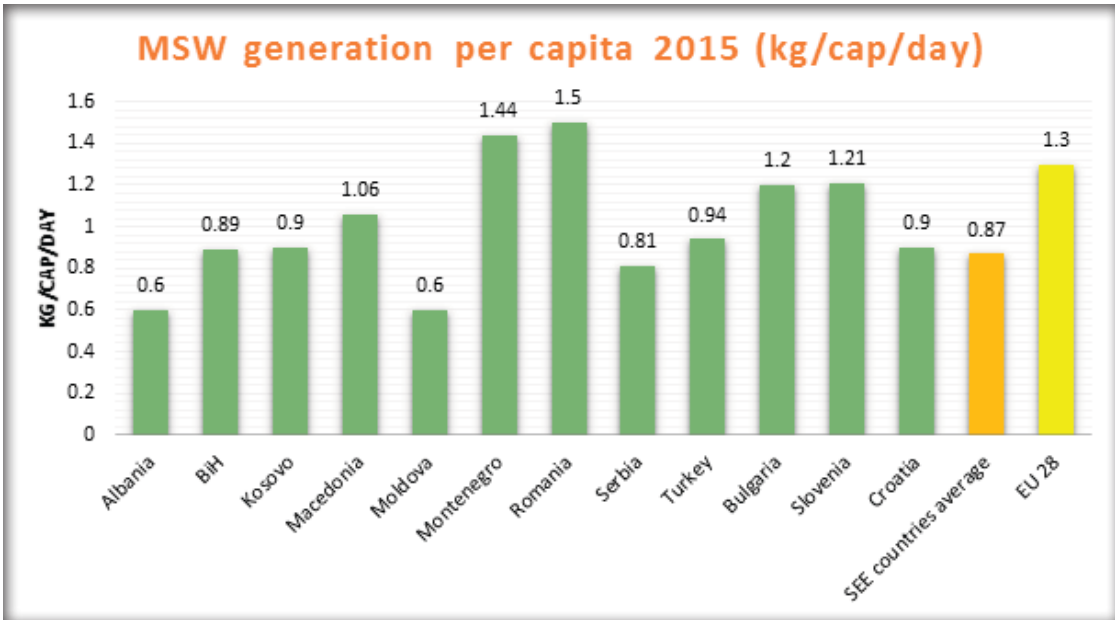
The GNI of Slovenia is four times higher than the average GNI of the SEE countries amounting to 5,503$. If compared with the EU28, the GNI of the SEE countries clearly shows unfavourable economic situation in the region. The EU28 average is six times higher than the average GNI of SEE countries, and more than double that of Turkey and Croatia. Slovenia is the only country whose GNI comes close to the EU28 average.

Compared to 2014, the region did not experience any growth in GNI/capita; on the contrary, the GNI decreased in many of the sample countries. This might indicate that the amounts of municipal, industrial and hazardous waste entering the waste stream will not significantly increase compared to previous years.

3.3 Indicator 3: Municipal solid waste generation per capita

Waste production per capita is one of the most common indicators used to describe the waste generation rate in a country, and it can be expressed as kilograms per person per year or per day. By tracking the per capita waste disposed over time, the effectiveness of waste prevention programs offered can be monitored, solid waste generation forecasts made and municipal solid waste management planning processes supported.

Chart 3: Municipal solid waste generation per capita



According to the data reported, most of the SEE countries produce less waste than the EU28 average. The least waste per inhabitant is produced in Albania and Moldova with 0.6 kg/capita/day, while the most waste is produced in Montenegro and Romania with more than 1.4 kg/capita/day which is higher than the EU average. The average municipal solid waste generation in SEE countries is 0.95 kg/capita/day and it is lower than the EU28 average. This is clearly a result of the poor economic situation and lower purchasing power in the SEE countries.

If compared to 2014, it can be concluded that solid waste generation mainly shows a steady pattern. Turkey and Serbia reported a decrease in their waste generation of more than 100 g per capita compared to 2014. The decrease reported for Bosnia and Herzegovina, Moldova, and Montenegro is not significant and may be attributed to statistical calculations.

Chart 4: Comparison of waste generation in target countries (2014 – 2015)

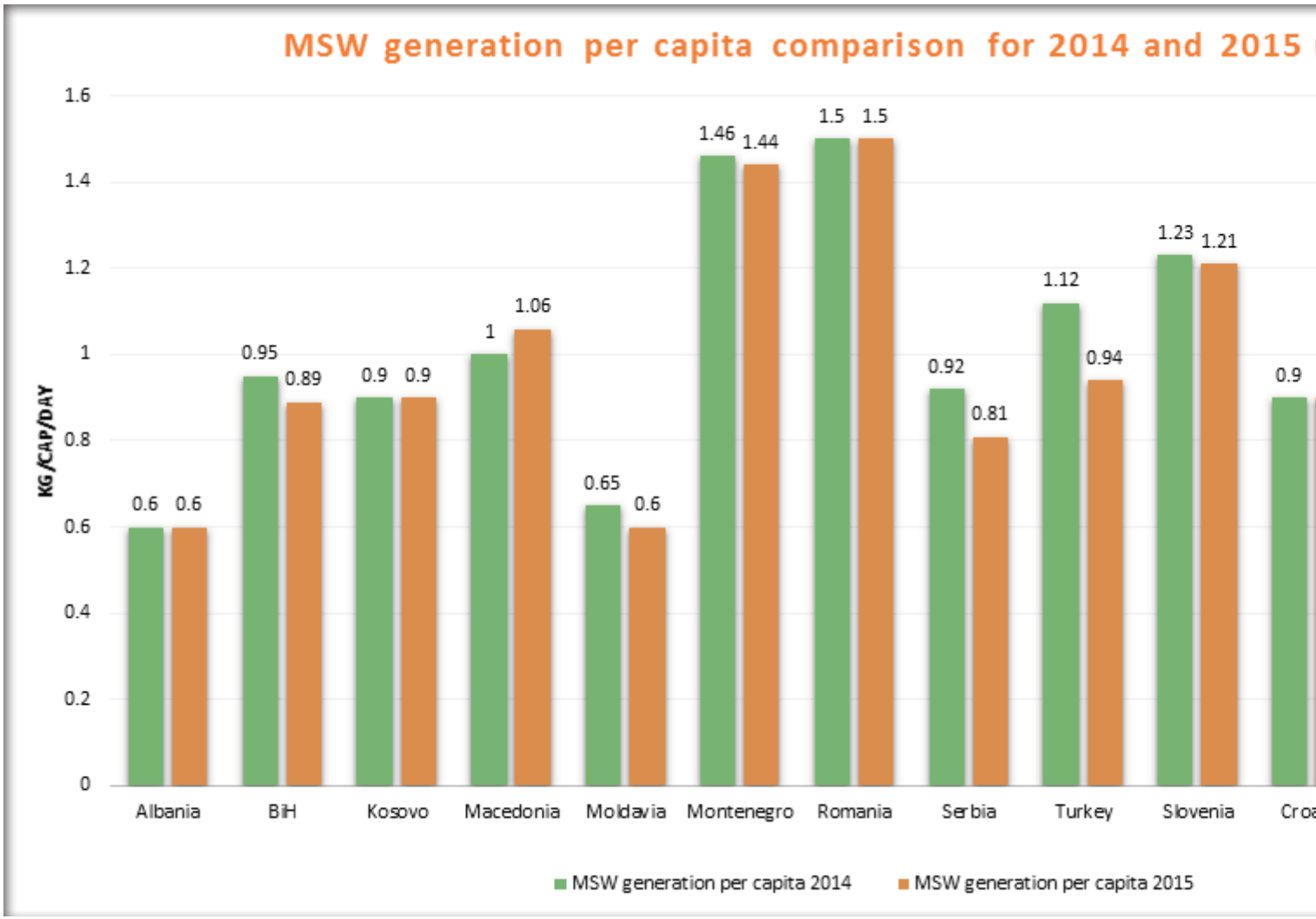
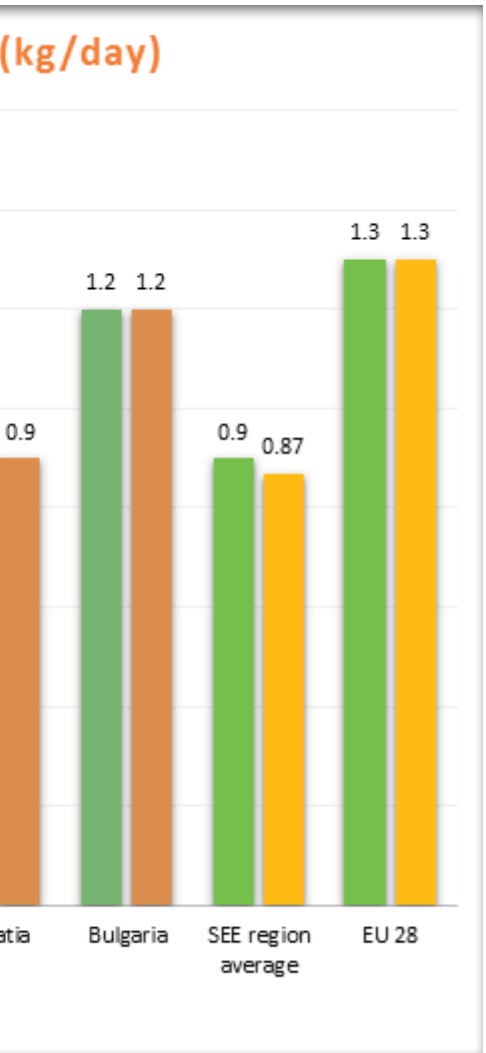
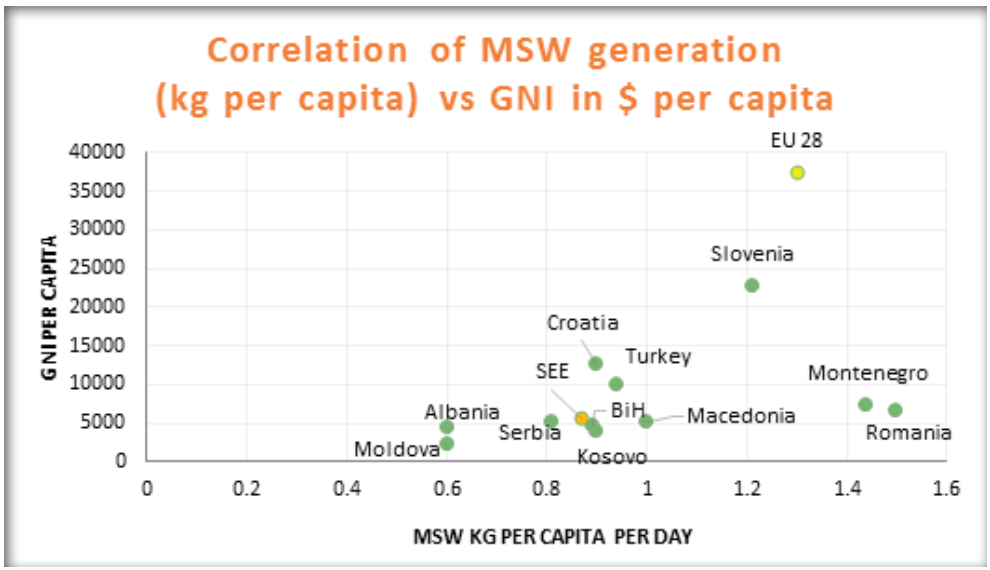


Chart 5: Correlation of MSW generation and GNI in target countries





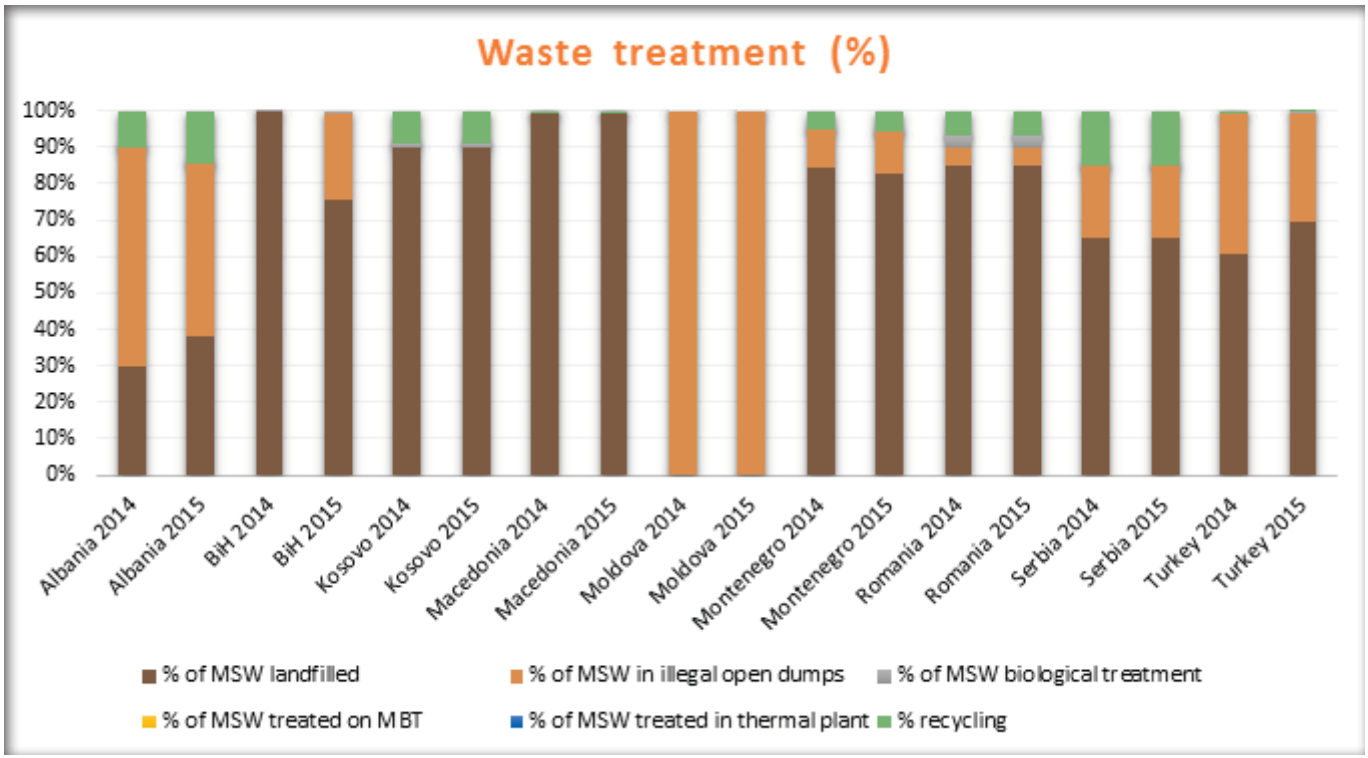
In order to examine the impact of economic power on waste generation in SEE countries, the data representing the GNI per capita and waste generation was plotted on the same graph. It can be observed that in the countries that have GNI per capita below 10,000$, municipal solid waste generation is in the range of 0.5—1.1 kg/cap/day. The increase in GNI does not automatically mean an increase in MSW generation. Slovenia and Croatia with 2 and 4 times bigger GNI than other SEE countries have production of waste of 1.2 and 0.9 kg/cap/day, respectively. The outliers in the chart are Montenegro and Romania, which has high MSW generation, higher than the average for SEE countries and the European average. The generation of municipal waste per capita in the observed period decreased by an average of 0.3 kg/day in the SEE countries. At the same time, the average GNI slightly decreased by 3% over the same period. It seems that SEE countries have not yet succeeded to decouple their waste generation from their economic growth[7]. This trend should be closely observed in future benchmarking reports.

[7] The Waste Framework Directive (2008/98/EC) includes a general objective to break the link between the economic growth and environmental impacts associated with the generation of waste (decoupling) www.balkwaste.eu/wp-content/plugins/download-monitor/download.php?id=72

3.4 Indicator 4: Waste treatment

The total amount of MSW landfilled per capita is a measure towards waste management performance. High amounts of waste landfilled indicate the lack of waste infrastructure. Waste disposal is considered to be the least desirable option. Landfills should be reserved for stabilised wastes from which no further value may be recovered. Furthermore, the Waste Landfill Directive sets specific targets for 2006/2010, 2009/2013, and 2016/2020, depending on the country. Reaching the targets will require reducing the fraction of biodegradable municipal waste (BMW) which is landfilled. According to the Directive 1999/31/EC, BMW going to landfills in 2006 must be reduced to 75 %, in 2009 reduced to 50%, and in 2016 BMW must be reduced to 35% of the total amount of BMW produced in 1995 for which standardised Eurostat data is available.

Chart 6: Comparison of waste options in target countries (2014 – 2015)



The data for Albania reveals an increase in waste disposed on illegal dumps, as well as an increase in recycling. Waste treatment options are still the same for Bosnia and Herzegovina, with illegal dumping remaining to be an issue. Macedonia is among the countries with 99.4% of municipal waste disposed on landfills. Waste is mainly disposed on non-compliant landfills. Moldova is a country with 100% of waste disposed on illegal dumps. The positive change is observed in Montenegro, where the amount of waste disposed at illegal open dumps has decreased. Kosovo, Romania and Serbia

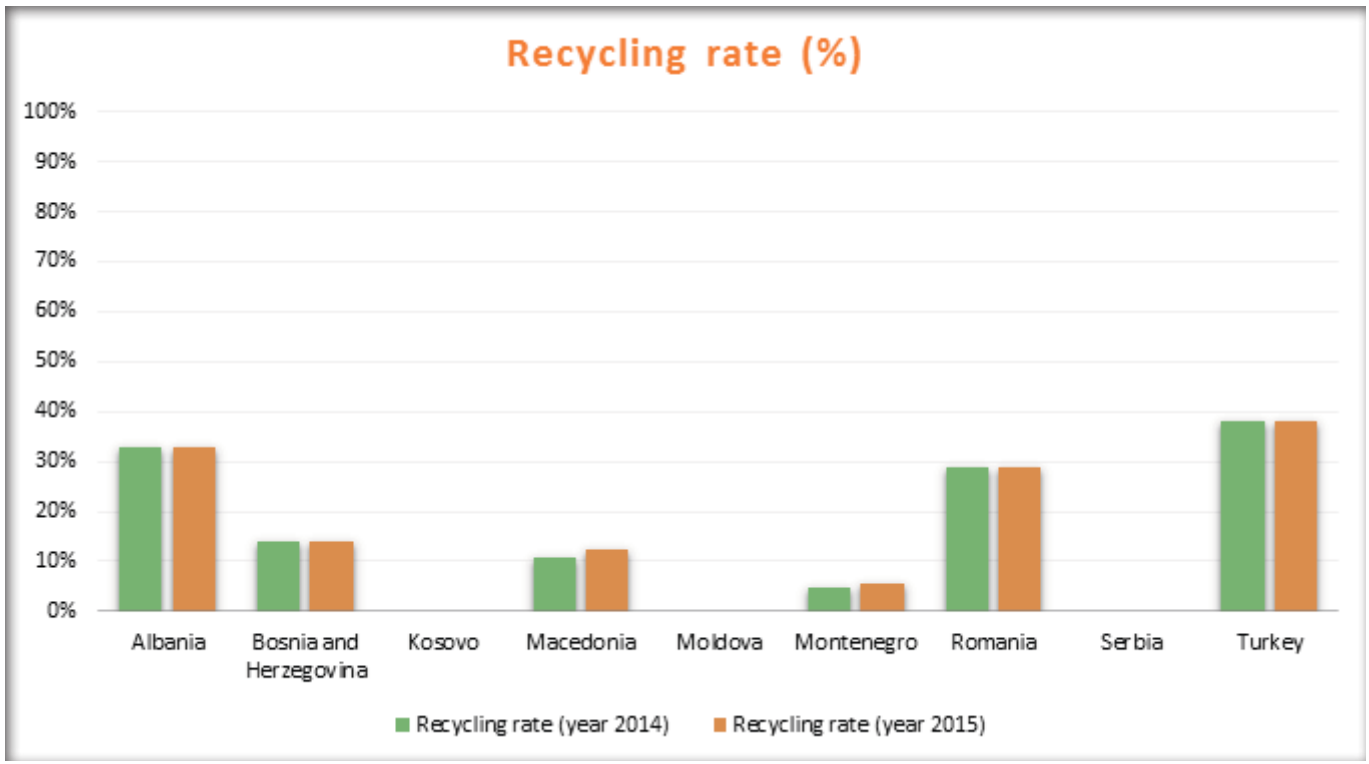
reported no significant changes in the observed period. In Turkey, the amount of waste landfilled has increased at the same time decreasing the amount of waste dumped at illegal open dumps by 8%.

Landfilling remains the most preferable option for the countries in the region. SEE countries are trying to decrease their amounts of waste dumped on illegal dumps; however little effort is made to invest in other waste treatment options. Due to the lack of adequate infrastructure, landfilling currently remains the only viable, and thus preferred, option.

3.5 Indicator 5: Recycling rate

The recycling rate is the percentage of recyclables that are collected and recycled divided by the total amount of recyclables that are generated.

Chart 7: Recycling rate comparison (2014—2015)



The recycling rate remains steady in the SEE countries. National solid waste management strategies set recycling targets; however, it seems that little effort is made to implement recycling. Only Macedonia and Montenegro increased their recycling rate by 2% and 1% respectively. Kosovo, Moldova and Serbia have no official statistical records of their recycling rates.

The low recycling rate is related to the fact that these countries mostly landfill their waste, and that large amounts of waste overall go to illegal dumpsites, which lowers the possibility of recycling. Countries are currently showing interest to lower their illegal dumping and increase recycling; however, national targets will be hard to achieve.

3.6 Indicator 6: Land disposal sites for solid waste

In accordance with the *Council Directive 1999/31/EC of 26 April 1999 on waste landfilling*, waste must be sent to landfills which comply with the Directive's requirements. The objective of the Directive is to prevent or reduce negative impacts on the environment as far as possible, in particular on surface water, groundwater, soil, air, and on human health from waste landfilling, by introducing stringent technical requirements for waste and landfills.

Considering the situation in most of the countries of the SEE region related to the types of land disposal sites for solid waste, NALAS TF members have proposed sub-categorization of the sites in the frame of the EU classified landfills for non-hazardous waste:

- Sanitary regional landfill
- Non-compliant municipal landfill
- Illegal dumpsite

This Report also took into consideration the existence of landfills for inert waste, having in mind that construction and operation of these landfills is the obligation of local governments.

Table 12: Data on landfills in targeted countries

	Albania	BiH	Kosovo	Macedonia	Moldova	Montenegro	Romania	Serbia	Turkey
Sanitary regional landfill	3	6	5	1	n/a	2	34	5	82
Non-compliant municipal landfill	89	93	61	47	n/a	10	42	165	701
Illegal dumpsite	13	Approx. 590	Approx. 700	Approx. 1000	n/a	Approx. 300	n/a	3000+	n/a
Landfill for inert waste	0	1	0	0	n/a	0	n/a	n/a	n/a

Given the available data, it can be concluded that the number of sanitary regional landfills in the target countries is related to the country size and its population. The average number of inhabitants that should be served by a regional landfill is between 100,000 and 150,000. Turkey and Romania have the highest numbers of sanitary regional landfills; however, compared to the size of the country, this is still unsatisfactory. Other countries in the region have comparatively small numbers of sanitary landfills, as low as 1 in Macedonia up to 6 in Bosnia and Herzegovina. The number of sanitary landfills constructed should be evaluated in comparison to the number of regional sanitary landfills that are to be constructed in accordance with national strategies.

The data also shows an extremely high number of illegal dumpsites in target countries, together with non-compliant municipal landfills. It can be concluded that large amounts of waste are still disposed on non-compliant landfills and illegal dumping sites.

