

Waste Management in Bosnia and Herzegovina – Current Situation and Perspectives –

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1.	Current situation	109
1.1.	Institutional set-up	109
1.2.	Legislation	111
1.3.	Waste management situation.....	112
2.	Waste management perspectives.....	115
3.	Sources.....	117

1. Current situation

1.1. Institutional set-up

Waste management responsibilities in Bosnia and Herzegovina (BiH) are distributed between a number of institutions at various levels. According to the Constitution, environment is not a core competence of the state of BiH. Nevertheless, some existing competences in environment (and therefore waste management) could be clearly identified in the Constitution including, inter alia: (i) implementation of international treaties; (ii) defining policies, general principles, coordinating activities and harmonizing plans of entity authorities and institutions at the international level within the competences of BiH; (iii) coordinating activities to approximate the legal system of BiH with the standards for EU accession (acquis) and (iv) environmental statistics. The responsible institution at the state level is Ministry of Foreign Trade and Economic Relations of BiH.

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

In addition, the FBiH consists of 10 (ten) cantons and each has its own government and adopts its own laws and policies in waste management which are in accordance with legal and strategic framework of FBiH. Municipalities in Federation of BiH (79) and Republika Srpska (62) exercise their authorities in waste management through responsible municipal utility service departments.

Inspection activities are performed by the:

- Federal Administration for Inspection Affairs,
- Administration for Inspection Activities of Republika Srpska,
- Inspectorate of Brcko District of BiH.

In addition, each Canton in FBiH has its own inspectorate.

Law on Waste Management of RS 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). With new amendments to the Law on Waste Management of FBiH in 2017 the Fund for Environmental Protection of FBiH is officially granted the role of waste data collection and registering in FBiH. Both Funds 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 to understand the situation concerning waste management in both entities. The BD law on waste management does not regulate data collection and registering issue.

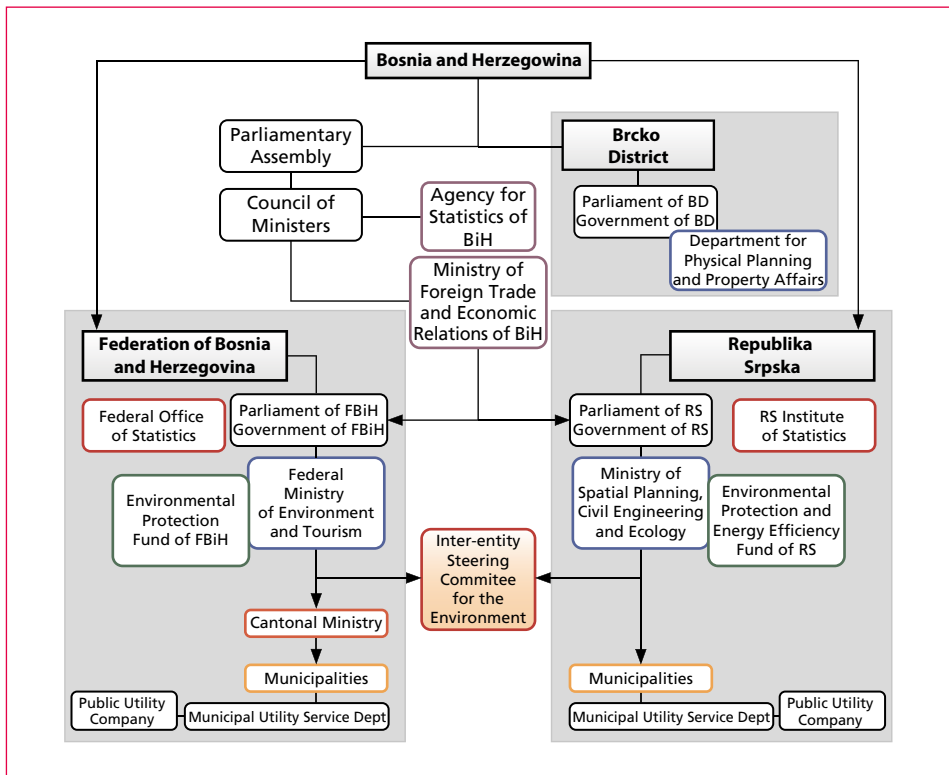


Figure 1: Institutional set-up in waste management

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.

The overall institutional set-up in the field of waste management is shown on Table 1. The responsibilities of different institutions are shown in Figure 1.

Table 1: Summary of roles and responsibilities related to waste management

Responsibility	State	Entity (FB&H and RS) and BD	Cantonal ¹	Municipal
Establishing environmental policies (including waste management)	✓	✓		
Coordination of activities and harmonization of plans of entities' bodies	✓			
Development of waste management laws and regulations		✓	✓	
Development of waste management strategies and plans		✓	✓	✓
Issuing environmental permits for relevant plants and facilities (threshold dependent)		✓	✓	
Inspection of permitted installations (threshold dependent)		✓	✓	
Organizing and conducting of statistical research	✓ ³	✓	✓ ⁴	
Tracking transboundary movements of waste		✓		
Determining sites and locations for waste management facilities (planning)			✓	✓
Operating/procuring waste management services			✓ ²	✓
Collection of fees			✓ ²	✓

Notes:

1. Only FB&H is divided up into cantons/regions.
2. Operation of services at Cantonal level only occurs in Sarajevo Canton.
3. The Agency for Statistics is a national agency that covers the whole of B&H.
4. In FB&H the Institute for Statistics is organized as follows: statistical surveys are conducted by the cantonal departments and offices located in the headquarters of all ten cantons, which collect, control and submit data to the research departments in Sarajevo.