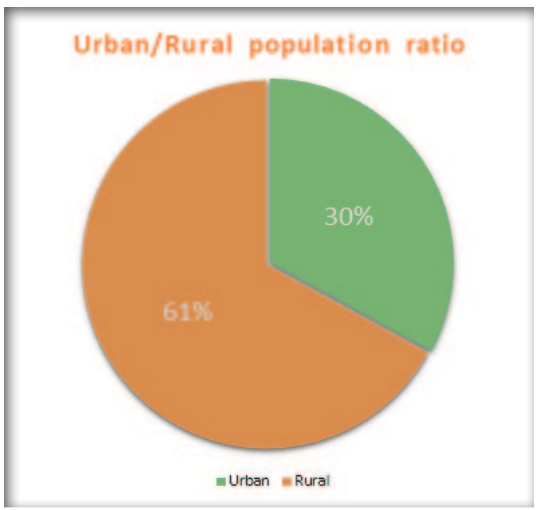
It is interesting to note that only Bosnia and Herzegovina reported the existence of one landfill for inert waste. Other countries either did not have the data or reported 0 landfills for inert waste. This might be due to the fact that inert waste is usually disposed on municipal (non-compliant) landfills together with municipal waste or in specially designated areas. Sometimes, inert waste is used as a daily cover on municipal (non-compliant) landfills.

4 MUNICIPALITY REVIEWS

4.1 Municipality of Lezhe (Albania)

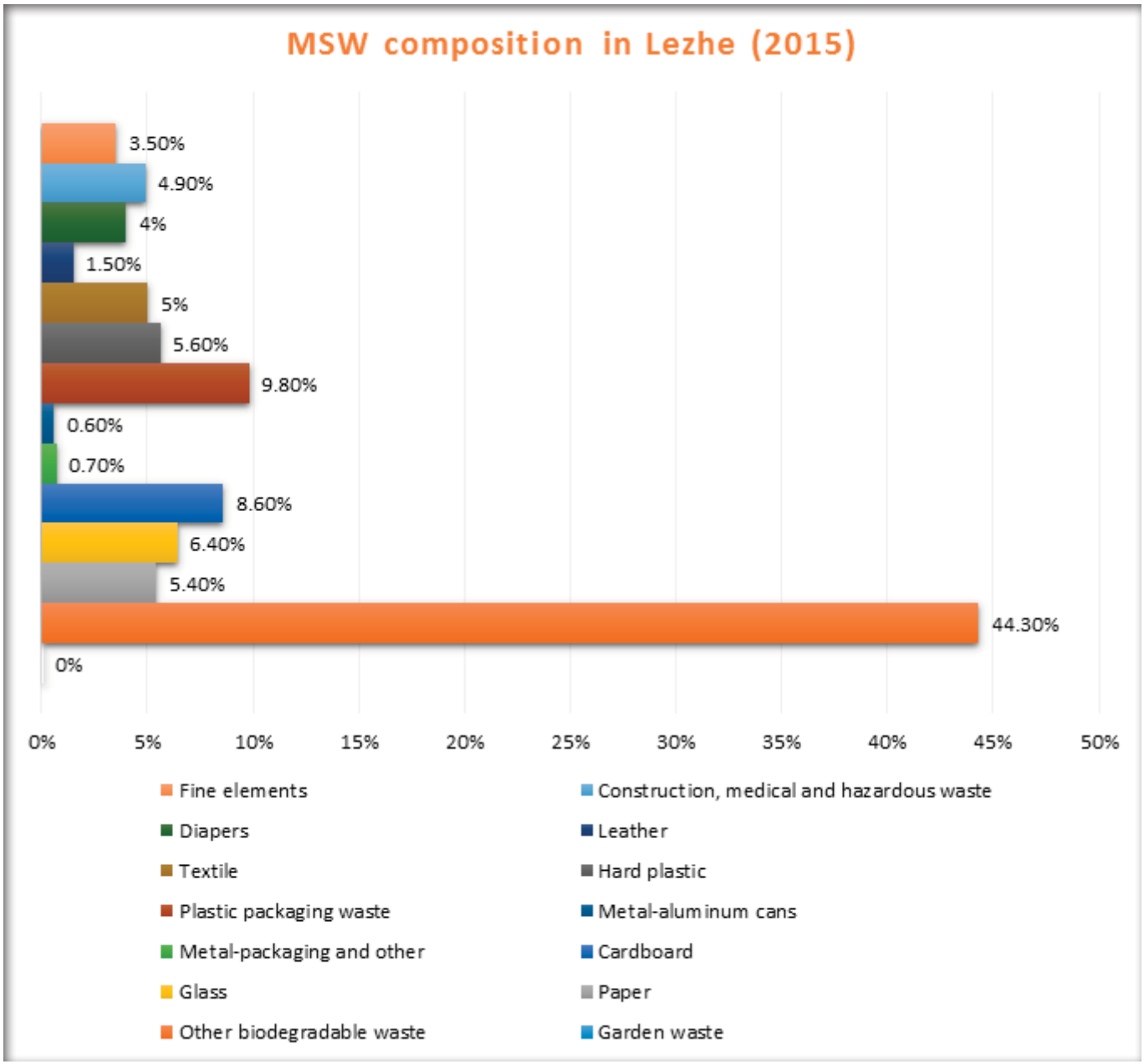
A total of 107,873 inhabitants live in the Municipality of Lezhe. 30% of the population live in the urban area, which covers 16.5 km^2 or 30% of the territory. The remaining 70% live in the rural area that spreads on the remaining 490 km^2. 93% of the population living in the urban area is covered with MSW services vs. 44% of the population living in the rural area.

Chart 8: Population in urban vs. rural areas in Lezhe



Municipal solid waste generation per capita per day is 0.7 kg. The recycling rate is reported to be 0%. Waste composition in Lezhe has not changed compared to 2014 (Chart 9). Most of the waste is biodegradable waste (44.3%), plastic packaging (9.8%) and cardboard waste (8.6%).

Chart 9: Municipal waste composition in the Municipality of Lezhe (2015)



The waste management fee in Lezhe is 15 EUR/household/month, and it entails the cost for collection of solid waste, transport, costs of the transfer station and street sweeping. The bill is separate from other municipal communal services bills. The tariff is determined on the basis of a flat fee, regardless of the amount of waste generated and household members, and it is the same for both urban and rural areas. Municipal Administration is responsible for collection of the waste management fee, and the current fee collection ratio is cca. 40% in urban and 20% in rural areas.

The Municipality of Lezhe also has an informal solid waste management sector[8] employing low income communities below the poverty line, persons with a low level of formal education and unemployed people. The municipality recognises waste pickers and tries to help them by:

- ensuring the right over recyclables and a guarantee of regular access to waste at the source (street SWM equipment, landfill etc.);
- helping the informal sector to organize itself into cooperatives, associations etc.;
- facilitating partnerships with the private sector;
- adopting local regulations in favour of integration of the informal sector.

Informal waste pickers generally prefer paper, hard plastic, and metal and glass waste; however, no data about the amounts of waste taken by waste pickers is recorded. Generally, the involvement of waste pickers in waste management is insignificant in terms of recyclable recovery rates.

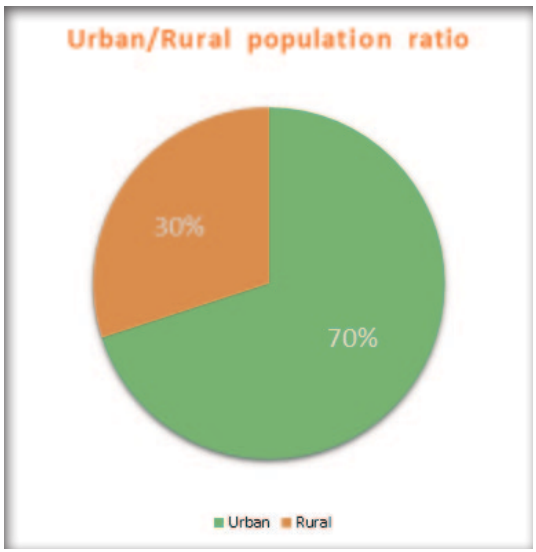
All municipal waste from Lezhe is disposed on the sanitary regional landfill Bushat. No data about illegal dumpsites is reported.

8 The "informal solid waste management sector" refers to individuals, families, and the private sector (micro-)enterprises working in waste management services and valorisation, whose activities are neither organised, sponsored, financed, contracted, recognised, managed, taxed, nor reported upon by the formal solid waste authorities.

4.2 Municipality of Durres (Albania)

A total of 309,190 inhabitants live in the Municipality of Durres. 70% of the population live in the urban area, which covers 46.1 km^2 or 13% of the territory. The remaining 30% live in the rural area that spreads on 292.2 km^2. 100% of the population in the urban area is covered with MSW services vs. 67.6% of the population in the rural area.

Chart 10: Population in urban vs. rural areas in Durres



Municipal waste generation per capita per day is 0.4 kg. The recycling rate is reported to be 0%. No data on waste composition is provided. There is no change in the data reported in comparison to 2014.

The waste management fee in Durres is 1.4 EUR/household/month in urban areas and 0.9 EUR/household/month in rural areas. The fee entails costs for waste collection, cleaning the streets and waste transport. There was no specific calculation method employed. Waste management costs are charged as part of the water bill. The entity responsible for collection of the waste management fee is the Municipal Administration.

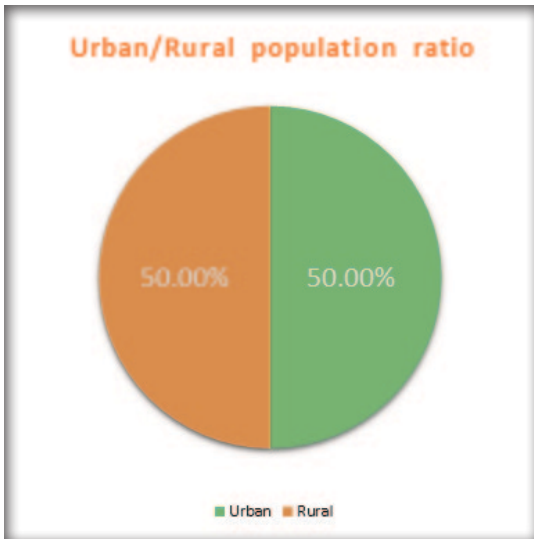
The informal solid waste management sector operates in the municipality. Informal waste pickers are low income communities below the poverty line, unemployed people and women and children. They are not recognized by the local government authorities. There are no legal regulations on either national or local level that address this problem. Waste pickers operate independently and usually collect waste both from containers and dumpsites. Collecting waste from landfills is illegal, and informal waste pickers have no permission from the managing authority. The most attractive type of waste for waste pickers is metal, followed by plastic and paper. No official data is gathered on quantities of waste collected by waste pickers.

All municipal waste from Durres is disposed on the regional sanitary landfill Bushat.

4.3 Municipality of Bugojno (Bosnia and Herzegovina)

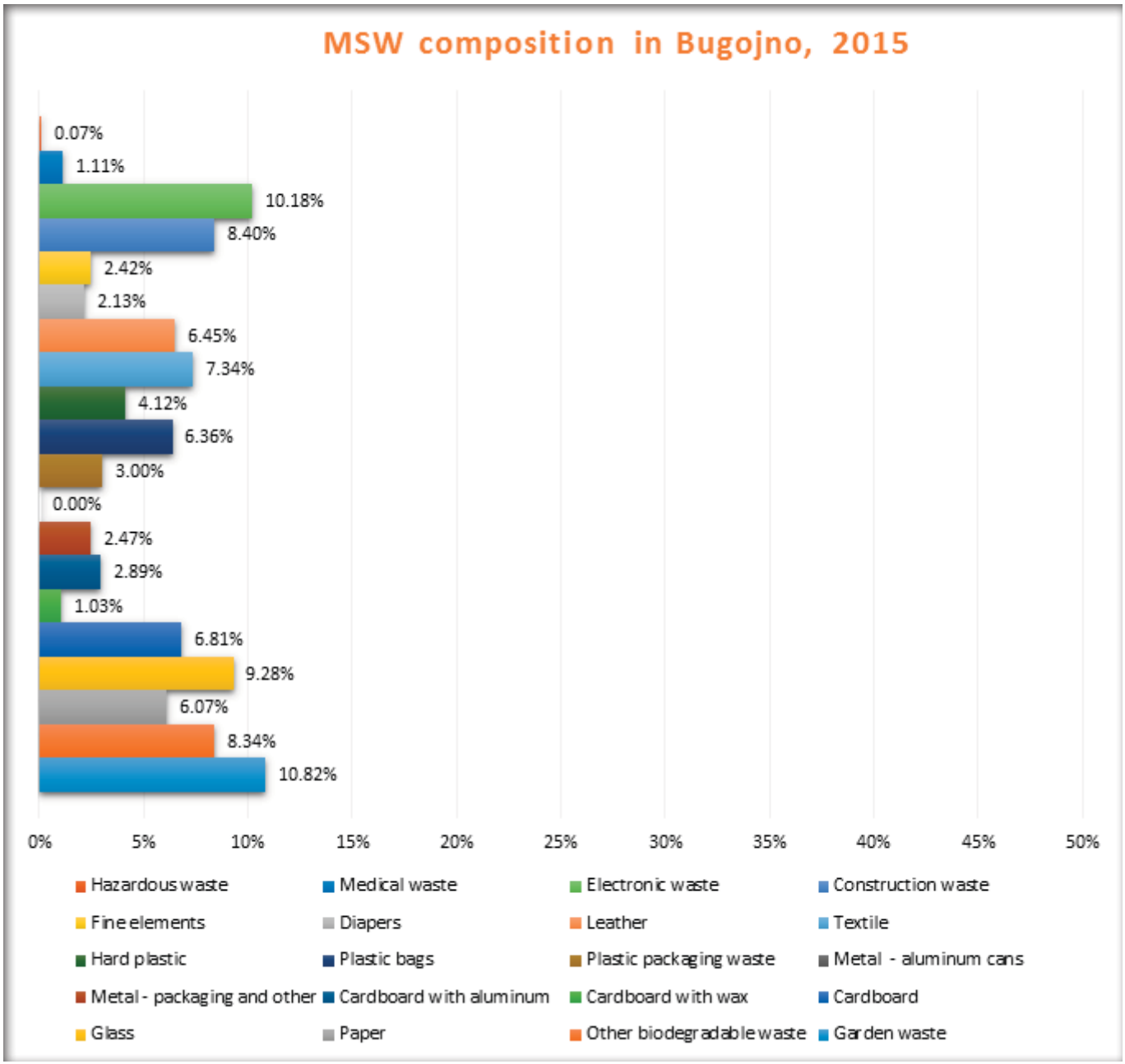
A total of 34,559 inhabitants live in the Municipality of Bugojno. 50% of the population live in the urban area, which covers 17.09 km^2 or 4.67% of the territory. The remaining 50% of the population live in the rural area that covers 348.9 km^2. 90% of the population in the urban area is covered with municipal solid waste collection services, which is a 10% increase compared to 2014. In the rural area, 100% of the population is provided with the municipal waste collection service.

Chart 11: Population in urban vs. rural areas in Bugojno



The amount of waste generated per capita is 1.06 kg/day. The municipality has no packaging waste collection service, and has a low recycling rate of less than 1%. Waste composition did not change compared to 2014. The largest proportion is garden waste (10.82%) and electronic waste (10.18%). There is no change in waste generation and recycling indicators compared to 2014.

Chart 12: Municipal waste composition in the Municipality of Bugojno (2015)



The waste management fee is 0.06 EUR/$m^{2,}$ and it entails costs for waste collection, transport and disposal. Pricing is calculated by square meters of residential area, and bills are separate from other communal services. The fee is uniform for both rural and urban areas. The Public Utility Company „Vodovod i Kanalizacija" Bugojno is responsible for fee collection. The fee collection ratio goes up to 80%.

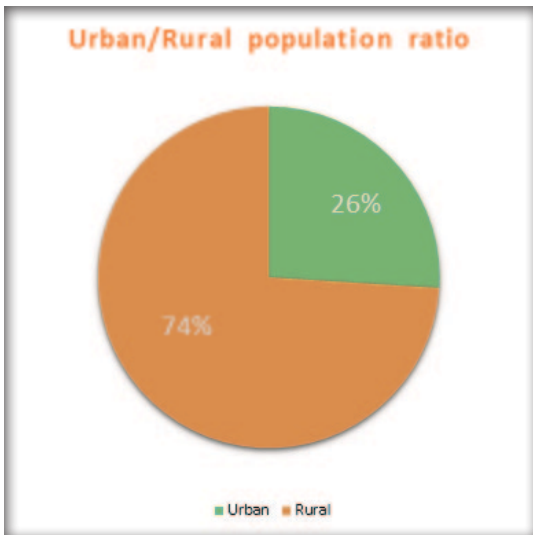
The informal waste collection sector operates in the municipality. Informal waste pickers are low income communities with incomes below the poverty line, low income persons, unemployed people and homeless people. The sector is not recognised by the authorities, and there is no regulation that deals with this issue. Waste pickers collect waste from containers and landfills/dumpsites, although they have no permission for that. Waste pickers prefer metal and PET waste; however, the exact quantities of taken waste cannot be found, since there is no official data.

The Municipality of Bugojno has no sanitary regional landfill. Waste is disposed on the non-compliant municipal landfill „Dubočine – Talin Gaj", and on officially recorded 16 illegal dumpsites.

4.4 Municipality of Cazin (Bosnia and Herzegovina)

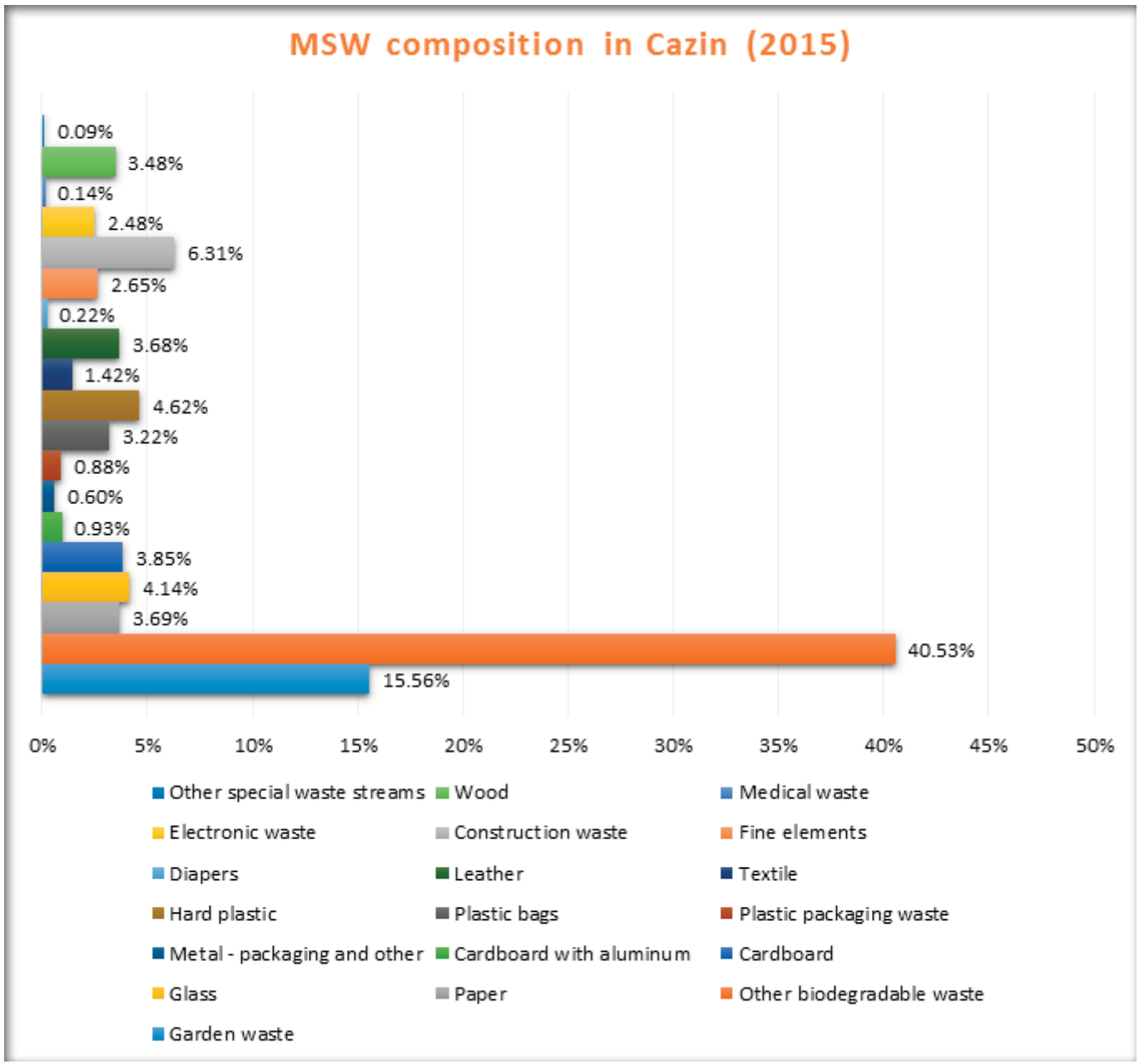
A total of 69,411 inhabitants live in the Municipality of Cazin. 26% of the population live in the urban area. The remaining 74% of the population live in the rural area. The surface area of the urbanized area is not available. The urban area is completely covered with MSW services. In the rural area, 77% of the population is provided with the municipal waste collection service.

Chart 13: Population in urban vs. rural areas in Cazin



Municipal solid waste generation is 0.42 kg/cap/day. The municipality has no packaging waste collection service, and the recycling rate remains 0%. The share of biodegradable and garden waste is significant, i.e. approximately 56% in total. Paper, cardboard and glass account for about 4%, while the share of metals, diapers and leather is less than about 4%. There is no change in waste generation and composition compared to 2014.

Chart 14: Municipal waste composition in the Municipality of Cazin (2015)



The waste management fee in Cazin is 4.09 EUR/household, and it entails costs for waste collection, transport and disposal. The fee is calculated based on a flat fee and is paid by each household, regardless of the amount of waste generated. The bill is separate from other communal utility bills. The price is uniform for both urban and rural areas. The entity responsible for waste management is the public utility company „Čistoća". The overall fee collection rate is 87%.

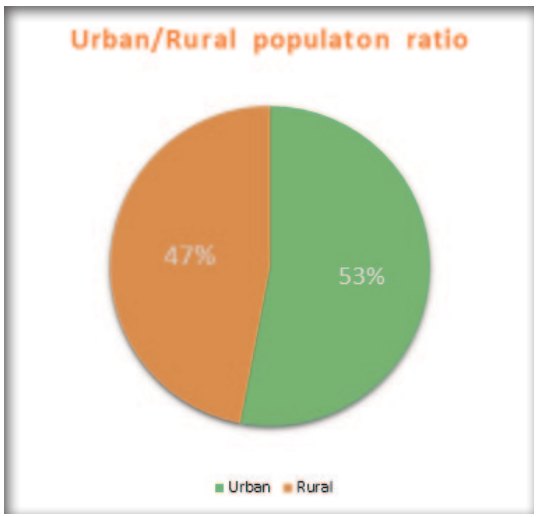
The informal waste collection sector operates in the municipality. Waste pickers consist of low income persons below the poverty line, unemployed people and homeless people. The sector is not recognised by the authorities, and there is no regulation that deals with this issue. Waste pickers collect waste from solid waste containers and landfills, although they have no permission for this. Waste pickers prefer metal and PET waste; however, the exact quantities of collected waste cannot be found, since there is no official data.

There is no sanitary regional landfill in Cazin. Waste is disposed on the non-compliant municipal landfill „Medžare-Vlaški Do" located in the Municipality of Bosanska Krupa and shared with the Municipality of Cazin due to its proximity. There are 9 officially recorded illegal dumpsites; however, the number may be much higher.

4.5 Municipality of Prijedor (Bosnia and Herzegovina)

A total of 97,588 inhabitants live in the Municipality of Prijedor. 53% of the population live in the urban area, which covers 119 km^2 or 14.3% of the territory. The remaining 47% live in the rural area that spreads on 715 km^2. 60% of the total population is covered with MSW collection services, which is a little bit less than a 2% increase compared to 2014. 1,215 new consumers were included in the system in the rural areas where the population covered increased from 28% to almost 30%. On the other hand, the population served in urban areas remains at 88% of the population living in urban areas.

Chart 15: Population in urban vs. rural areas in Prijedor

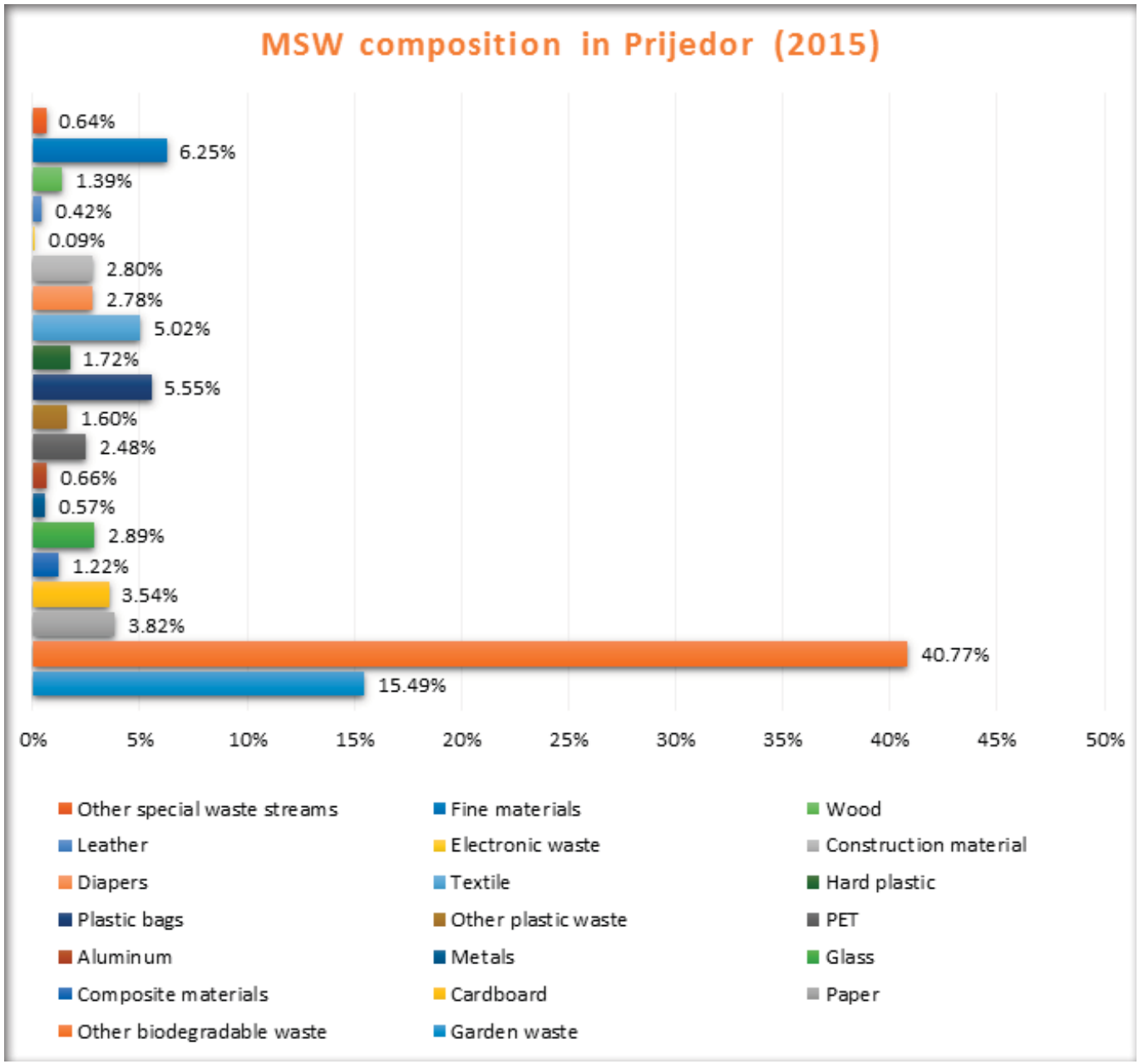


Municipal waste generation per capita is 1.17 kg/cap/day from households, showing a negligible increase of 10 g compared to 2014. Waste generation in the commercial sector decreased from 9.72 kg/day in 2014 to 8.97 kg/day in 2015. Around 45% of the population is covered by the packaging waste collection system compared to almost 43.86% reported in 2014. The recycling rate in Prijedor increased from 2.78% in 2014 to 6.52% in 2015. The following amounts of recyclables were collected in 2015:

- Cardboard – 208.42 t/y
- Nylon – 15.54 t/y
- PET – 19.32 t/y

The reported waste composition for 2015 differs from the waste composition reported in 2014. There is a significant decrease in garden waste quantities, i.e. almost 20%. The increase is observed in relation to amounts of biodegradable waste (a 5% increase), plastic packaging waste (almost 7%) and textile (around 3%).

Chart 16: Municipal waste composition in the Municipality of Prijedor (2015)



The waste management fee is 0.063 EUR/m², and it entails costs for waste collection, transport and disposal. The price is

determined based on square meters of residential area, and bills are separate from other communal services. The fee is uniform for both rural and urban areas. The responsible entity for fee collection is A.D. "Komunalne usluge" Prijedor. The waste management fee collection ratio is approximately 94%, showing an increase of 5% compared to 2014.

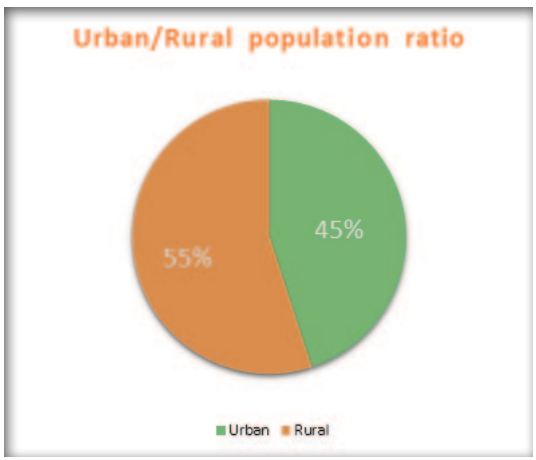
The informal solid waste collection sector operates in the municipality. Informal waste pickers come from low income communities with incomes below the poverty line and unemployed people. The sector is not recognised by the authorities, and there is no regulation that deals with this issue. Waste pickers collect waste from containers and bins. The preferred waste is metal and PET waste. The exact quantities of waste collected by pickers cannot be determined. Involvement of the informal sector is deemed insignificant.

Prijedor is currently building a sanitary regional landfill, "Kurevo", and has 1 non-compliant municipal landfill. There is no official data about illegal dumpsites.

4.6 Municipality of Laktasi (Bosnia and Herzegovina)

A total of 37,300 inhabitants live in the Municipality of Laktasi. 45% of the population live in the urban area, which covers 80 km^2 or 20.6% of the territory. The remaining 55% live in the rural area that spreads on 308 km^2. The population covered with MSW services amounts to 38.4%. The population served with MSW services in the urban area remains at 88%, while the rural area is covered only with 25%, although it is an increase by 3% compared to last year.

Chart 17: Population in urban vs. rural areas in Laktasi



Municipal waste generation per capita is 1.02 kg/day, which is a decrease compared to 2014 generation rate of 1.09 kg/day. The municipality has no packaging waste collection service, and the recycling rate remains 0%. Data on waste composition is not available.

The waste management fee is 6 EUR/household/month, and it entails costs for waste collection, transport, transport stations and disposal. The flat rate per capita (household member) is the main determinant of waste management pricing, and bills are separated from other communal services. The fee is uniform for both rural and urban areas, and the responsible entity for fee collection is the Public Utility "Budućnost", Laktasi. Information on the waste management fee collection ratio is not available.

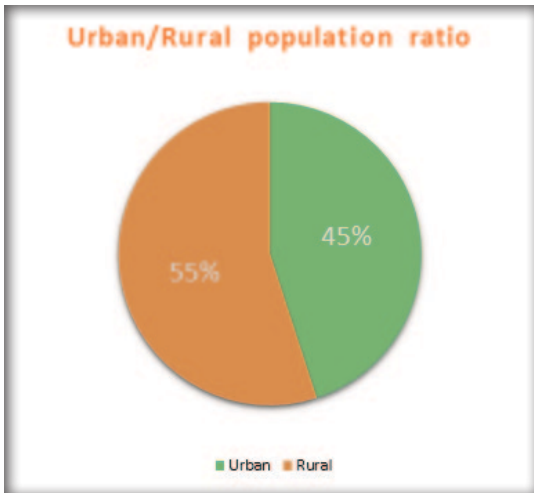
The informal waste collection sector operates in the municipality. Waste pickers consist of low income persons below the poverty line and unemployed people. The sector is not recognised by the authorities, and there is no regulation that deals with this issue. Waste pickers collect waste from solid waste containers. Waste pickers prefer metal and PET waste; however, the exact quantities of collected waste are not available. Involvement of the informal sector in the overall waste collection scheme is considered insignificant.

There is no sanitary regional landfill in Laktasi. All waste is landfilled in Banja Luka Sanitary Landfill. Currently, 12 illegal dumpsites are officially recorded; however, this number is much higher.

4.7 Municipality of Ferizaj/Urosevac (Kosovo)

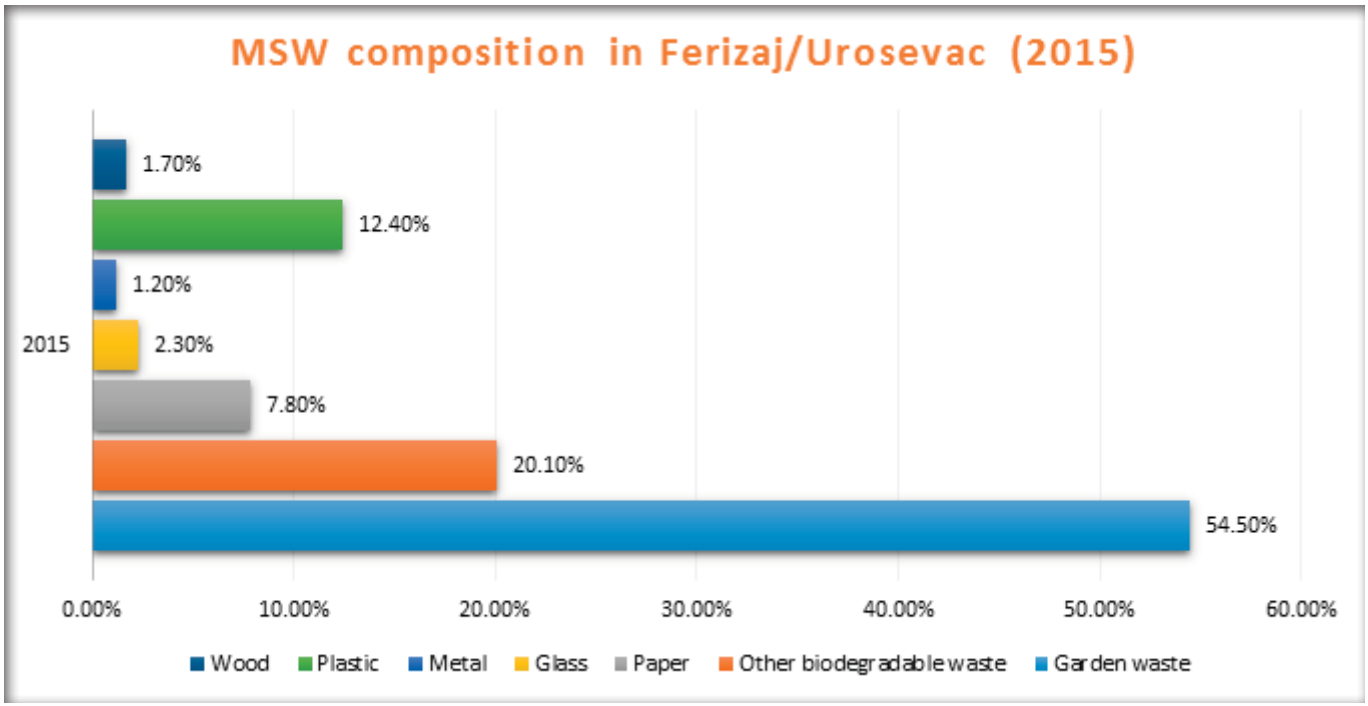
A total of 108,610 inhabitants live in the Municipality of Ferizaj/Urosevac. 45% of the population live in the urban area of 142 km^2, which makes up 45% of the total municipality surface area. The remaining 55% of the population live in the rural area. The total population covered with collection services is 61%. The urban area is 80% covered with a collection service, while the rural area is 63% covered and no changes over the last year have been recorded.

Chart 18: Population in urban vs. rural areas in Ferizaj/Urosevac



Municipal solid waste generation per capita is 1.15 kg/day. The municipality has no packaging waste collection service, and the recycling rate remains 0%. Waste is mainly composed of garden waste and biodegradable waste (74.60%) and plastic (12.40%) and paper (7.80%).

Chart 19: Municipal waste composition in the Municipality of Ferizaj/Urosevac, 2015



The waste management fee is 4.65 EUR/month, 35 cents lower compared to 5 EUR/month in 2014. The fee entails waste collection, transport, transfer station and disposal costs. The collection fee is calculated based on a flat fee and is paid by each household, regardless of the amount of waste generated. These bills are separated from other utility services. The fee is uniform for both rural and urban areas. The public utility company „Ormož" is responsible for fee collection. The collection rate is 90%.

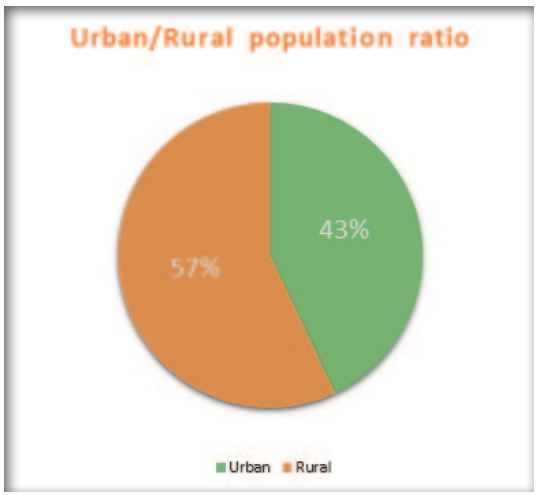
The informal waste collection sector exists in the municipality. The system is operated by low income persons below the poverty line and unemployed people. The sector is not recognised by the authorities, and there is no regulation that deals with this issue. Waste pickers collect waste from waste containers and landfills, for which they have no permission. Waste pickers prefer metal and PET waste; however, the exact quantities of taken waste cannot be found, since there is no official data. Involvement of the informal sector is deemed low and mostly restricted to individual trade.

The municipality has one sanitary regional landfill Gjilan and 61 registered illegal dumpsites. The number of illegal dumps might be higher. There are no inert waste landfills in this municipality.

4.8 Municipality of Gjakova/Djakovica (Kosovo)

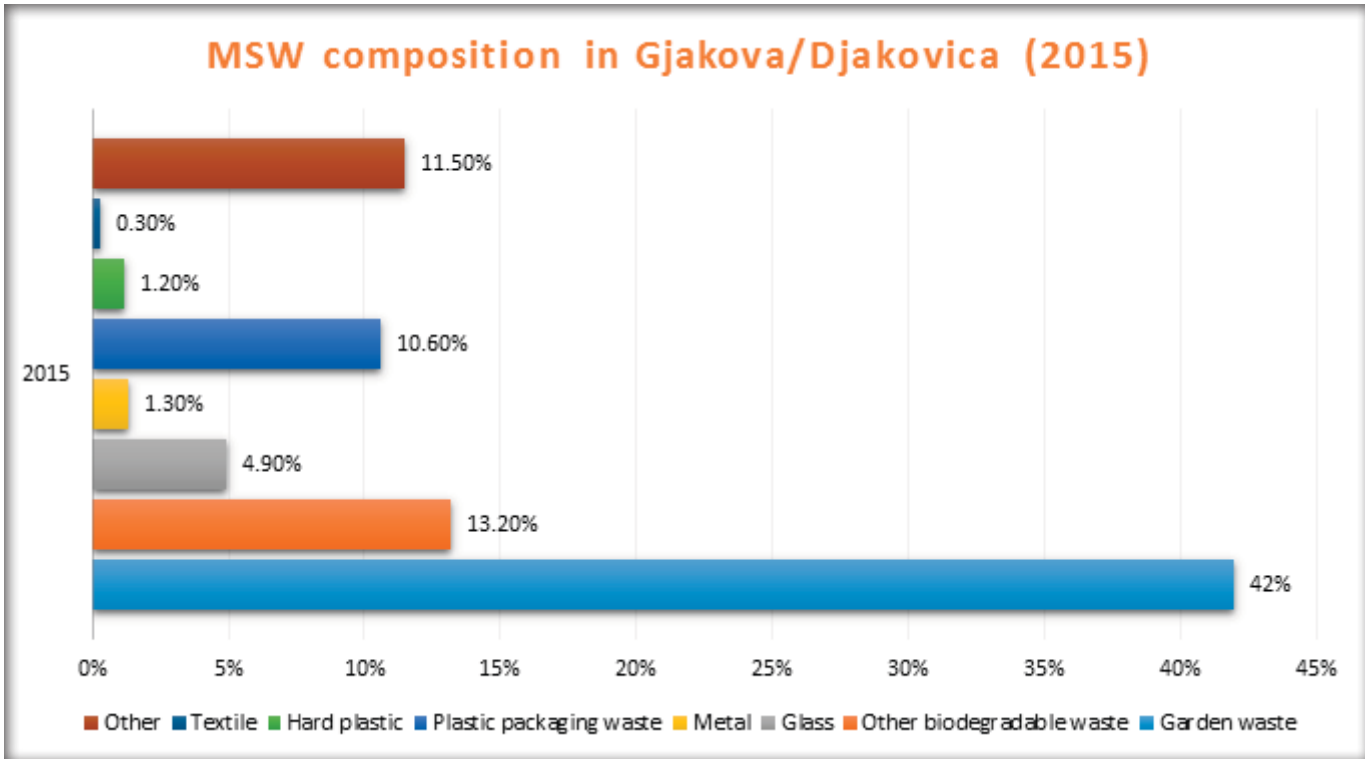
A total of 94,556 population lives in the Municipality of Gjakova/Djakovica. The total surface area of the municipality is 586 km^2, out of which 4% is urban area accommodating 43% of the population. The remaining 96% is rural area and it accommodates 57% of the population. The population covered with waste collection services is 70%, showing an increase by 3%. The urban area is completely covered with collection services, while the rural area is 40% covered, by 6% higher than the last year.

Chart 20: Population in urban vs. rural areas in Gjakova/Djakovica



Population covered by packaging waste collection services is very small. Municipal solid waste generation per capita is 1.5 kg/day. Waste is mainly composed of garden and biodegradable waste (45.20%). There are noticeable amounts of plastic packaging waste (10.60%) and other waste (11.50%), which are not classified, but encompass construction material, electronic waste etc. The recycling rate is 5%.

Chart 21: Municipal waste composition in the Municipality of Gjakova/Djakovica



The waste management fee is 4.65 EUR/household/month and it entails waste collection, transport and disposal costs. The pricing structure is based on a single fixed fee for the service, regardless of the amount of waste generated. Waste bills are separate from other utility services. The fee is uniform for both rural and urban areas. A public utility enterprise is responsible for waste collection. The average fee collection rate is 55% for the whole municipality. 58% of the waste fee is collected in urban areas and 90% is collected in rural areas.

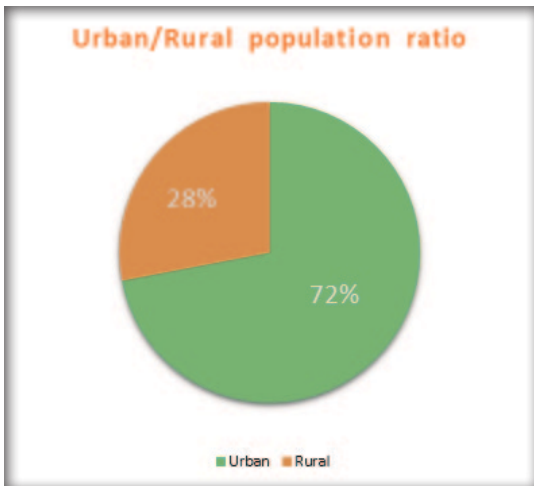
The informal waste collection sector operates in the municipality. Informal waste pickers consist of low income persons below the poverty line, unemployed people and homeless persons. The sector is not recognised by the authorities, and there are no regulations that deal with this issue. Waste pickers collect waste from solid waste containers and landfills without permission. The most collected material is metal and PET plastic; however, the exact quantities of collected waste are not available, since there is no official data. Involvement of the informal sector is deemed low and mostly connected to individual trade.

The municipality has no sanitary regional landfill, but has a transfer station "Kolonia" from where waste is transported to a landfill. Around 70 registered illegal dumps are reported.

4.9 Municipality of Kumanovo (Macedonia)

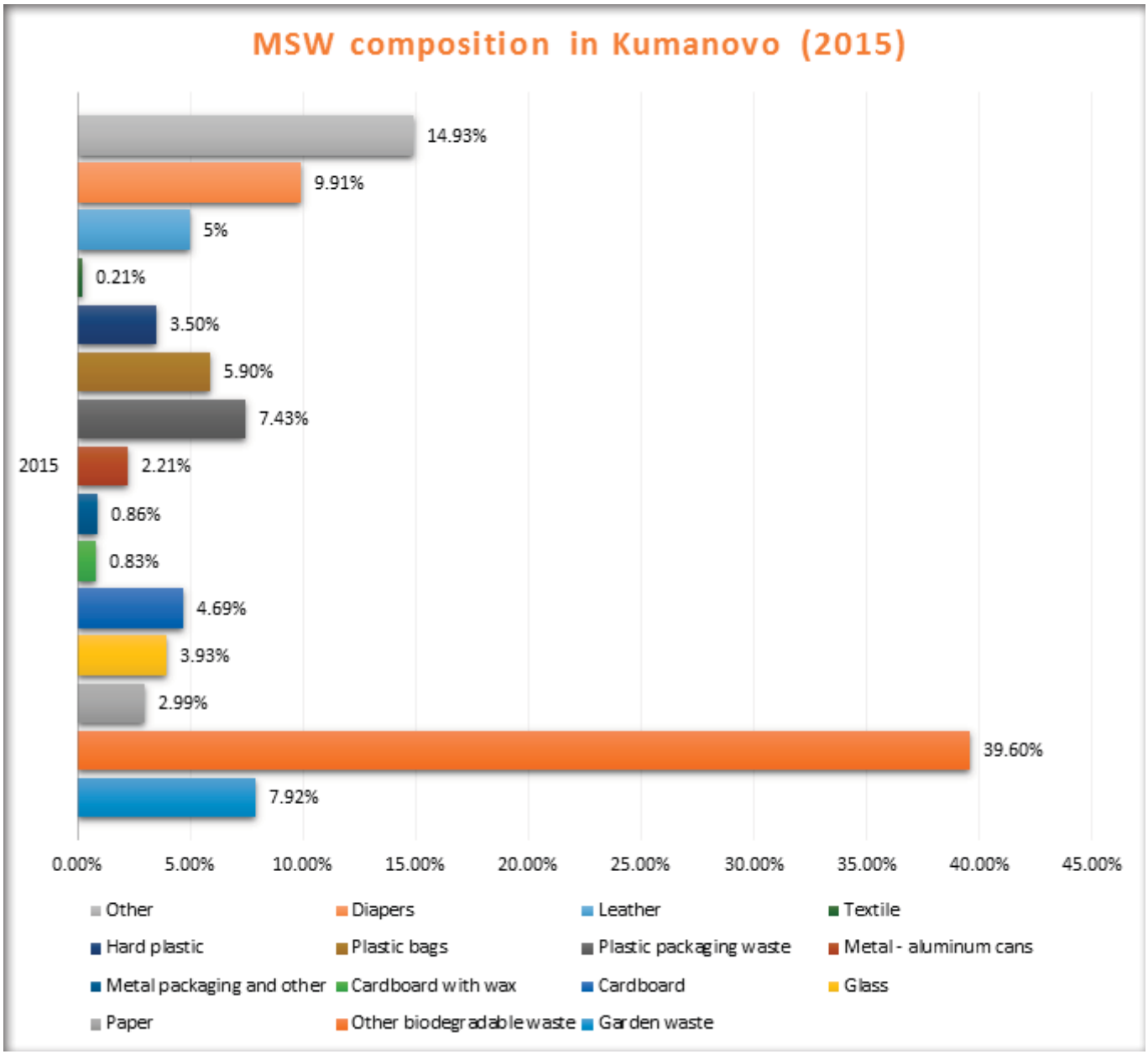
A total of 108,048 population lives in the Municipality of Kumanovo, out of which 72% is in its urban area, while the remaining 28% live in its rural area. The total municipal surface area is 509.5 km^2. Data on the territorial division between rural and urban zones is not available. The population covered with MSW services in total is 72%. The urban area is completely covered with services, while the rural area has an extremely low 4% coverage.

Chart 22: Population in urban vs rural areas in Kumanovo



Data on population covered with packaging waste collection services and the recycling rate is not available. Municipal waste generation per capita is 0.83 kg/day. No changes have been recorded in waste composition. Waste is mostly composed of biodegradable and garden waste (47.52%), with a significant portion of waste recorded as "other", which consists of construction material and electronic waste (14.93%). Plastic packaging waste makes up 7.43% of the waste.

Chart 23: Municipal waste composition in the Municipality of Kumanovo



The waste management fee is 0.0488 EUR/m^2 for households in the urban area, 3 EUR/month for households in the rural area, and 0.031 EUR/m^2 for the industry. The price entails costs of collection, transport, disposal of waste and sweeping of streets. The system is a bit complex in comparison with other municipalities in the region; urban area households and companies/industry pay a waste management fee per square meter of residential area, while rural households have a flat fee per month. Waste bills are separate from bills for other utility services. A public company is responsible for waste management fees and waste collection. In 2015, the waste fee collection rates in rural areas were 88.92% and in urban areas 88.14%.

The informal waste management sector operates in the municipality. Waste pickers consist of low income persons below the poverty line, unemployed people and homeless persons. The sector is not recognised by the authorities, and there are no regulations that deal with this issue. Waste pickers collect waste from solid waste containers and landfills, without any explicit permission or recognition.

Waste pickers prefer metal and PET waste; however, the exact quantities of taken waste cannot be given, since there is no official data. Involvement of the informal sector is deemed very significant.

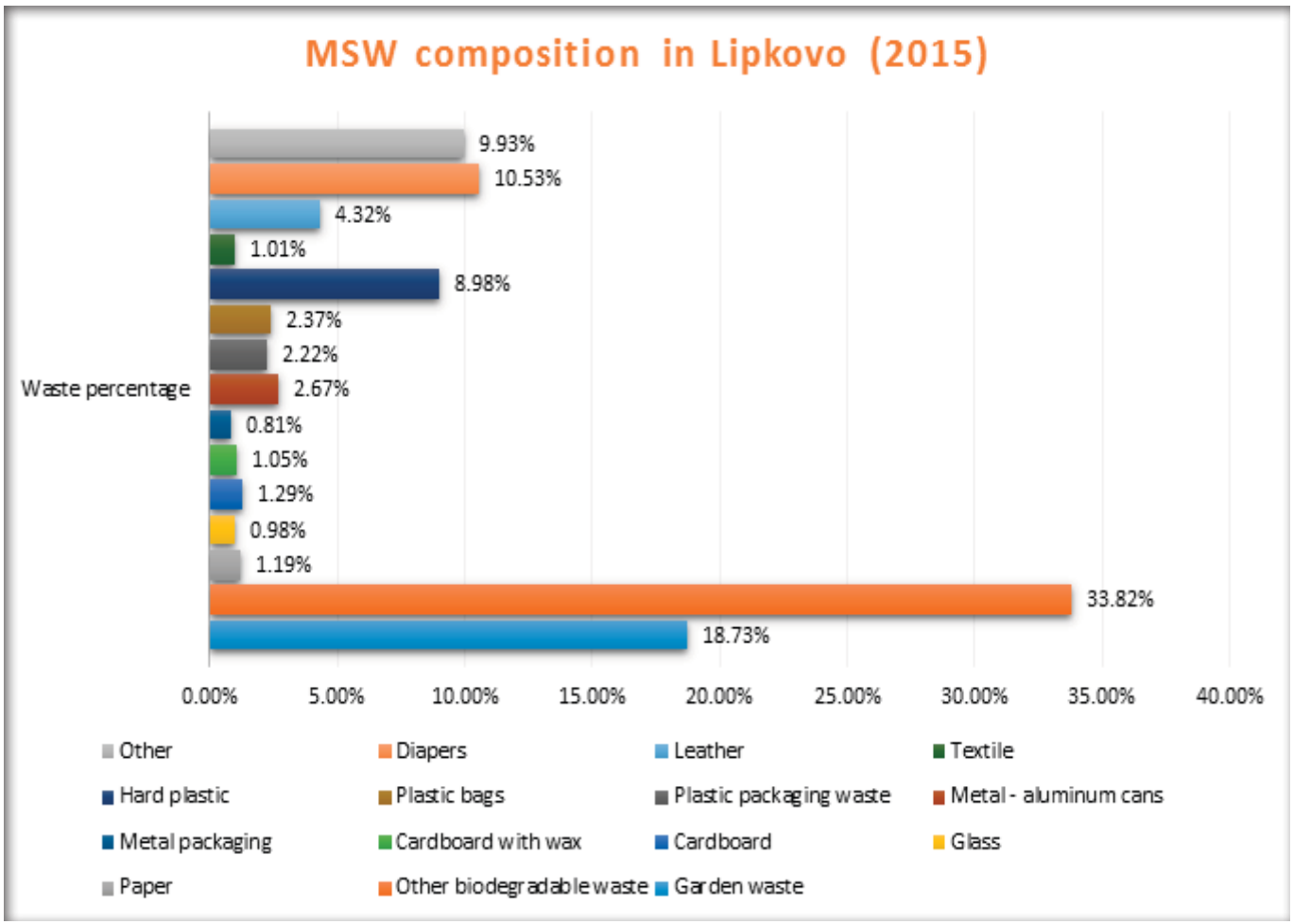
The municipality has no regional sanitary landfill. Waste is disposed on 1 non-compliant municipal landfill and around 10 officially recorded illegal dumpsites, although their real number might be much higher.

4.10 Municipality of Lipkovo (Macedonia)

A total of 29,519 inhabitants live in the Municipality of Lipkovo. The municipality has no urban area, and all of the area is rural. Its total surface area is 267.82 km^2. The population covered with municipal waste collection services is 50% in total.

Municipal waste generation per capita is 0.26 kg/day. The figure on the population covered with packaging waste collection services and the recycling rate is not available. Waste is mainly composed of garden waste and biodegradable waste (52.55%), with a significant amount of diaper waste (10.53%) and unclassified waste, usually construction and electronic waste (9.93%).

Chart 24: Municipal waste composition in the Municipality of Lipkovo



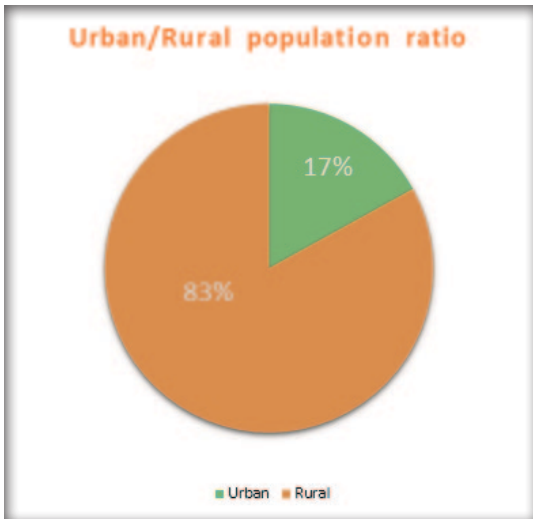
The waste management fee is 2.44 EUR/household/month. The fee covers waste collection, transport and disposal costs. Payment is made at a flat rate per capita. These bills are separate from bills for other utility fees. Waste management and fee collection is operated by the Public Utility Company. The waste management fee collection ratio is 42%.

The informal waste collection sector operates in the municipality. Waste pickers consist of low income persons below the poverty line, unemployed people and homeless persons. The sector is not recognised by the authorities, and there are no regulations that deal with this issue. Waste pickers collect waste from solid waste infrastructure and landfills. Waste pickers prefer metal and PET waste; however, the exact quantities of waste collected cannot be found, since there is no official data. Involvement of the informal sector is deemed insignificant. The Municipality of Lipkovo has 1 non-compliant landfill. The recorded number of illegal dumpsites is 5, although that number is estimated to be much higher.

4.11 Municipality of Soldanesti (Moldova)

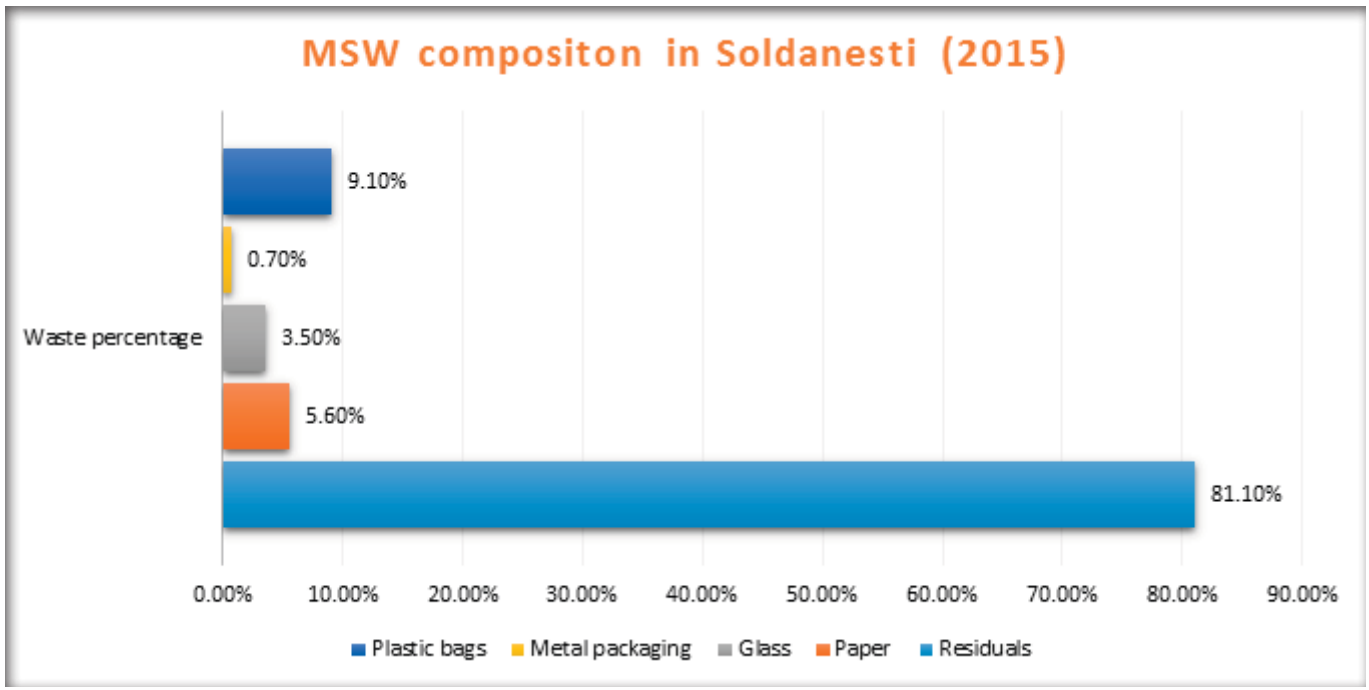
A total of 38,722 inhabitants live in the Municipality of Soldanesti. The total surface area is 596 km^2, out of which 10% is urban area accommodating 17% of the population. The rural area makes up the remaining 90%, with 83% of the population living there. The population covered with waste collection services in the urban area is 98%, while in the rural area, the coverage is 80%.

Chart 25: Population in urban vs rural areas in Soldanesti



Municipal solid waste generation per capita is 0.72kg/day. According to the data presented in the Feasibility Study for the Inter-Municipal Solid Waste Management Centre in Soldanesti, 98% of the population is covered with packaging waste collection services, organized in 53 platforms. Each platform has 7 containers for a different type of waste in the urban area, and 4 containers in the rural area. However, data on the recycling rate in Soldanesti is not available. The biggest proportion of waste composition is reported as "residuals". Residuals are divided into "mixed organic and inorganic" and "inert". There are also some quantities of plastic bags (9.10%), glass (3.50%) and paper (5.60%).

Chart 26: Municipal waste composition in the Municipality of Soldanesti, 2015



The waste management fee is different for urban and rural areas. The fee is 0.45 EUR/month for urban and 0.36 EUR/month for rural areas and it includes transport, collection and disposal of waste. In rural areas, waste bills are separated from bills for other utility services. In urban areas, one bill is common for all municipal communal services (waste, water, sewer service charges, etc.), including a separate line item for solid waste services. Collection of waste management fees is under the Municipal Administration's responsibility. The fee collection rate is 98% in rural areas, and 82% in urban areas.

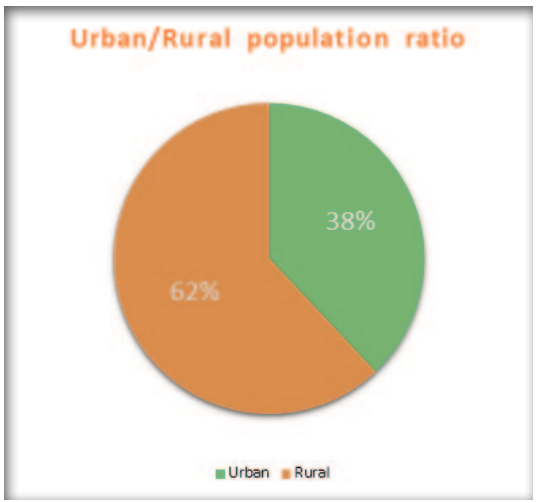
The informal waste collection sector operates in the municipality. Waste pickers consist of low income persons below the poverty line, unemployed people and homeless persons. The sector is not recognised by the authorities, and there is no regulation that deals with the issue. Waste pickers collect waste from solid waste containers and at the landfill, without any permission. The most preferred waste material is metal and PET waste. Official quantities of waste collected by waste pickers are not available. Involvement of the informal sector is deemed low and mostly relegated to individual trade.

There are no sanitary regional landfills and no official data about illegal dumpsites in the municipality. Waste is disposed on 1 non-compliant official landfill.

4.12 Municipality of Nisporeni (Moldova)

A total of 12,105 inhabitants live in the Municipality of Nisporeni. The total surface area is 90 km^2, out of which 33% is urban and accommodates 38% of the population. The rural area makes up the remaining 67% where 62% of inhabitants live. The population covered with waste collection services in the urban area is 70%, while in the rural area, the coverage is 42%. The average coverage rate for the whole municipality is 53%.

Chart 27: Urban vs rural population in the Municipality of Nisporeni



Municipal waste generation per capita is 0.5 kg/day for households and 0.9 kg/m^2 for commercial entities. Data has not changed compared to 2014. There is no packaging waste collection service in the municipality and no recycling. No data on waste composition was available.

The waste management fee is 0.36 EUR/household/month and it entails the cost of waste collection, transport and disposal. The cost is the same for both rural and urban areas. The fee is determined as a flat rate, regardless of the amount of waste produced. The bill for solid waste is separated from other bills for waste utility services. The Public Utility Company is responsible for collection of the waste management fee. The fee collection rate is not available.

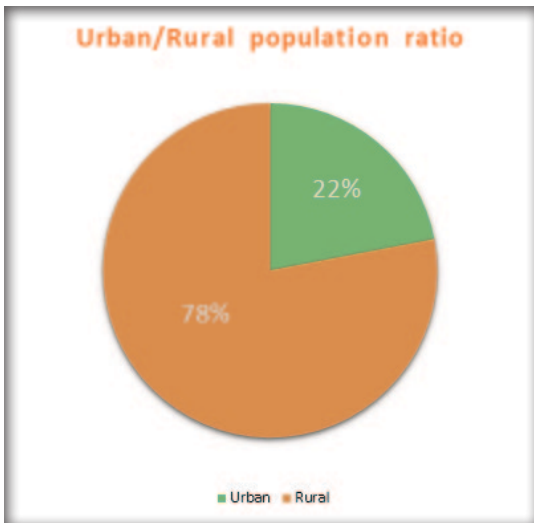
The informal waste collection sector operates in the municipality. Waste pickers consist of low income persons below the poverty line, unemployed people and homeless persons. The sector is not recognised by the authorities, and there are no regulations that deal with this issue. Waste pickers collect waste from solid waste containers and landfills. Waste pickers prefer metal, plastic and PET waste; however, the exact quantities of waste collected cannot be found, since there is no official data. Involvement of the informal sector is deemed low and mostly relegated to individual trade.

There are no sanitary regional landfills and no official data about illegal dumpsites in the municipality. Waste is disposed on one non-compliant landfill.

4.13 Municipality of Bijelo Polje (Montenegro)

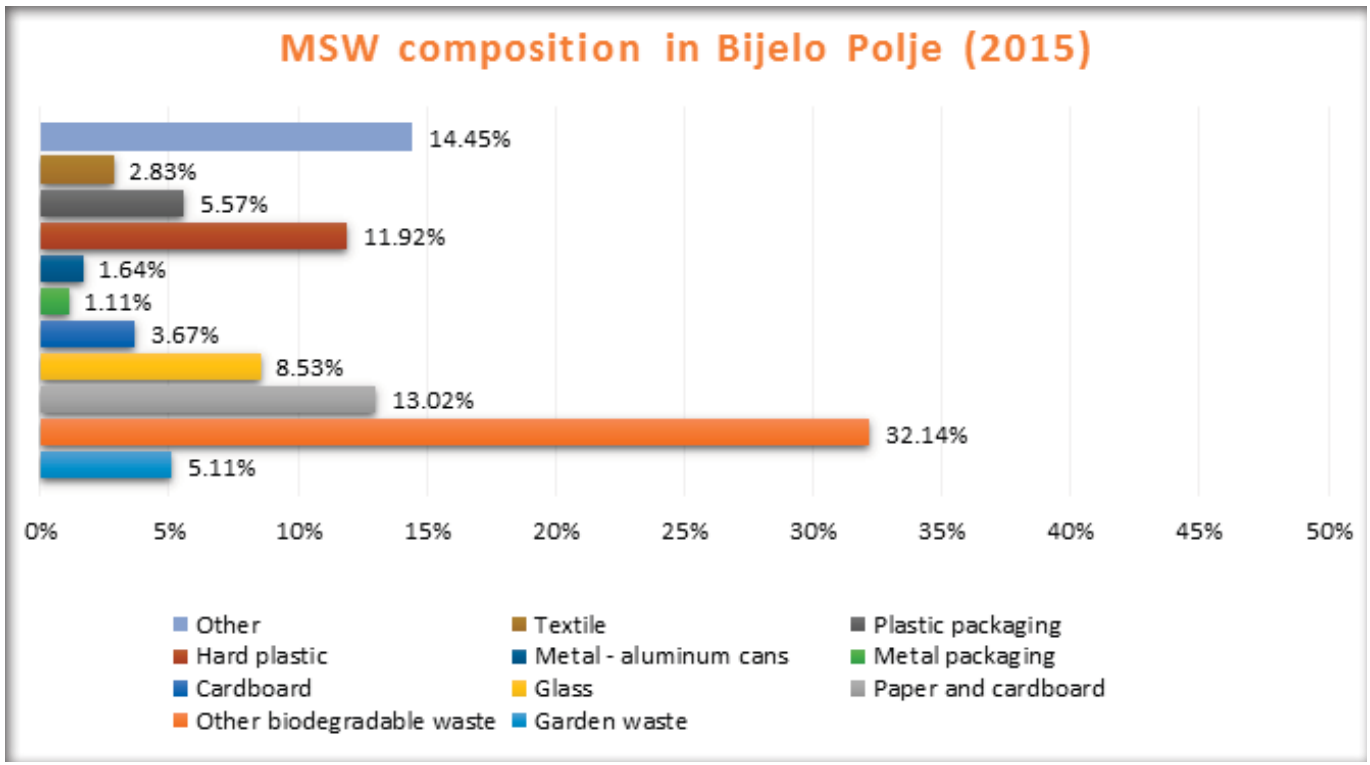
A total of 46,051 inhabitants live in the Municipality of Bijelo Polje. The total surface area is 924 km^2, out of which 1% is urban with 22% of the population living there. Around 78% of the population is living in rural areas which account for 99% of the total territory. 100% of the population in the urban area is covered with waste collection services, while only 17% is covered in the rural area. The average coverage rate for the whole municipality is 35%.

Chart 28: Population in urban vs. rural areas in the Municipality of Bijelo Polje



Municipal waste generation per capita is 1.15 kg/day. This municipality has observed a significant increase in its waste generation compared to 0.96 kg/cap/day reported in 2014. Waste is mainly composed of biodegradable waste (37.25%), paper (13.02%), plastic (11.92%) and glass (8.53%). The data provided is obtained from national statistics, presenting the waste composition typical for the region of north Montenegro. The municipality does not keep records of waste composition, nor has it separate waste collection services or any kind of recycling.

Chart 29: Municipal waste composition in the Municipality of Bijelo Polje



The waste management fee is 0.065 EUR/m^2 and it entails costs for waste collection, transport, disposal and cleaning of streets. The bill for solid waste services is separate from other utility bills. The system of payment is uniform for the whole municipality. The entity responsible for waste management fee collection is the Public Utility Company. The average fee collection ratio for the whole municipality is 60%.

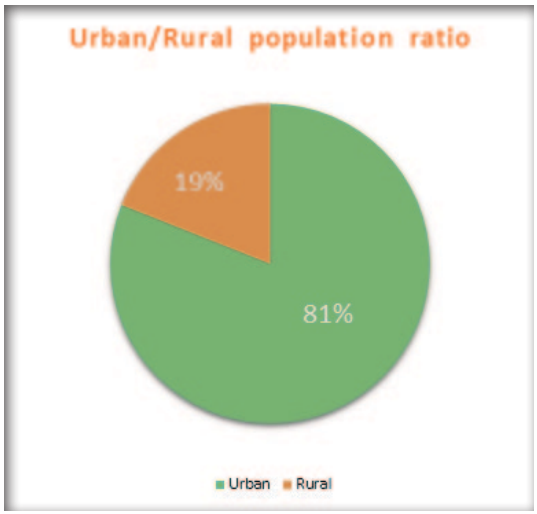
The informal waste collection sector operates in the municipality. Waste pickers consist of persons with low levels of formal education and unskilled persons. The informal waste pickers are recognised in the new Waste Management Law, which is not yet in force. The Law will prohibit buying off of any kind of waste from unregistered waste collectors (informal sector included). Waste pickers prefer metal and PET waste. The exact quantities of waste collected are not available. Involvement of the informal sector is deemed low.

There are no sanitary regional landfills in the Municipality of Bijelo Polje. Waste is disposed on 1 non-compliant municipal landfill and 104 officially recorded illegal dumpsites.

4.14 Municipality of Herceg Novi (Montenegro)

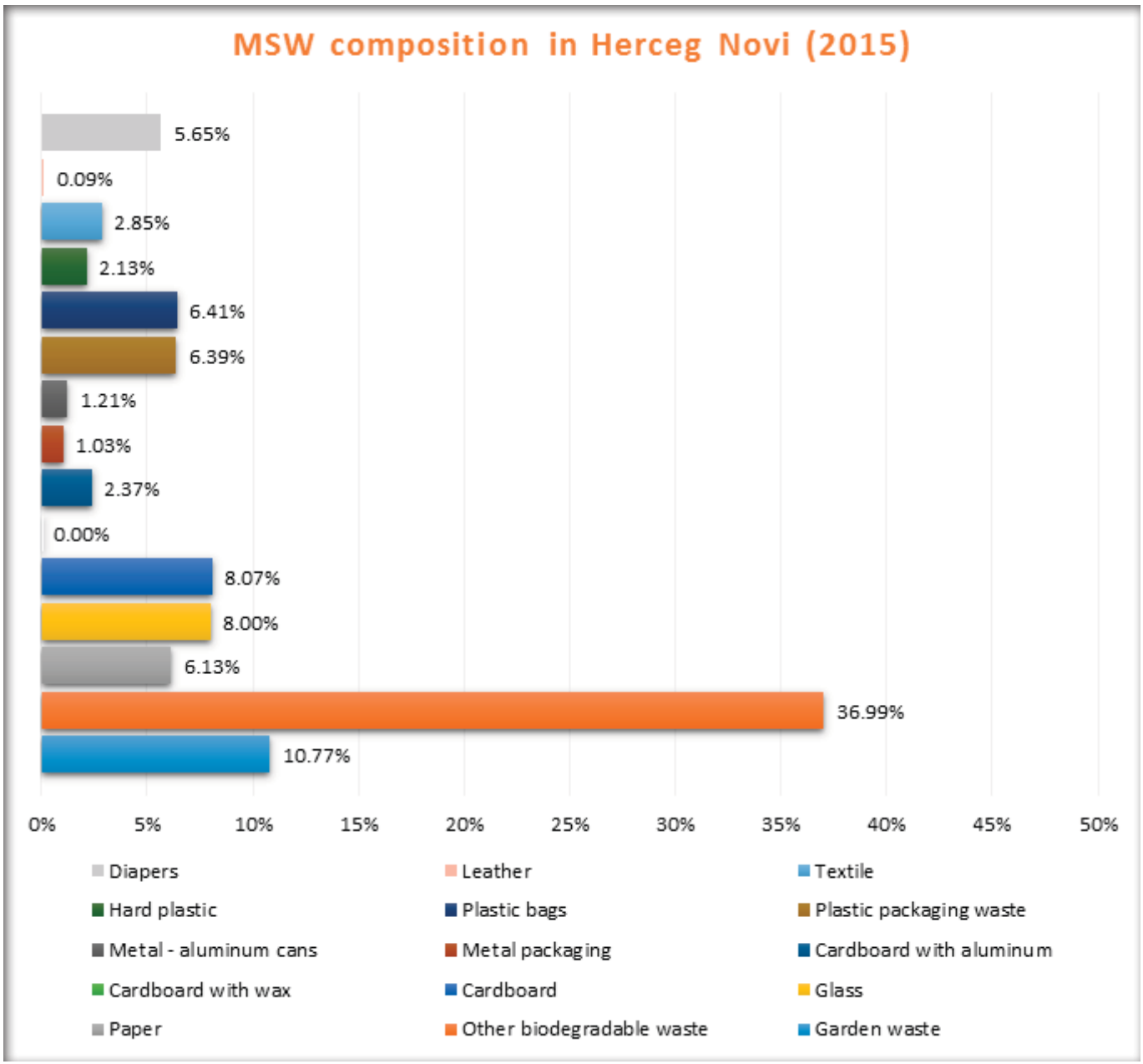
A total of 30,992 inhabitants live in the Municipality of Herceg Novi. The total surface area is 235 km^2, out of which 3.6% is urban, with 81% of the population living there. Around 19% of the population is living in rural areas, which account for 96.4% of the total territory. 100% of the population in the urban area is covered with waste collection services, while approximately 50% is covered in the rural area. The average coverage rate for the whole municipality is 90%.

Chart 30: Population in urban vs rural areas in the Municipality of Herceg Novi



Municipal solid waste generation per capita increased from 0.99 kg/day in 2014 to 1.07 kg/day in 2015. Population covered with a packaging waste collection service is 74.21% and the recycling rate in the municipality is 9.43%. Waste is mostly composed of biodegradable waste (47.76%), with other major categories being glass (8%), cardboard packaging (8.07%), paper (6.13%) and plastics in total (14.93%). No changes in waste composition for the 2014-2015 period were recorded.

Chart 31: Municipal waste composition in the Municipality of Herceg Novi



The waste management fee is 0.06 EUR/m^2 and it entails costs for waste collection, transport, disposal and cleaning of streets. The bill for solid waste services is separate from other utility bills. The system of payment is uniform for the whole municipality. The entity responsible for waste management fee collection is the Public Utility Company. The average fee collection ratio for the whole municipality is 79%.

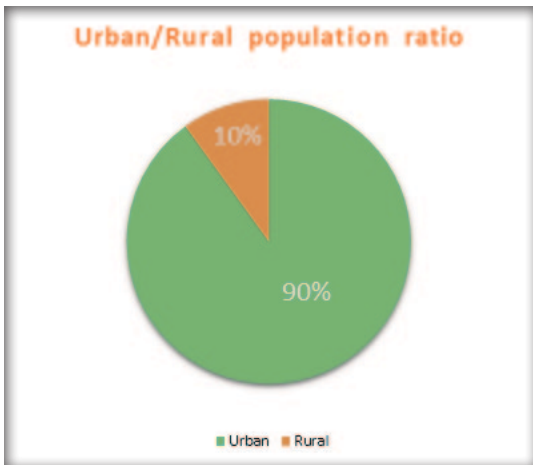
The informal waste collection sector operates in the municipality. Waste pickers consist of persons with low levels of formal education and unskilled persons. Informal waste pickers are recognised in the new Waste Management Law, which is not yet in force. The Law will prohibit buying off of any kind of waste from unregistered waste collectors (informal sector included). Waste pickers prefer metal and PET waste. The exact quantities of waste collected are not available. Involvement of the informal sector is deemed low.

There are no sanitary regional landfills in the Municipality of Herceg Novi. Waste is disposed on 1 non-compliant municipal landfill and 5 officially recorded illegal dumpsites.

4.15 Municipality of Dambovita, City of Târgoviște (Romania)

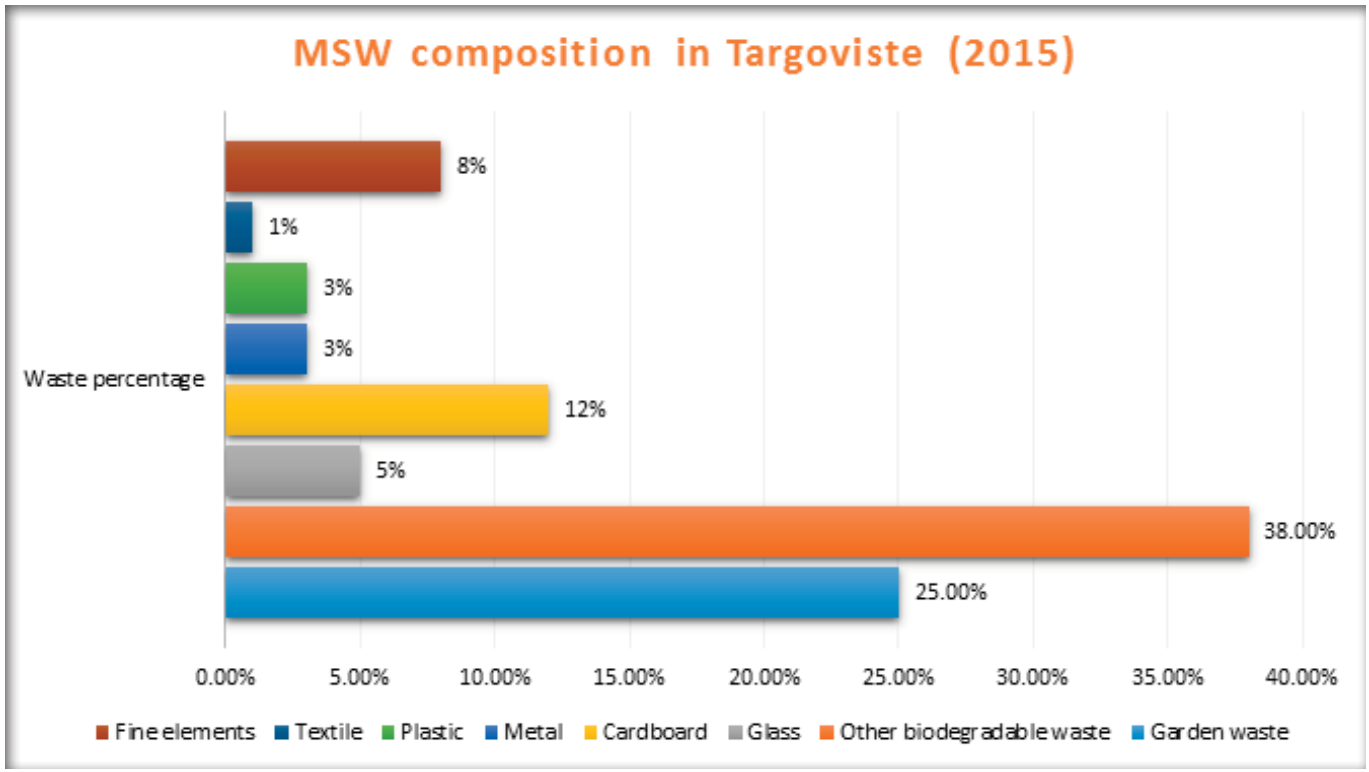
A total of 79,100 inhabitants live in Dambovita (Târgoviște). The total surface area is 769 km², out of which 88% is urban, with 90% of the population living there. The remaining 10% of the population is living in rural areas, which account for 12% of the total territory. 100% of the population in both urban and rural areas is covered with waste collection services.

Chart 32: Population in urban vs rural areas in the Municipality Târgoviște



The municipal waste generation rate is 1.6 kg/cap/day. Approximately 17% of the population is covered with packaging waste collection services and the recycling rate is 15%. Waste is mostly composed of biodegradable waste (63%), with other major categories being cardboard (12%) and fine elements (8%). There is no change in waste generation and recycling indicators compared to 2014.

Chart 33: Municipal waste composition in the Municipality of Târgoviște, 2015



The waste management fee is different in urban and rural areas. In urban areas, the fee is 3 EUR/month flat rate per capita, and in rural areas, it is 2 EUR/month flat fee for each household, regardless of the amount of waste generated and regardless of the number of household members. Companies are charged by a "Pay-as-You-Throw" system, i.e. weight or volume of collected solid waste in kg or m^3 or L. Costs calculated in the fee are: waste collection, transport, disposal and street cleaning. Municipal Administration and the Public Utility Company are both responsible for the waste management fee. The waste management fee collection rate is 60% overall, with 75% in urban areas and 30% in rural ones.

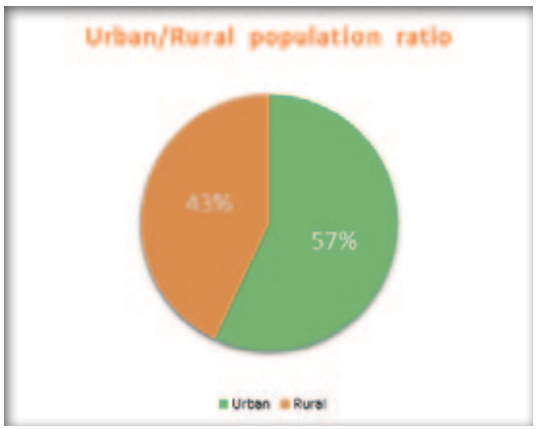
The informal sector is not recognised by the local authorities, and it mostly consists of low income people and persons below the poverty line. Waste pickers prefer metal and PET waste; however, the exact quantities of taken waste cannot be found, since there is no official data. Involvement of the informal sector is deemed very significant and takes into account the collection of valuable recyclables.

Two sanitary regional landfills are related to the municipality – Titu and Aninoasa. No data on illegal dumpsites has been recorded.

4.16 Municipality of Pancevo, City of Pancevo (Serbia)

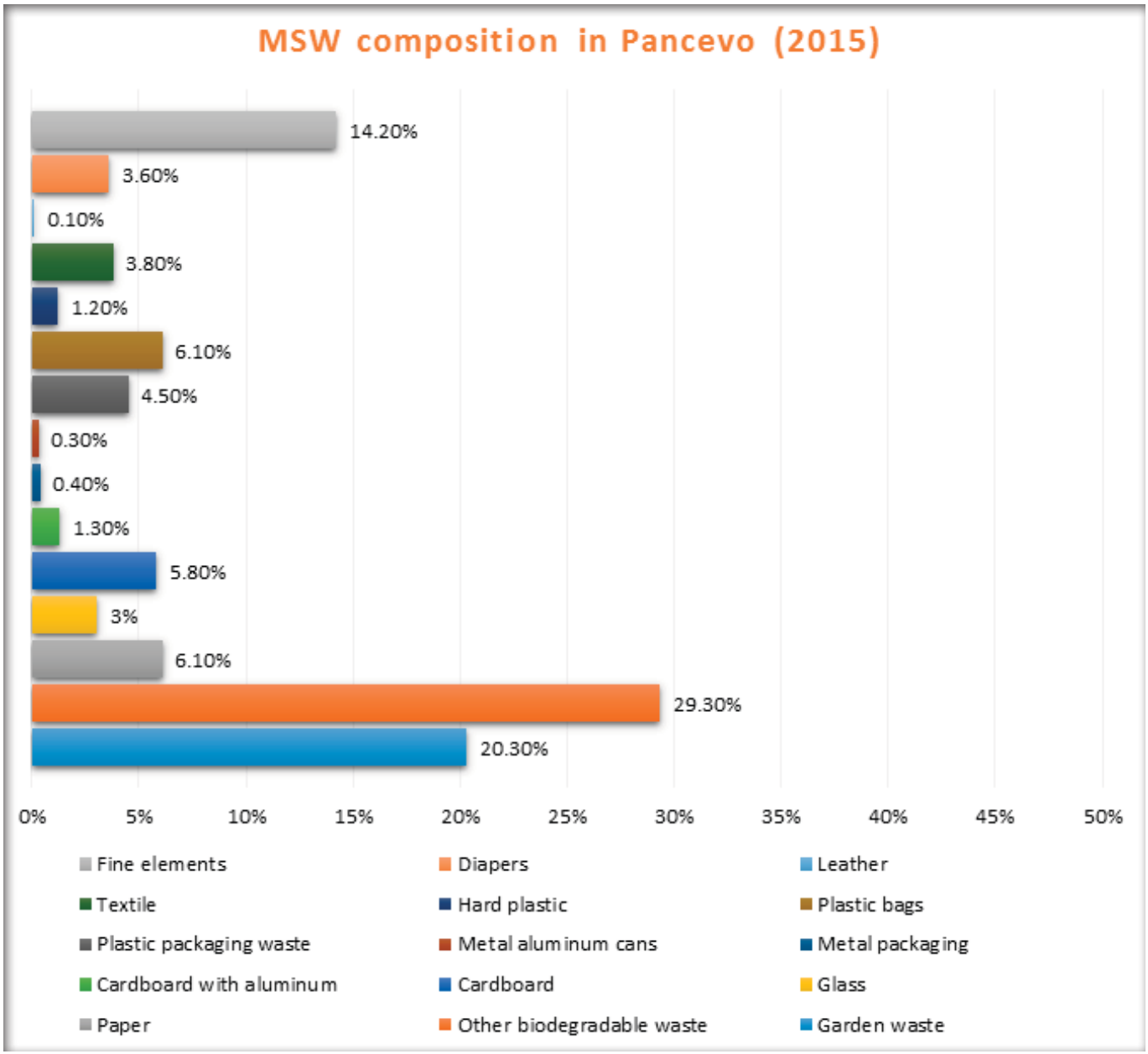
A total of 110,035 inhabitants live in the Municipality of Pancevo. The total surface area is 756 km^2, out of which 19.3% is urban, with 57% of the population living there. The remaining 43% of the population lives in rural areas, which account for 80.7% of the total territory. 100% of the population in the urban area is covered with waste collection services. This is an increase compared to the last year's reported coverage of 97.4%.

Chart 34: Population in urban vs rural areas in Pancevo



Municipal waste generation per capita is 1.02 kg/day, which is double the last year's reported amount of 0.57 kg/cap/day. Approximately 11% of the population is covered with a packaging waste collection service, with a recycling rate of 13%. The recycling rate has increased from 6.5% in 2014. Most of the waste is biodegradable or garden waste (49.6%) and fine elements (14.2%). The percentage of paper waste decreased from 12.6% in 2014 to 6.1% in 2015 and aluminium cans from 7.9% in 2014 to 0.3% in 2015. There is still a significant amount of plastic bags in waste composition (6.1%).

Chart 35: Municipal waste composition in the City of Pancevo, 2015



The waste management fee is 0.058 EUR/m^2 that entails costs for waste collection, transport and disposal. The bill has a separate charging of SW services, and there is a uniform system of payment for the whole municipality. The entity responsible for waste management fees is the Public Utility Company. The waste management fee collection ratio is 62.5% overall, with 75% in urban areas and 50% in rural areas.

An SWM informal sector operates in the municipality, consisting of persons with low income, unemployed people and women and children. The sector is not recognised by the authorities; however, waste pickers have created an association that operates on the territory of the municipality.

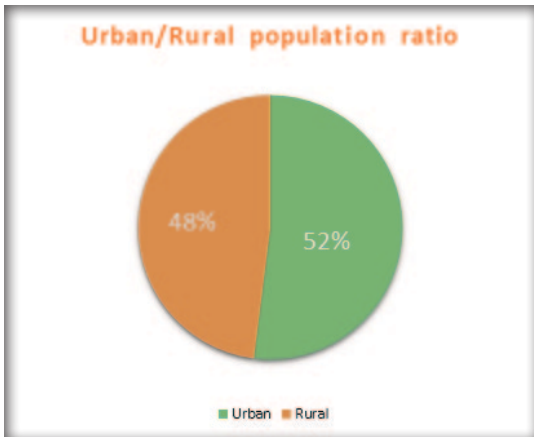
Waste pickers prefer metal and PET waste; however, the exact quantities of taken waste cannot be found, since there is no official data. Involvement of the informal sector is deemed very significant.

There is 1 sanitary regional landfill in Pancevo, which is operated by the Public Company "Higijena" and opened in 2015. 8 non-compliant municipal landfills are observed on the territory, with 17 illegal dumpsites in the urban area and 26 in the rural area. There is currently 1 landfill for inert waste in Pancevo.

4.17 Municipality of Bajina Basta (Serbia)

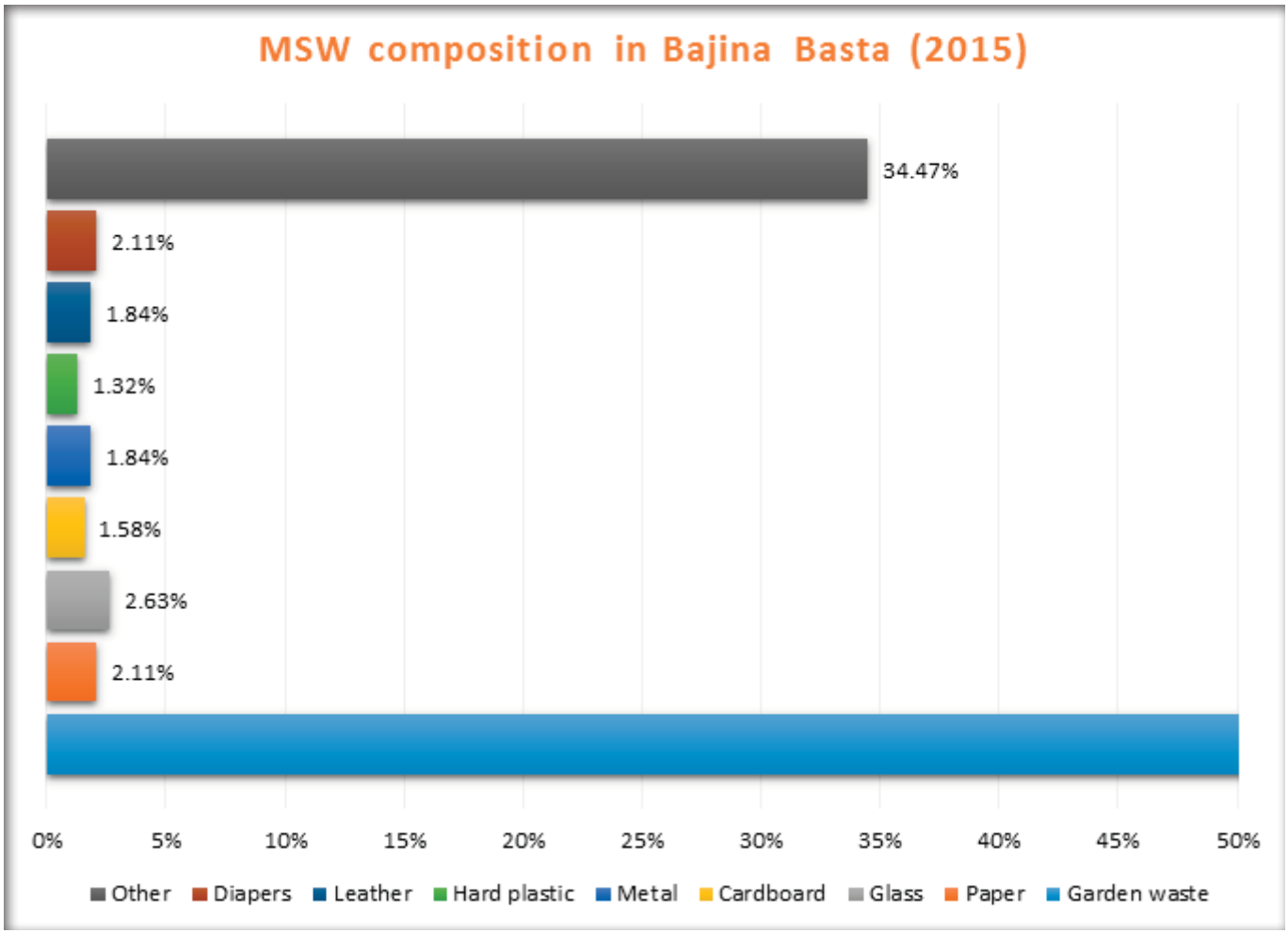
A total of 26,022 inhabitants live in the Municipality of Bajina Basta. The total surface area is 673 km^2, out of which 2.3% is urban, with 52% of the population living there. The remaining 48% of the population lives in rural areas, which account for 97.7% of the total territory. 100% of the population in the urban area is covered with waste collection services, while the rural area has 57.09% coverage.

Chart 36: Population in urban vs rural areas in Bajina Basta



Municipal waste generation per capita is 0.61 kg/day. 52.42% of the population is covered with a packaging waste collection service, with a recycling rate of 13.42%. Most of the waste is classified as garden waste and biodegradable (51.05%). Waste classified as "other" is found in the amount of 34.47% and it is mainly composed of electronic and construction waste.

Chart 37: Municipal waste composition in Bajina Basta, 2015



The waste management fee is 3.70 EUR/month that entails costs for waste collection, transport, disposal and sweeping of streets. The rate is calculated based on a flat fee for each household, regardless of the amount of waste generated and number of household members. Waste bills are separated from other communal services. The fee is uniform for both urban and rural areas. The entity responsible for waste management fees collection is the Public Utility Company. The overall waste management fee collection ratio is 87%. The informal waste collection sector is not present in this municipality.

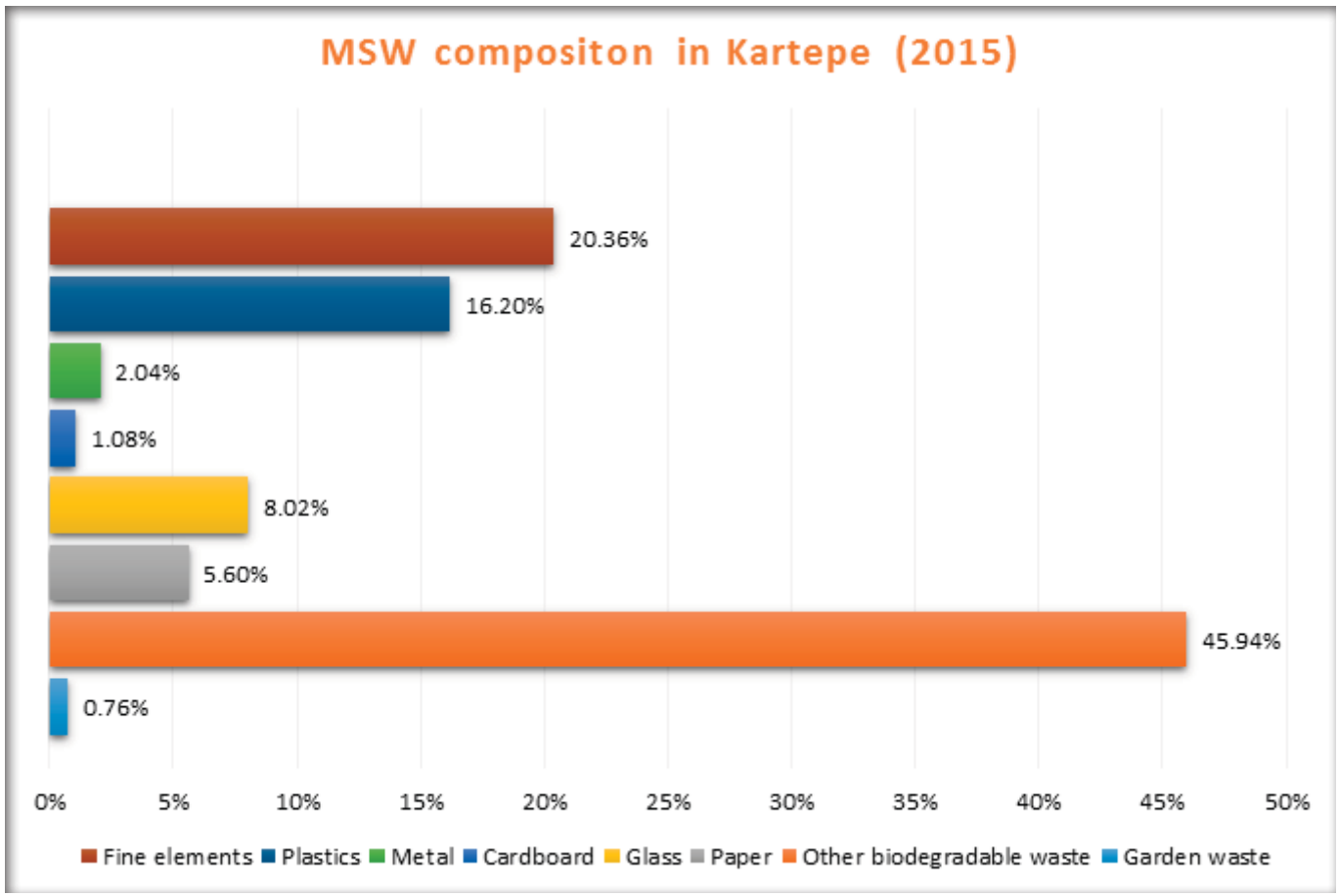
There is 1 sanitary regional landfill in Bajina Basta, i.e. the sanitary landfill Duboko. Data on wild dumps is not available.

4.18 Municipality Kartepe in Kocaeli (Turkey)

A total of 107,896 inhabitants live in the Municipality of Kartepe. The total surface area is 269 km^2 and is 100% urban area. 100% of the population is covered with waste collection services including packaging waste collection services.

Municipal waste generation per capita increased from 0.89 kg/day in 2014 to 0.96 kg/day in 2015. The recycling rate in Uzunkopru is reported as 15.2%, which is by 1.2% higher than in 2014. Waste is mainly composed of fine biodegradable waste (46%) fine elements (20%) and plastic packaging (16%).

Chart 38: Municipal waste composition in Kartepe Municipality, 2015



Turkey has a different method of calculating its waste management fee, which is tied to water consumption. Every household must pay "Environmental Cleaning Tax", and in practice, it is identical to the waste management fee in other countries, since this tax is only applicable to households with water consumption bills. The waste fee is calculated as 0.07 EUR per each m^3 of water consumed. Other than households, enterprises need to pay regular management fees decided by the municipality. The municipality is responsible for the collection of "waste management fees", and the overall collection rate is around 100%.

The informal waste collection sector operates in the municipality, consisting of persons with low income level, low level of formal education and unskilled persons, as well as economic immigrants. They pick waste from solid waste containers and bins. The sector is not recognised by the local government authorities. The Turkish law forbids waste collection outside the officially registered companies that are part of the national waste management system. However, municipalities struggle with the enforcement of this law.

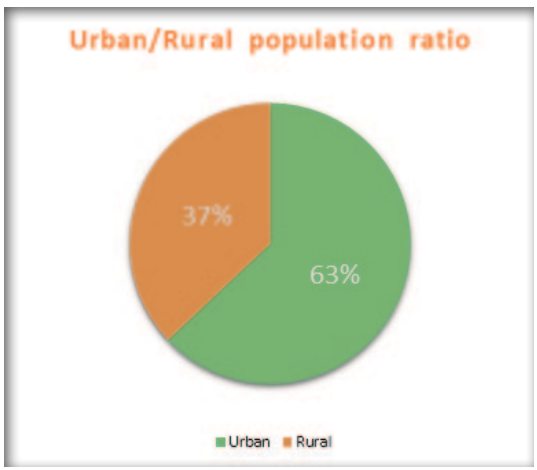
Waste pickers mainly collect paper and PET plastics; however, the exact quantities of waste collected are not available. Involvement of the informal sector is very significant and takes into account collection of valuable recyclables.

Municipality of Kartepe is disposing its municipal solid waste at regional sanitary landfill belonging to the Metropolitan Municipality of Kocaeli. The Municipality has one landfill for inert waste.

4.19 Municipality Uzunkopru in Edirne (Turkey)

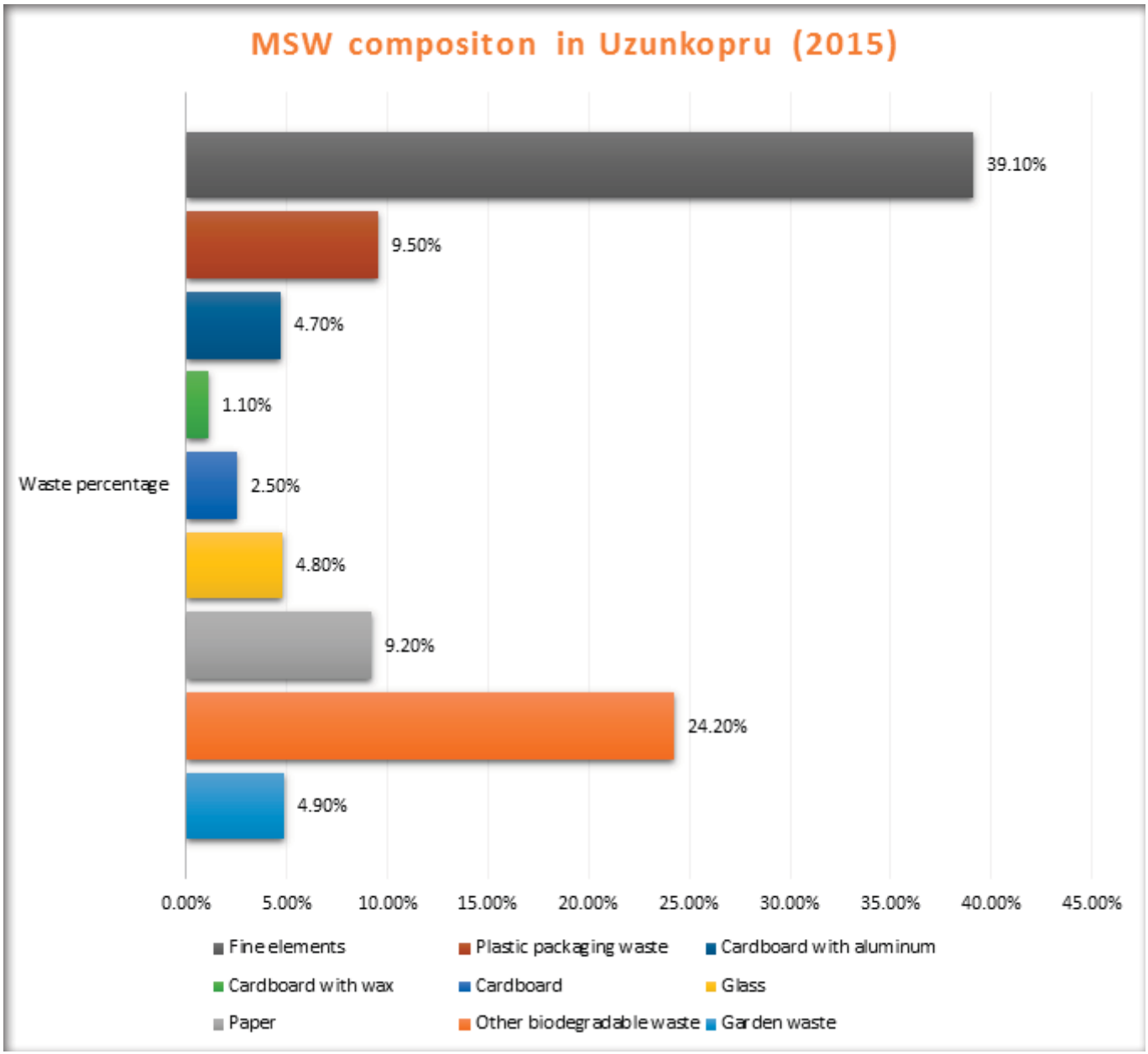
A total of 63.193 inhabitants live in the Municipality of Uzunkopru. The total surface area is 1,212 km2, out of which 16% is urban, with 63% of the population living there. The remaining 37% of the population lives in rural areas, which account for 84% of the total territory. 100% of the population in the urban area is covered with waste collection services. Approximately 63% of the population is covered with packaging waste collection services.

Chart 39: Population in urban vs rural areas in Uzunkopru



Municipal waste generation per capita decreased from 1.5kg/day in 2014 to 1.34 kg/day in 2015. The recycling rate in Uzunkopru is reported as 41.3%, which is by 4% higher than in 2014. Waste is mainly composed of fine elements (39.10%) and biodegradable waste (29.10%) and plastic packaging (9.50%).

Chart 40: Municipal waste composition in Uzunkopru Municipality, 2015



Turkey has a different method of calculating its waste management fee, which is tied to water consumption. Every household must pay "Environmental Cleaning Tax", and in practice, it is identical to the waste management fee in other countries, since this tax is only applicable to households with water consumption bills. The waste fee is calculated as 0.06 EUR per each m^3 of water consumed. Other than households, enterprises need to pay regular management fees decided by the municipality. The municipality is responsible for the collection of "waste management fees", and the overall collection rate is around 47%.

The informal waste collection sector operates in the municipality, consisting of persons with low income level, low level of formal education and unskilled persons as well as unemployed persons. They pick waste from solid waste container and bins and at the landfill. The sector is not recognised by the local government authorities. The Turkish law forbids waste collection outside the officially registered companies that are part of the national waste management system. However, municipalities struggle with the enforcement of this law.

Waste pickers mainly collect paper and PET plastics; however, the exact quantities of waste collected are not available. Involvement of the informal sector is very significant and takes into account collection of valuable recyclables.

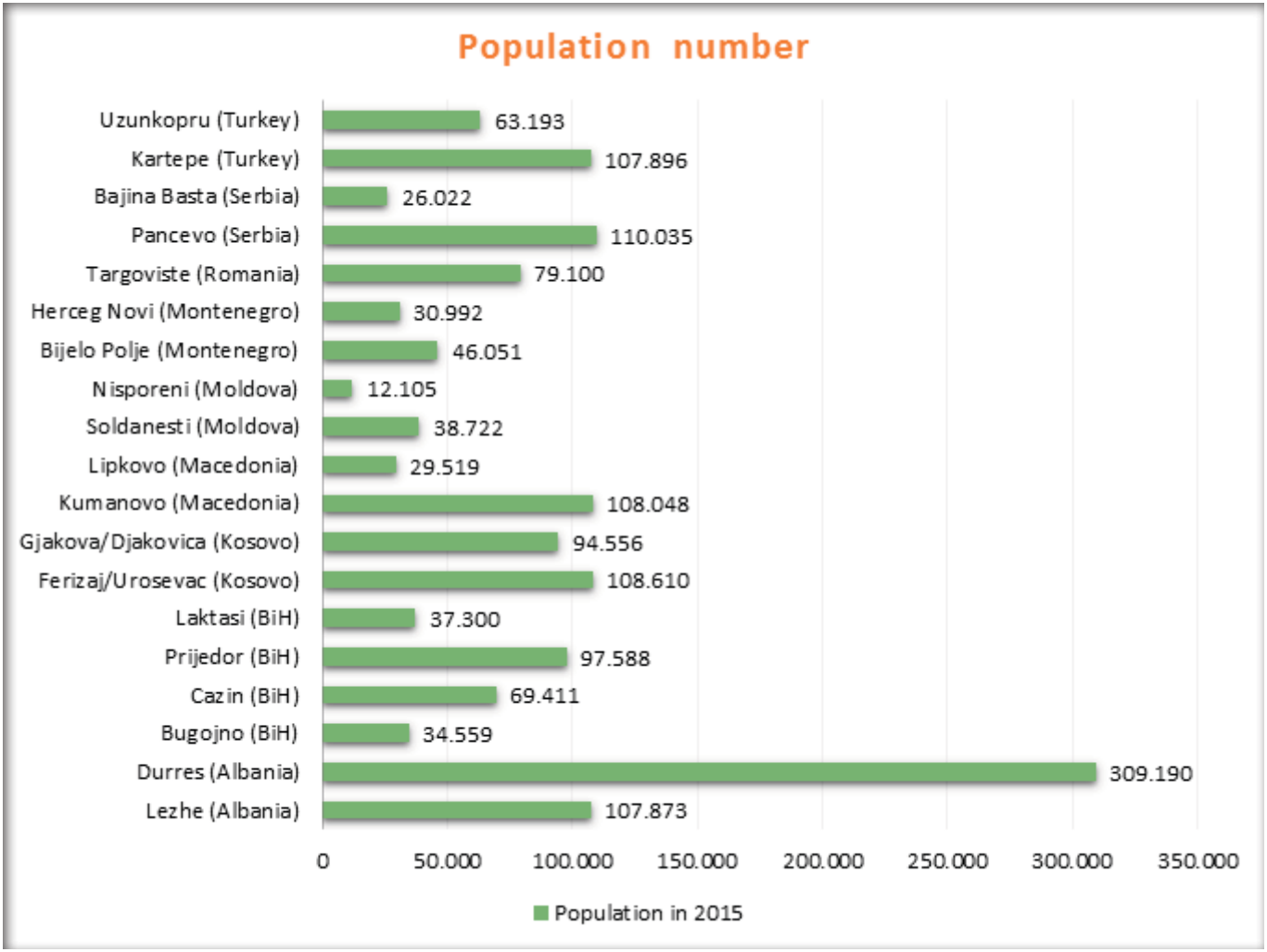
Municipality of Uzunkopru is disposing its municipal solid waste at regional sanitary landfill belonging to the Metropolitan Municipality of Edirne. The Municipality has one landfill for inert waste.

5 BENCHMARKING OF LOCAL INDICATORS

5.1 Indicator 1: Population number

This indicator provides information on the total number of inhabitants generating waste within the local government unit that should be included in waste collection services. This indicator has no benchmark value. The population number is used to calculate values of other indicators such as: waste generation, coverage, etc. Sample municipalities used in the 2015 Benchmarking Report had sizes ranging from 10,000 to 350,000 inhabitants.

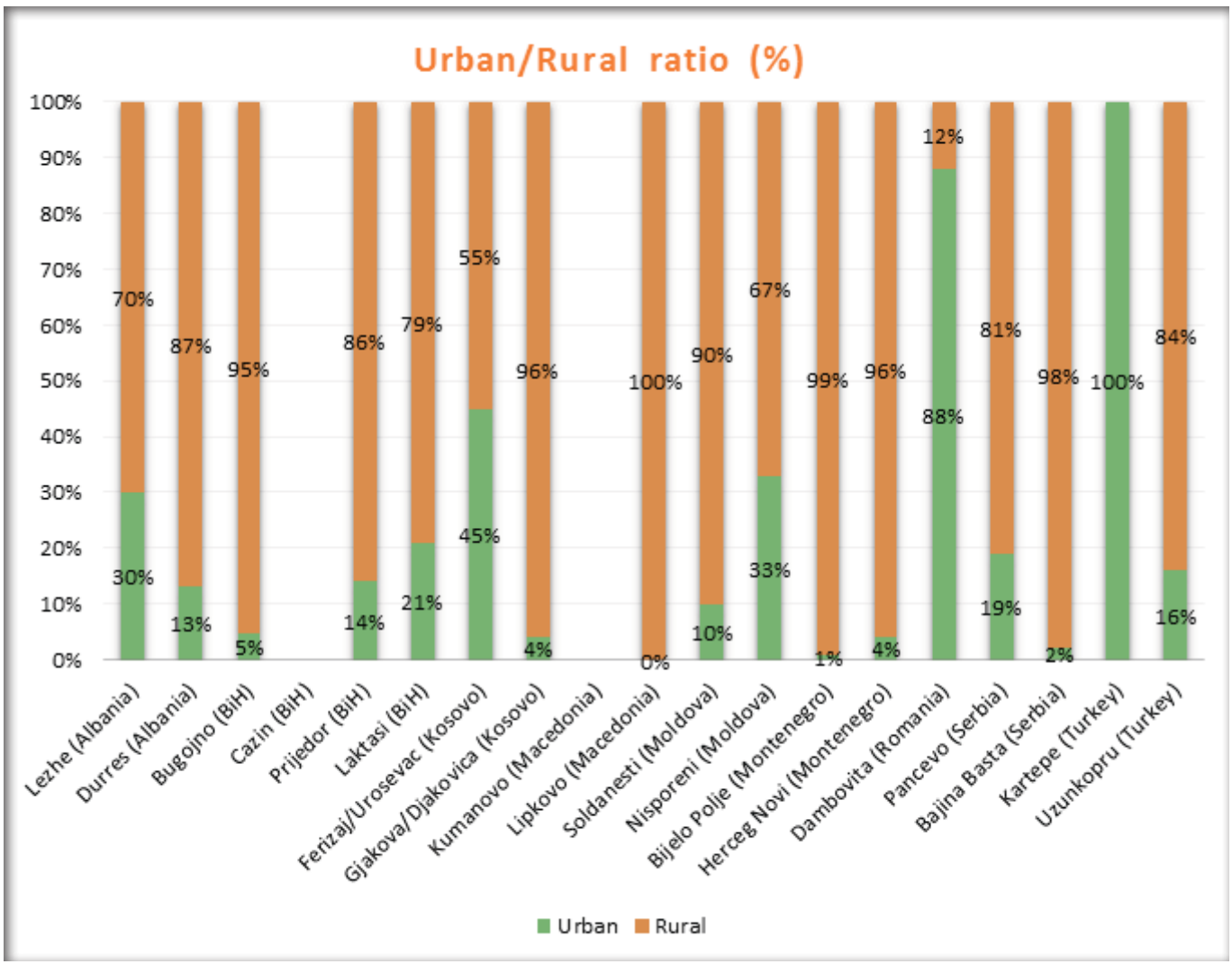
Chart 41: Population number in sample municipalities



5.2 Indicator 2: Urban/Rural ratio

This indicator provides information on the level of urbanisation of areas to be included in SWM services. This indicator has no benchmark value. The Municipalities of Kumanovo and Cazin did not provide data on their area of urban and rural territory. All observed municipalities are predominantly rural, only Dambovita Municipality reported that its urban area spreads on 88% of its territory. Municipality of Kartepe reported to be 100% urban.

Chart 42: Ratio between rural and urban areas

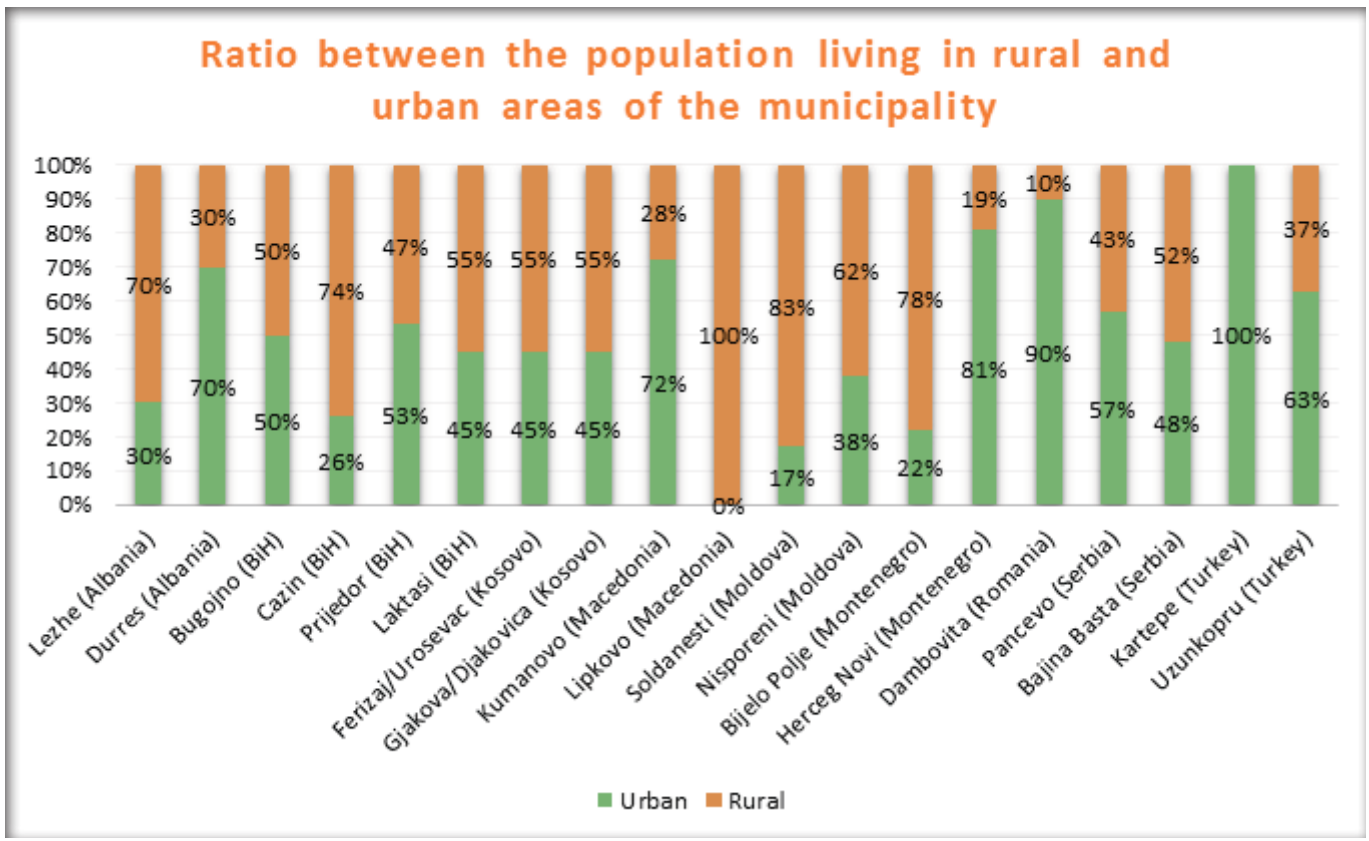


5.3 Indicator 3-4: Ratio between the population living in urban areas and population living in rural areas

This indicator describes the share of urban surface area and/or rural surface area (%) in relation to the municipality's total surface area. A community is defined as rural if its population density is below 150 inhabitants per square km.

The majority population in Kumanovo, Durres, Târgoviște and Herceg Novi lives in urban areas, while the majority population in Soldanesti, Nisporeni, Cazin, and Lezhe lives in rural areas. Municipalities with balanced urban and rural populations are: Prijedor, Laktasi, Ferizaj/Urosevac, Gjakova/Djakovica, Uzunkopru, Pancevo, Bajina Basta and Bugojno. Bijelo Polje is 99% rural with 78% of the population living there. Lipkovo is the only municipality considered to be 100% rural because the entire population lives in the rural area. Kartepe is the only municipality reported to be 100% urban thus its entire population lives in the urban area.

Chart 43: Ratio between the number of population living in rural and urban areas

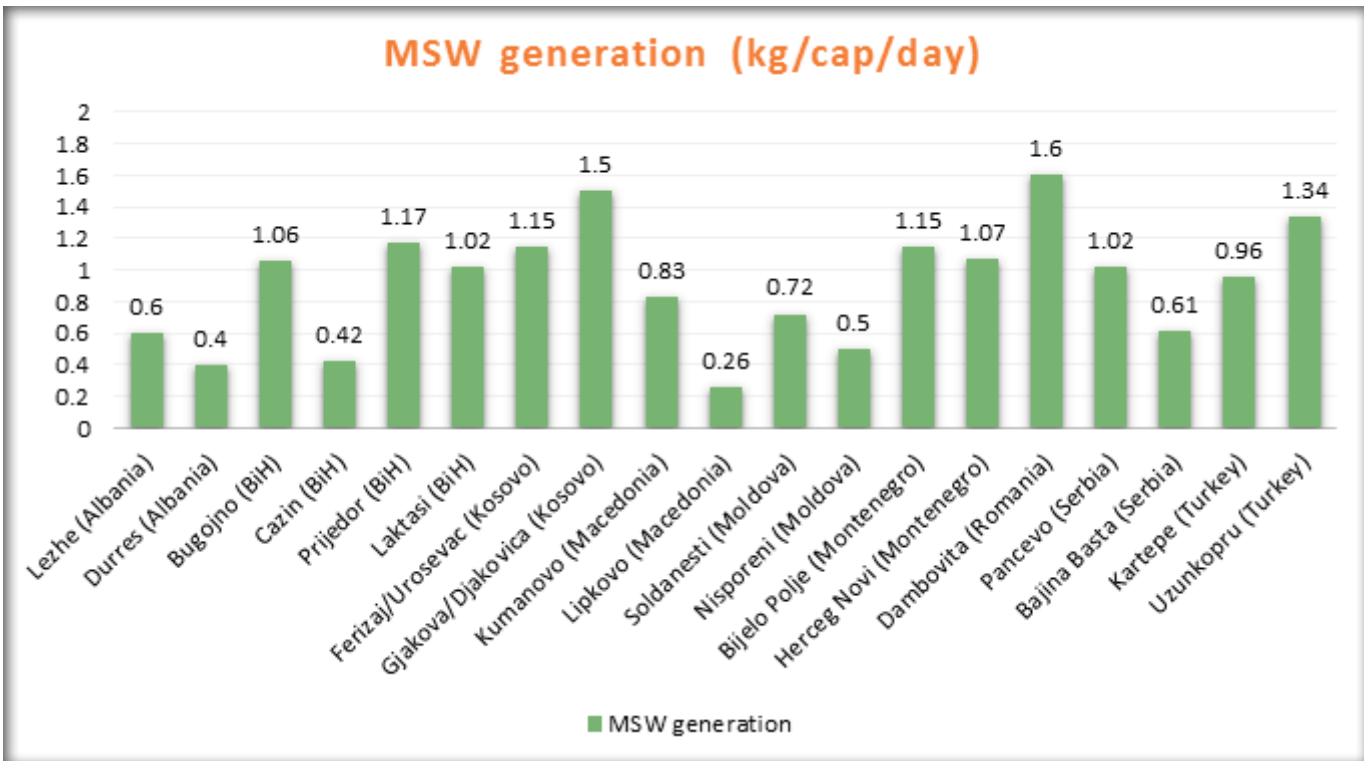


5.4 Indicator 5: Municipal solid waste generation per capita

Municipal waste generation per capita is one of the most common indicators used to describe the waste generation rate in a municipality, and it can be expressed as kilograms per person per year or per day. By tracking the per capita waste disposed over time, the effectiveness of waste prevention programs offered can be monitored, as well as forecasts can be estimated and future MSW management planning can be supported. It can be used for the following:

- to determine the volume required for on-site storage, transportation, transfer facilities and disposal of solid waste;
- to identify recycling/resource recovery potential of solid waste;
- to determine appropriate methods of collection and disposal of solid waste; and
- to estimate the expected life span of a disposal site.

Chart 44: MSW generation in observed municipalities



The lowest waste generation is reported for the Municipalities of Lipkovo (0.26 kg/cap/day), Durres (0.4 kg/cap/day), Cazin (0.42 kg/cap/day) and Nisporeni (0.5 kg/cap/day). Except for Durres, all other municipalities are mainly of rural character, with more than 60% of their population living in the rural area. The largest waste production is reported for Dambovita, Târgoviște (1.6 kg/cap/day), Gjakova/Djakovica (1.5 kg/cap/day) and Uzunkopru (1.34 kg/cap/day). These are the municipalities with most of their inhabitants living in the urban area. The inhabitants of Kartepe, which is 100% urbanised, produce 0.96 kg/cap/day.

It is to be noted that the waste generation indicator for Cazin and Prijedor Municipalities is calculated based on real measurements of waste quantities according to the standard methodology developed in the NALAS Project "Solid Waste Data Collection in SEE" and it can be taken as a representative figure with high accuracy.

It can be concluded that the correlation between waste production and % of population living in urban or rural area can be established. The higher the urbanisation and number of inhabitants in the urban area, the higher the waste production. This might be attributed to the discrepancy in the purchasing power of inhabitants living in urban vs. rural areas. It could also be expected that different lifestyles of people in rural areas (which include compositing or organic waste or its utilisation as fodder) contribute to lower quantities of waste, especially biodegradable waste; however, Indicator 6 on waste composition demonstrates that this is not the case.

5.5 Indicator 6: Waste composition

The waste composition indicator represents the share (%) of specific components in the municipal waste stream such as glass, metal, organic material, paper, plastic etc. This indicator has an added value for national, regional and local authorities. This indicator has no benchmarking value.

According to EUROSTAT and the European Environment Agency (EEA), municipal solid waste includes predominantly household waste (domestic waste) with the addition of commercial waste (waste from premises used wholly or mainly for the purposes of trade or business or for the purpose of sport, recreation, education or entertainment), non-hazardous waste from the industry and waste from clinics and hospitals, which are similar in nature and composition to household waste, collected by or on behalf of municipal authorities and disposed through the waste management system. Waste composition is influenced by factors such as culture, economic development, climate, and energy sources; such composition impacts how often waste is collected and how it is disposed.

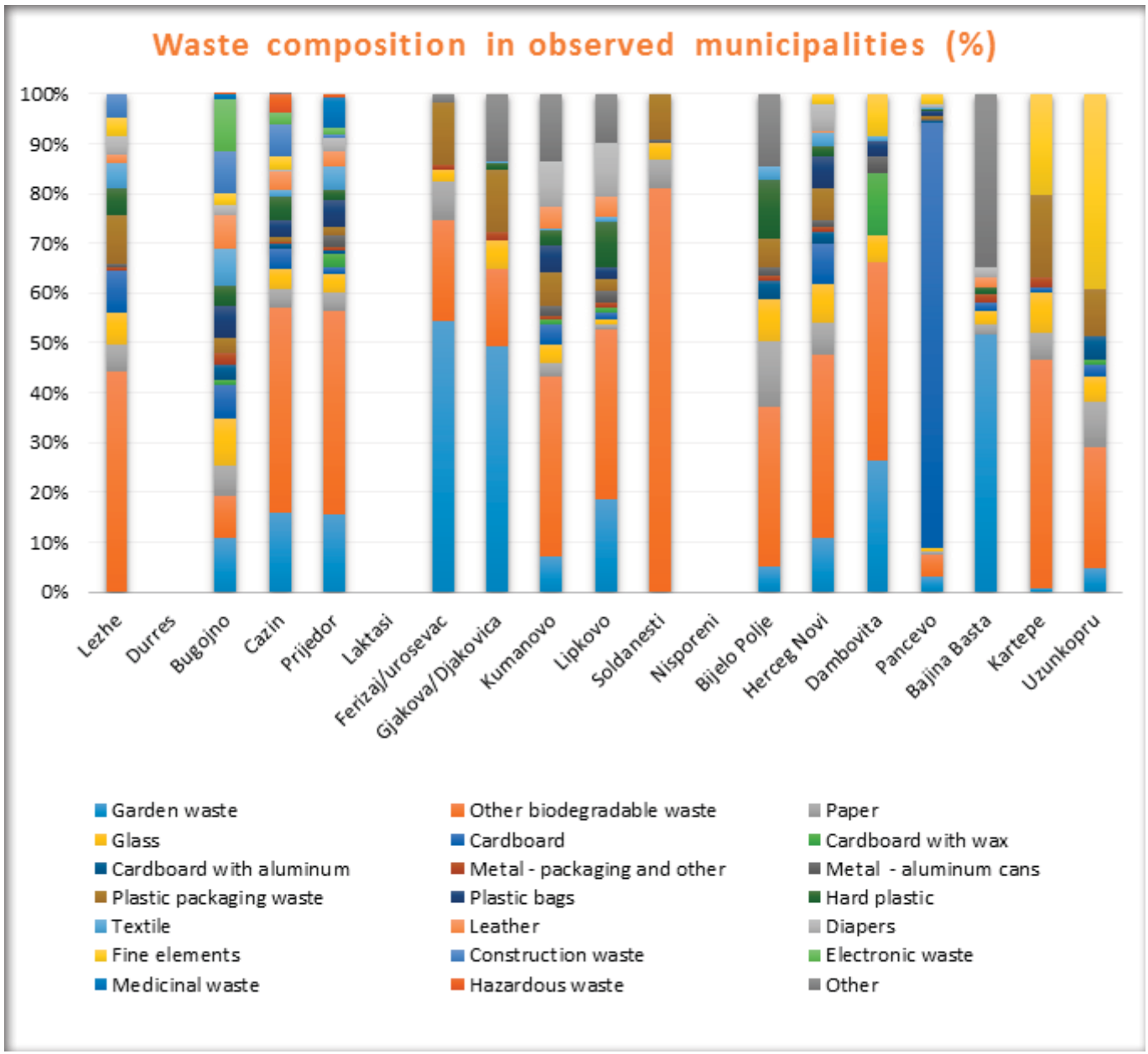
Information on waste composition helps municipalities to evaluate their respective materials management strategies and to implement a solid waste management hierarchy. The percentage of materials such as paper, metals, glass and plastic in the MSW stream is an indicator of the success of separation at source programs. The same applies for the percentage of organic materials, when those are collected separately in view of biological treatment.

Information on waste composition was not available for the Municipalities of Durres, Laktasi and Nisporeni. The waste composition indicator for Cazin and Prijedor Municipalities is calculated based on real measurements according to the standard methodology developed in the NALAS Project “Solid Waste Data Collection in SEE”.

In the majority of municipalities, waste is mainly composed of garden waste and biodegradable waste. The most uniform composition is reported for Bugojno, while all other municipalities have 50% or more of biodegradable and garden waste. Although it could be expected that in municipalities where most of the population lives in the rural area (e.g. Lezhe, Lipkovo, Soldaneti, Bijelo Polje), quantities of biodegradable waste are lower (due to home-composting or using organic waste as animal fodder), this is not confirmed by the data received. It can be even observed that waste in predominantly rural and urban areas is very similar in composition. Recyclables in waste are found in small quantities.

The high percentage of biodegradable and garden waste and low quantities of recyclable waste indicate opportunities for waste utilisation instead of disposal at landfills. Some of the options include composting and production of refuse derived fuel (RDF), which is ideally up to 35% composed of biodegradable waste and up to 15% of woody biomass, the rest being recyclable waste such as paper, plastic, rubber and textile.

Chart 45: Waste composition in observed municipalities

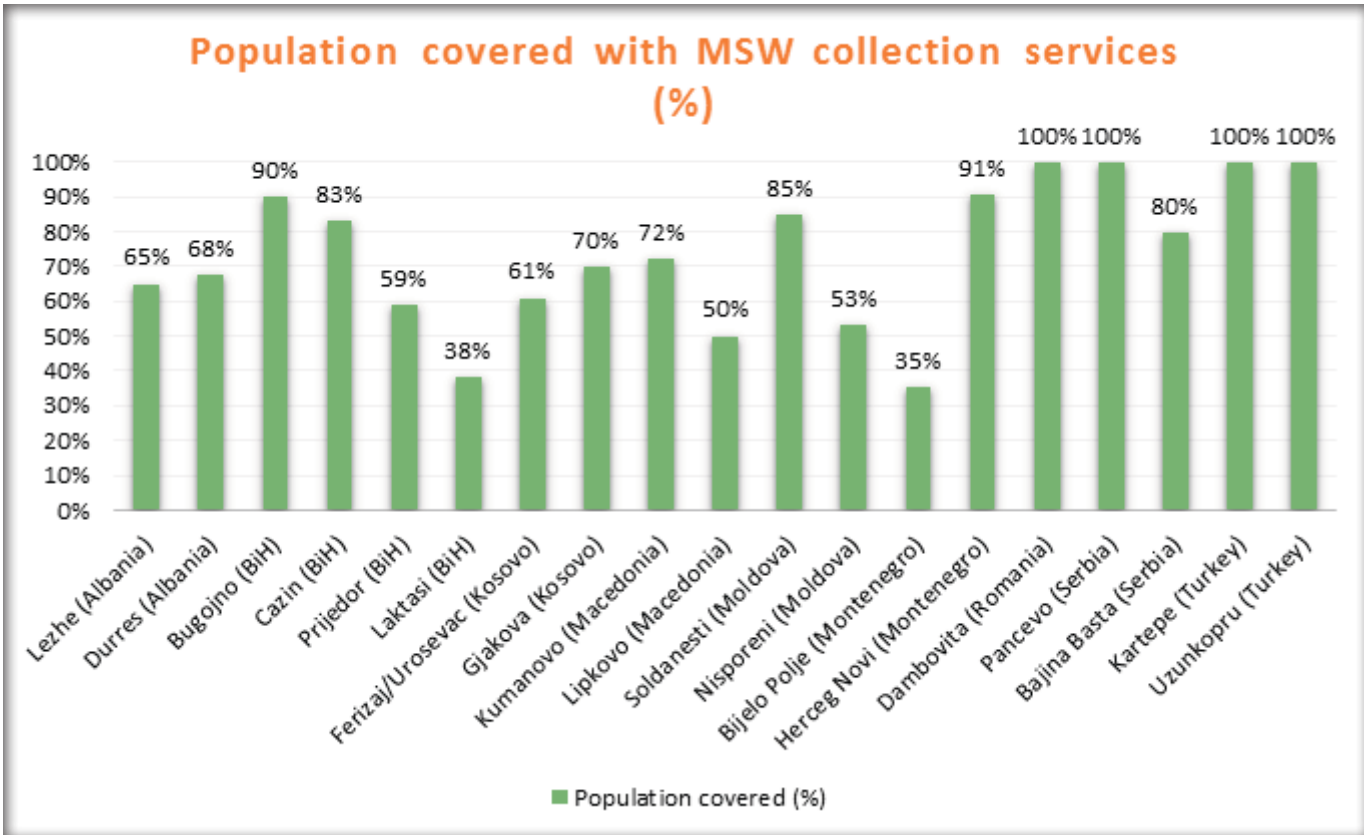


5.6 Indicator 7: Population covered with municipal solid waste collection services (%)

This indicator represents the % of population living in the municipality provided with the service of waste collection. This indicator includes households covered by door-to door collection and households covered by a container collection system. The benchmark value for this indicator is 100%. If the value is less than 100%, waste is not collected and most probably ends up at illegal landfills, exposing people to health risks.

Service coverage is still not at a satisfactory level. Only 4 out of 19 municipalities have 100% coverage of their territory. The least coverage with the service is found in Bijelo Polje and Laktasi, while the other municipalities have coverage between 50 and 90%.

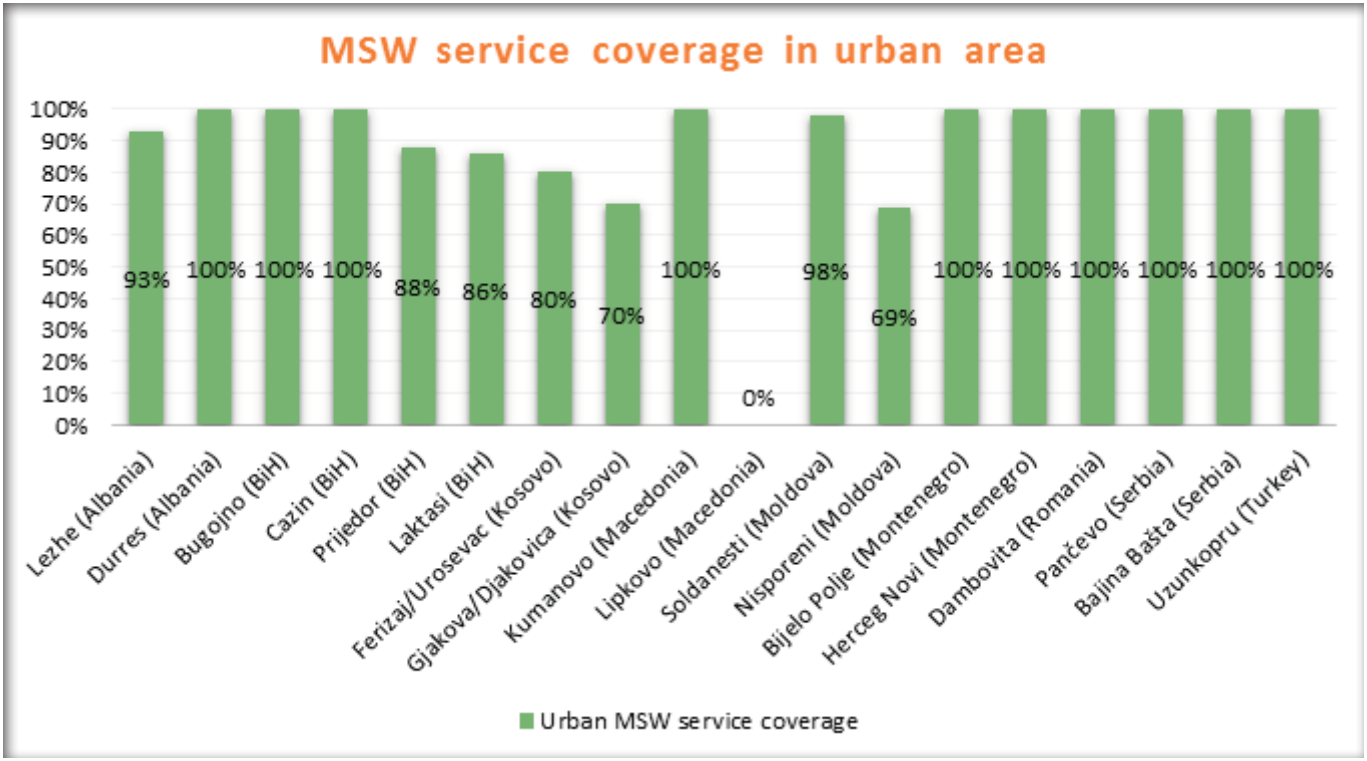
Chart 46: Population covered with service of waste collection in sample municipalities



5.7 Indicator 8: Population covered with municipal solid waste collection services in urban areas

This indicator represents the % of population living in the urban area of a municipality which is provided with the service of waste collection. This indicator includes households covered by door-to door collection and households covered by a container collection system. The benchmark value for this indicator is 100%. If the value is less than 100%, waste is not collected and most probably ends up at illegal landfills, exposing people to health risks.

Chart 47: Municipal solid waste service coverage in urban areas of sample municipalities

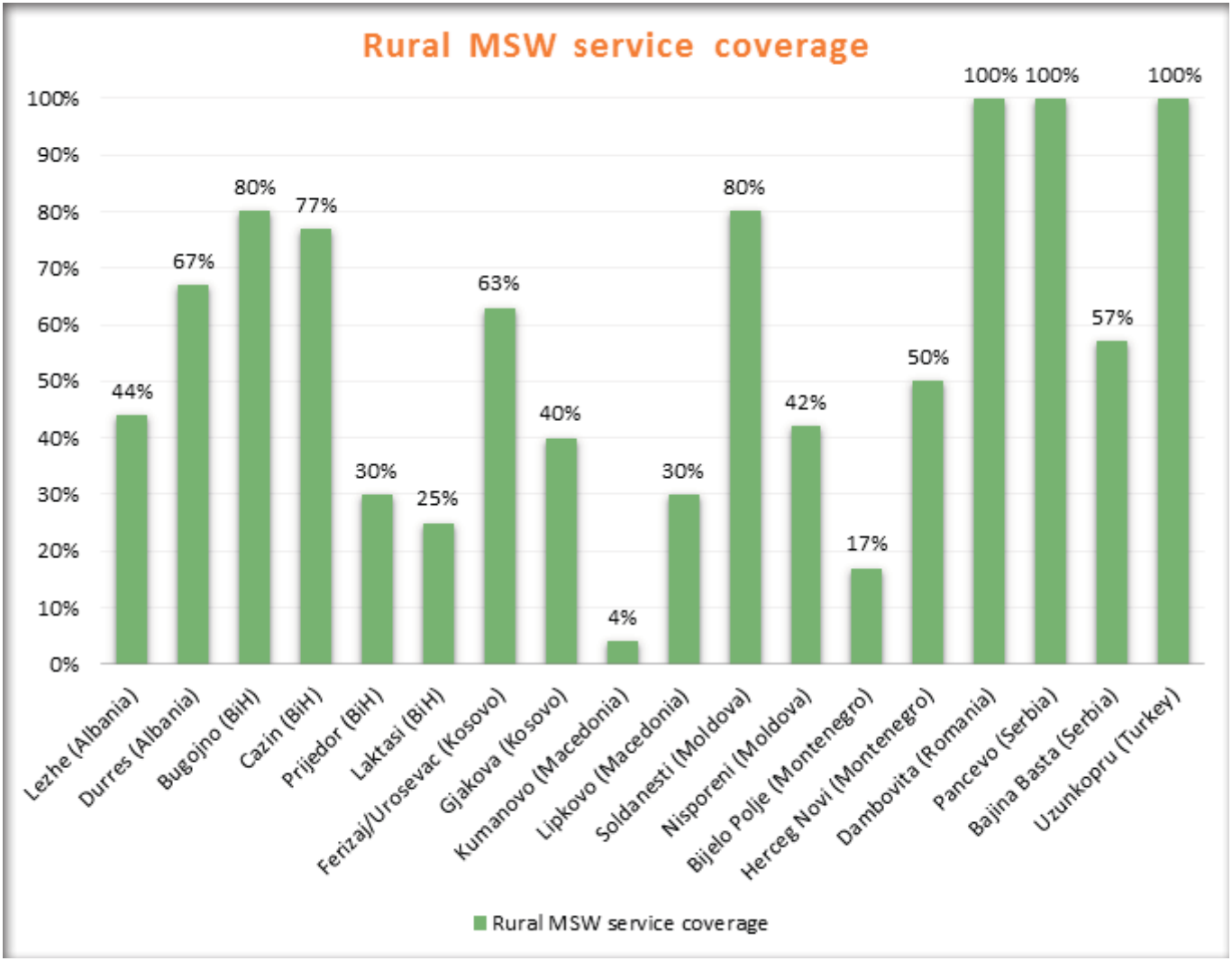


Except for Lipkovo, which is a 100% rural municipality, all other municipalities succeed to provide full collection service in their urban areas. The least covered are the Municipalities of Nisporeni and Gjakova (70%), while all other municipalities have coverage of 80% and more. A total of 9 municipalities have 100% coverage of their urban area. The intention of all municipalities is to cover 100% of their urban area with waste collection services.

5.8 Indicator 9: Population covered with MSW collection services in rural areas

This indicator represents the % of population living in the rural area of a municipality which is provided with the service of waste collection. This indicator includes households covered by door-to door collection and households covered by a container collection system. The benchmark value for this indicator is 100%. If the value is less than 100%, waste is not collected and most probably ends up at illegal landfills, exposing people to health risks.

Chart 48: Municipal solid waste service coverage in rural areas of sample municipalities



Municipalities where most of the population lives in rural areas are: Lezhe, Cazin, Lipkovo, Soldanesti, Nisporeni, and Bijelo Polje.

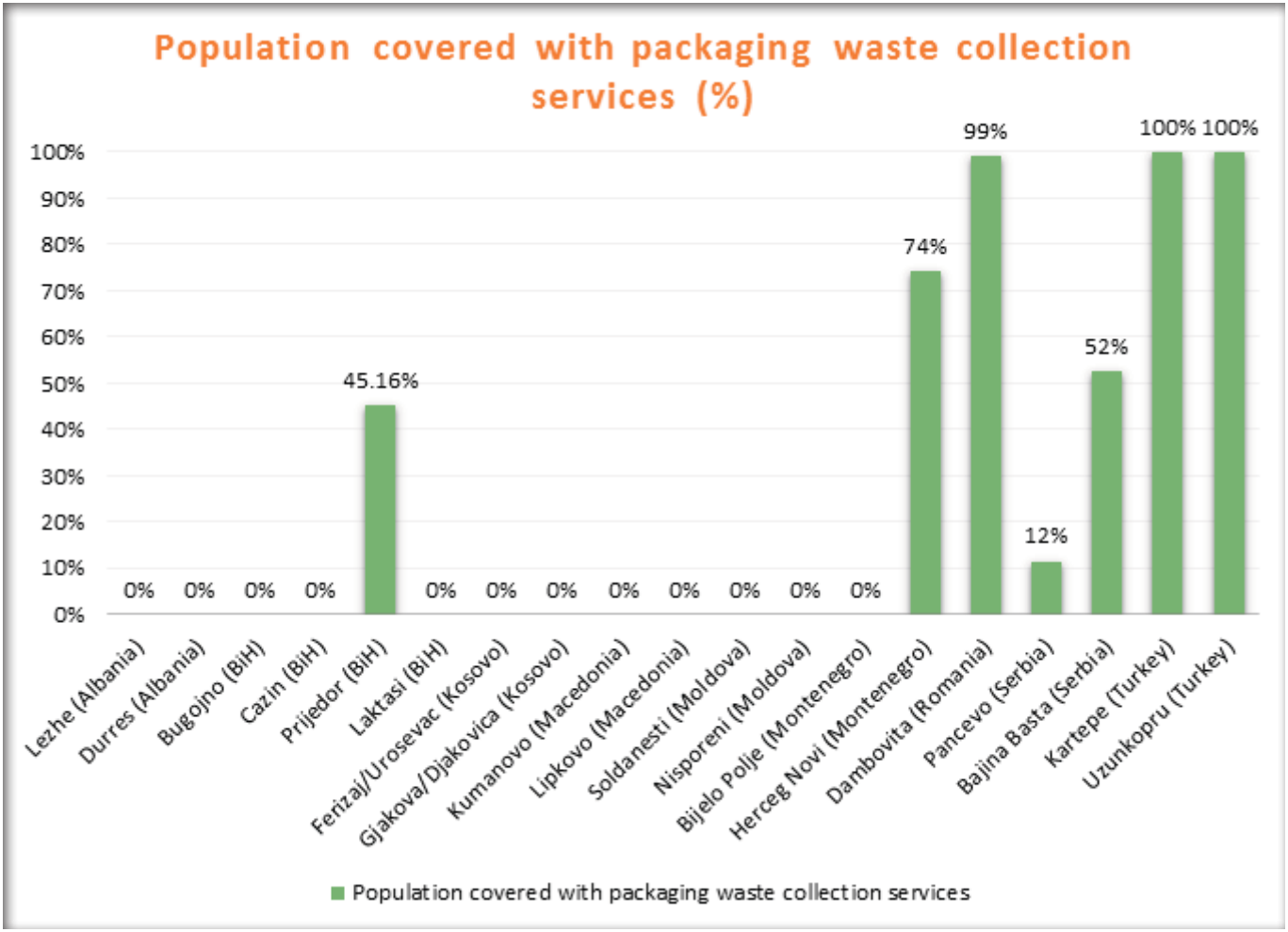
Municipalities of Cazin and Soldanesti succeeded to raise their coverage in rural areas to 80%. All other rural municipalities have a very low coverage. In Bijelo Polje, the coverage is as low as 17% even though 78% of the population lives in rural areas. The Municipality of Kumanovo is mainly urban, with only 28% of the population living in the rural area. Nevertheless, the coverage is extremely low, with only 4% and it is the lowest among the benchmarked municipalities. The Municipality of Kartepe is 100% urban, thus it is not used for benchmarking.

It is difficult to compare the coverage in rural areas with the number of illegal dumps. It can be expected that the number of illegal dumps is high in those municipalities where the coverage in rural areas is low, especially in those that accommodate large populations. This is somewhat confirmed by the information from the Municipality of Bijelo Polje, where 104 illegal dumpsites have been recorded on the territory of the municipality. However, a similar situation in other municipalities could not be confirmed due to the lack of official data on illegal dumps (9 of 19 sample municipalities did not provide data on illegal dumps).

5.9 Indicator 10: Population covered with packaging waste collection services

This indicator represents the % share of population covered by a packaging waste collection system. Separation of waste is a critical requirement for sustainable solid waste management systems, because it is a precondition for recycling, reuse and resource recovery in treatment units. All waste producers should be covered by a packaging waste collection system. The benchmark value for this indicator is 100%.

Chart 49: Population in sample municipalities covered with packaging waste collection services

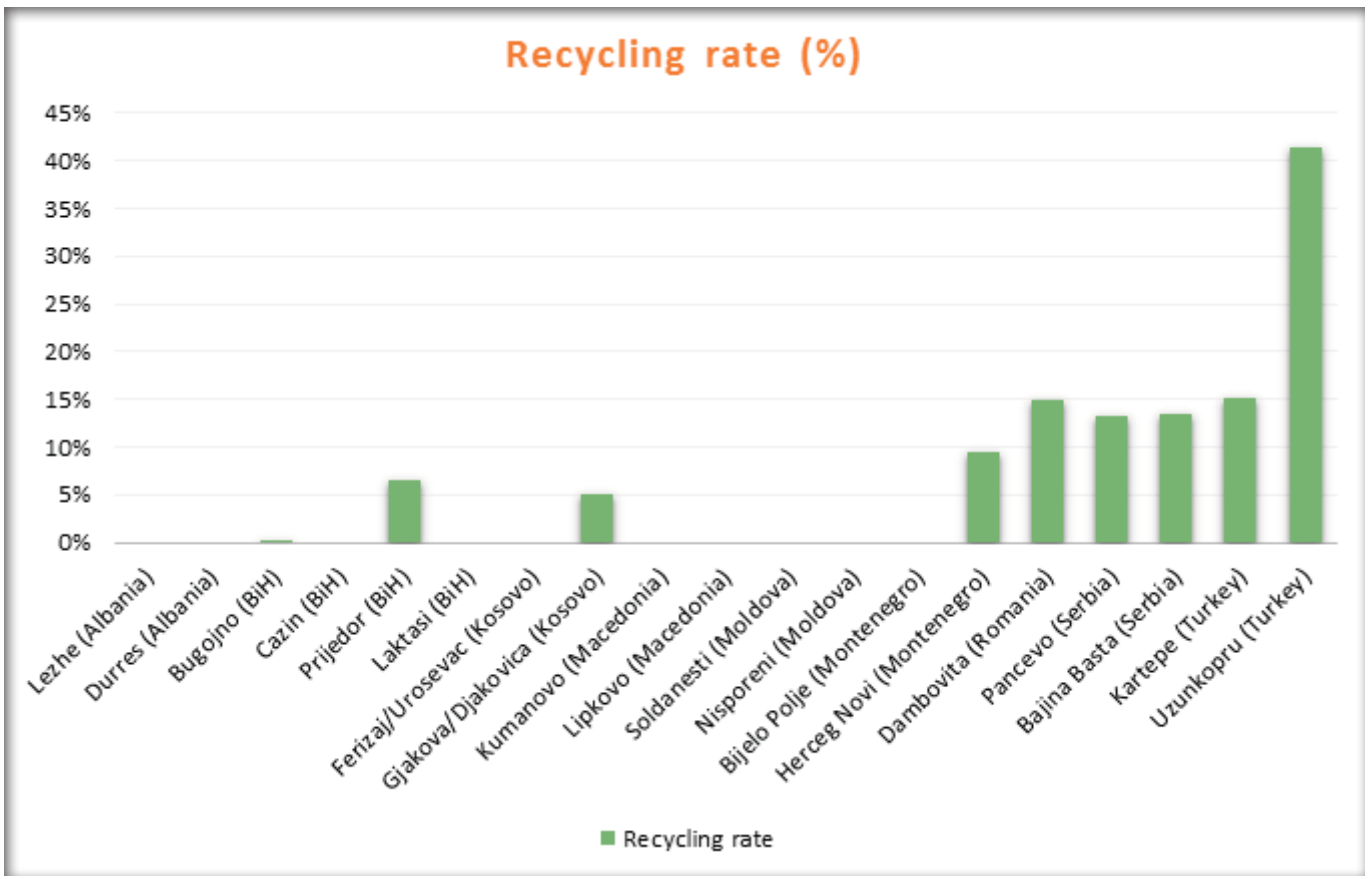


A small number of municipalities reported on % of population covered with packaging services. It is not a common indicator to be measured as it requires to have either (i) a standard set regarding the number of inhabitants per packaging waste container and information on the number of packaging waste containers installed in the municipality, or (ii) calculation of the number of households and inhabitants living within a radius of 30 m from the packaging waste container (or green island). Among the municipalities reporting about the population covered with a packaging waste service, Targoviste, Kartepe and Uzunkopru reported that their entire municipality is covered by a packaging waste collection system. This indicates that mixed waste containers are coupled with packaging waste containers and that all inhabitants have the possibility to separate waste at its source. Other municipalities are also introducing waste separation at source, where Herceg Novi is the municipality that advanced most in this sense, with almost 75% coverage.

5.10 Indicator 11: Recycling rate

The recycling rate is the percentage of recyclables that are collected and recycled divided by the total number of recyclables generated. National targets for recycling/recovery of packaging waste are set in the national Waste Management Strategies. The benchmarking values are set in the Directive 2008/98/EC on Waste and repealing certain Directives, Directive 1999/31/EC on Waste Landfills as amended, and Directive 94/62/EC on Packaging and Packaging Waste (as amended). In 2014, the EC adopted a legislative proposal and annex to review recycling and other waste-related targets in the EU Waste Framework Directive 2008/98/EC, the Landfill Directive 1999//31/EC and the Packaging and Packaging Waste Directive 94/62/EC. The main elements of the proposal relate to the re-use of municipal and packaging waste. The new targets are: **(i) recycling and preparing for re-use of municipal waste to be increased to 70 % by 2030 and (ii) recycling and preparing for re-use of packaging waste to be increased to 80 % by 2030.**

Chart 50: Recycling rate in sample municipalities



The recycling rate indicator is also one of the indicators that are not common to be measured. Municipalities usually do not have an insight in the amount of waste that can be recovered from recyclables, because they do not have information on the quantity of recyclables found in their municipal waste. Only 8 of 19 municipalities reported on their recycling rate. Uzunkopru Municipality has the highest coverage with packaging waste collection and the highest recycling rate. Municipalities of Prijedor, Gjakova/Djakovica, Herceg Novi, Dambovita, Pancevo, Bajina Basta and Kartepe have up to a 15% recycling rate. The region is well behind the targets set in the EU.

5.11 Indicator 12: Waste management fee

This indicator represents the fee that citizens pay monthly for the solid waste management services provided by the Public Utility Company. The indicator also consists of data about costs that are calculated in the monthly fee, pricing methods for the waste management service, billing method and waste management fee collection ratio. The indicator has no benchmarking value and it serves to provide insight in the overall situation in the region.

Table 13: Waste management fees and collection rate in sample municipalities

Municipality	Waste management fee (Urban)	Waste management fees collection ratio
Lezhe (Albania)	1.5 EUR/month	40% urban 20% rural
Durres (Albania)	1.4 EUR/month – urban 0.9 EUR/month – rural	N/A
Bugojno (BiH)	0.06 EUR/m^2	80%–total
Cazin (BiH)	4.09 EUR/month	86%–total
Prijedor (BiH)	0.063 EUR/m^2	94%–total
Laktasi (BiH)	6 EUR/month	N/A
Ferizaj/Urosevac (Kosovo)	4.65 EUR/month	90%–total
Gjakova/Djakovica (Kosovo)	4.65 EUR/month	18%– urban 90%–rural 57%–total
Kumanovo (Macedonia)	0.04 EUR/m^2 – urban 0.031 EUR/m^2 – rural	N/A
Lipkovo (Macedonia)	2.44 EUR/m^2	N/a
Soldanesti (Moldova)	0.45 EUR/m^2 – urban 0.36 EUR/m^2 – rural	82%–urban 98%–rural

Municipality	Waste management fee (Urban)	Waste management fees collection ratio
Nisporeni (Moldova)	0.35 EUR/m^2	N/a
Bijelo Polje (Montenegro)	0.065 EUR/m^2	60%—total
Herceg Novi (Montenegro)	0.06 EUR/m^2	79%—total
Târgoviște (Romania)	3 EUR/month – urban 2 EUR/month – rural	75%—urban 30%—rural 60%—total
Pancevo (Serbia)	0.058 EUR/m^2	75%—urban 50%—rural 62.5% -total
Bajina Basta (Serbia)	3.70 EUR/month	87%—total
Kartepe (Turkey)	0,07 EUR /m^3 (water consumption)	100%-total
Uzunkopru (Turkey)	0.06 EUR /m^3 (water consumption)	49%—total

Waste management prices are oscillating between 0.9 EUR/month and as high as 6 EUR/month (Laktasi), where the fee is determined on the basis of a flat fee, and between 0.058 and 0.065 EUR/m^2, where the fee is calculated based on square meter of residential area. In municipalities where urban and rural areas have different pricing, rural areas have significantly lower fees. The calculation method varies across the region. While in some municipalities the fee is determined on the basis of a flat fee, in others the fee is calculated based on the square meter of residential/commercial area. Turkey has interesting method for determination of waste management fee where the fee is calculated in relation to the monthly volume of water consumed. It is notable that the tariff calculation system based on weight or volume of collected waste is not employed in the region. Dambovita Municipality is the only example where legal entities (companies) are charged by "Pay-as-You-Throw" system—weight or volume of collected solid waste in kg or m^3 or L. No municipality has a 100% fee collection ratio. Rural areas have a higher collection rate than urban areas.

5.12 Indicator 13: Informal sector in solid waste management

The "informal sector in solid waste management" refers to individuals, families, and the private sector (micro)enterprises providing waste management services and valorisation of waste, whose activities are neither organised, sponsored, financed, contracted, recognised, managed, taxed nor reported upon by the formal solid waste authorities.

Table 14: Informal sector in solid waste management, in sample municipalities

Municipality	Recognition of SWM informal sector by government	SWM informal sector social groups	Most desired type of waste for SWM informal sector
Lezhe (Albania)	No	- Low income communities below the poverty line - Persons with low level of formal education - Unemployed people	- Paper - Hard Plastic - Metal - Glass
Durres (Albania)	No	- Low income communities below the poverty line - Unemployed people - Women and children	- Metal - Plastic - Paper
Bugojno (BiH)	No	- Low income communities below the poverty line - Unemployed people - Homeless people	- Metal - PET
Cazin (BiH)	No	- Low income communities below the poverty line - Unemployed people - Homeless people	- Metal - PET
Prijedor (BiH)	No	- Low income communities below the poverty line - Unemployed people	- Metal - PET
Laktasi (BiH)	No	- Low income communities below the poverty line - Unemployed people	- Metal - PET
Ferizaj/Urosevac (Kosovo)	No	- Low income communities below the poverty line - Unemployed people	- Metal - PET
Gjakova/Djakovica (Kosovo)	No	- Low income communities below the poverty line - Unemployed people - Homeless persons	- Metal - PET
Kumanovo (Macedonia)	No	- Low income communities below the poverty line - Unemployed people - Homeless persons	- Metal - PET

Municipality	Recognition of SWM informal sector by government	SWM informal sector social groups	Most desired type of waste for SWM informal sector
Lipkovo (Macedonia)	No	- Low income communities below the poverty line - Unemployed people - Homeless persons	- Metal - PET
Soldanesti (Moldova)	No	- Low income communities below the poverty line - Unemployed people - Homeless persons	- Metal - PET
Nisporeni (Moldova)	No	- Low income communities below the poverty line - Unemployed people - Homeless persons	- Metal - Plastic - PET
Bijelo Polje (Montenegro)	Yes	- Persons with low level of formal education - Unskilled persons	- Metal - PET
Herceg Novi (Montenegro)	Yes	- Persons with low level of formal education - Unskilled persons	- Metal - PET
Dambovita (Romania)	No	- Low income communities below the poverty line	- Metal - PET
Pancevo (Serbia)	No	- Persons with low income - Unemployed people - Women and children	- Metal - PET
Bajina Basta (Serbia)	No	No observed SWM informal sector	N/a
Kartepe (Turkey)	No	Low income communities with incomes below the poverty line Persons with low level of formal education and unskilled persons Economic immigrants	Paper PET
Uzunkopru (Turkey)	No	- Low income communities with incomes below the poverty line - Persons with low level of formal education and unskilled persons - Unemployed persons	- Paper - PET

The informal sector in solid waste management is present in all sample municipalities. In general, waste pickers are not recognized by the authorities or legal framework. One exemption is Pancevo Municipality where, although the sector is not recognised by the authorities, waste pickers have created an association that operates on the territory of the municipality. The Waste Law in Turkey and the new Draft Waste Law in Montenegro forbid individuals and unofficial organisations outside the waste management system to provide these services. However, municipalities have issues with the enforcement of these regulations.

Informal waste pickers are found in low income communities with income below the poverty line, among unemployed people and homeless people. In Municipality of Kartepe, economic immigrants are also found among informal waste pickers. The most common type of waste collected by informal waste pickers is metal and PET waste, which is collected from waste bins and directly at landfills and sold to buyers on the waste market. It can be concluded that informal waste pickers are mostly a product of the unfavourable social and economic status of sample municipalities and are not direct competitors to formal waste collection companies. This informal sector is more a social and less an environmental issue in the observed municipalities. Municipalities and public utility companies do not have data on the amount of waste collected by these individuals. However, the general opinion is that their activities are of low significance to municipalities.

5.13 Indicator 14: Land disposal sites for solid waste

This indicator represents the number of waste disposal sites in the sample municipality. The benchmark target is to have 0 non-compliant municipal landfills, 0 illegal dumpsites and that all waste is disposed at sanitary landfills, while inert waste is disposed on inert waste landfills.

Table 15: Landfill data in observed municipalities

Municipality	Sanitary landfills	Non-compliant municipal landfills	Illegal dumpsites	Inert waste landfills
Lezhe (Albania)	Bushat	N/a	N/a	N/a
Durres (Albania)	Bushat	N/a	N/a	N/a
Bugojno (BiH)	0	1 – Dubočine – Talin Gaj	16	N/a
Cazin (BiH)	0	1 – Medžare – Vlaški Do	9	N/a
Prijedor (BiH)	Kurevo, still under construction	1	N/a	N/a
Laktasi (BiH)	0	N/a	12	N/a
Ferizaj/Urosevac (Kosovo)	1 – Gjilan	N/a	61	N/a
Gjakova/Djakovica (Kosovo)	Only transfer station "Kolonia"	N/a	70	N/a
Kumanovo (Macedonia)	N/a	1	20	N/a
Lipkovo (Macedonia)	N/a	1	5	N/a
Soldanesti (Moldova)	N/a	N/a	N/a	N/a
Nisporeni (Moldova)	N/a	N/a	N/a	N/a
Bijelo Polje (Montenegro)	N/a	1	104	N/a
Herceg Novi (Montenegro)	N/a	1	5	N/a
Targoviste (Romania)	2 related – Titu, Aninoasa	N/a	N/a	N/a
Pancevo (Serbia)	1	8	43	0
Bajina Basta (Serbia)	1	N/a	N/a	N/a
Kartepe (Turkey)	1	0	0	1
Uzunkopru (Turkey)	1	0	0	1

Unfortunately, the situation in the region is still unfavourable. 8 municipalities out of 19 dispose their waste on sanitary landfills. Others dispose waste on non-compliant municipal landfills. Due to the insufficient coverage rate in all municipalities except for Uzunkopru (where the coverage rate is 100%), it is not unusual to have illegal dumpsites formed mainly by inhabitants that are not covered with the waste collection service. Municipalities do not have any landfills for inert waste.

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