1.2. Legislation

Solid waste management regulation in Bosnia and Herzegovina consists of:

- Law on Waste Management in the Republic of Srpska (Official Gazette of RS, no. 113/13 and 106/15),
- Law on Waste Management in the Federation of BiH (Official Gazette of FBiH, no. 33/03, 72/09, 92/17),
- Law on Waste Management in BD (Official Gazette of BD, no. 72/09, 25/04, 1/05, 19/07, 2/08 and 9/09),
- set of entity bylaws that regulate different aspects including waste categories with lists, permitting for small-scale activities on waste management, extended producers responsibility (EPR), transboundary movement of waste, etc.

The FBiH is currently under process of developing new secondary legislation in domain of packaging waste, collection and distribution of fees collected in the framework of EPR scheme, and waste information system.

While laws on waste management are the legal basis for waste management in the country, strategies and plans provide guidelines for the future development and investments in the field of waste management. The main strategic and planning documents in BiH are:

- BiH: Environmental Approximation Strategy of Bosnia and Herzegovina (EAS-BiH) which addresses waste management in its integral part,
- FBiH: Environmental Protection Strategy of Federation of BiH 2008–2018 which addresses waste management in its integral part,
- RS: Solid Waste Management Strategy of Republika Srpska 2017–2026,
- BD: Environmental Protection Strategy of Brcko District for the period 2016–2026 which addresses waste management in its integral part.

The FBiH is currently in the process of contracting development of new Environmental Protection Strategy of FBiH for the next planning period of 10 years and new Federal Waste Management Plan that expired in 2017.

In FBiH cantons develop their own strategic documents on waste management as part of their legal obligations arising from the Law on Waste Management. Municipalities are also obliged to develop Municipal Waste Management Plans.

According to the Ecran Report on Monitoring transposition and implementation of the EU environmental acquis for period May 2015 – April 2016, the transposition score of the Waste Framework Directive in FBiH is 27 % and of the Landfill Directive 30 %. In 2017 Federation BiH adopted amendments to the Law on Waste Management, therefore, the level of transposition is somewhat advanced compared to the last available progress report. According to the same report, the level of transposition of the Waste Framework Directive and Landfill Directive in RS is more advanced and is assessed to be at 54 % and 74 % respectively. Alignment with EU legislation on sewage sludge, batteries, packaging, polychlorinated biphenyls (PCB) / persistent organic pollutants (PCT) and end-of-life vehicles is at a very early stage. Legislation on the shipment of waste is harmonised with the Basel Convention. Further efforts are needed on alignment with EU waste acquis provisions.

1.3. Waste management situation

Data collection on MSW is not well structured in the country due to the highly complex government structure and interconnected levels that gather data. Based on the latest national statistics report published by Agency of Statistics BiH in 2016, the situation in waste sector in BiH can be described with the following indicators:

- average waste generation rate is 0.89 kg/cap/day (2015),
- the total amount of municipal waste generated annually is around 1.3 million tons (2015),

- 74 % of waste generated is collected with waste collection services (2016),
- 66 % of population is covered with solid waste collection service (entity average) (2015),
- 33 % of the waste collected is disposed on sanitary landfills, while 67 % is disposed on uncontrolled municipal landfills (2015),
- only 1 % of waste is recovered (2015).

Organic waste is the dominant fraction and varies from 25 % (cantonal average) up to 50 % (municipal average). The dry recyclables (plastic, glass, paper, metals, Al. cans, PET) accounts for 24 to 38 % of the total waste. The percentage is lower in rural municipalities and higher in the urban centres, especially in the capital city of Sarajevo.

All waste management activities in BiH are carried out by municipal communal companies with the exception of one cantonal communal company in case of Sarajevo Canton. Waste collection is mostly by the bring system using 1,100 litre containers. Some municipalities use also 120/240 litre containers for door-to-door collection and large skips (5 to 8 m³) mainly for non-hazardous industrial waste collection. The main revenues for collection, transport and disposal of waste from households are from tariffs which are collected by communal companies and are subject to charging the VAT. The average tariff for waste management was 0.5 % of the spendable income, while international norms indicate 1 to 1.5 %, as is the case in most EU member states. The average tariff collection coverage is between 80 to 90 % whereby it should be taken into account that 18 % of the population is living below the national poverty norm.

The main treatment option available in the country is landfilling of waste. The entity Waste Management Strategies recommend the implementation of regional landfills serving a certain geographical area. Currently, Bosnia and Herzegovina has 6 active regional sanitary landfills and 2 under construction. A total of 53 municipalities out of 143 municipalities in BiH are currently disposing at regional landfills of which 28 in FBiH and 25 in RS (Figure 2). It is considered that 10 regional landfills will be sufficient to serve all municipalities in BiH. Up to now, only a part of the landfill regionalization plan has been implemented. New regional landfills (new site or upgrading of existing municipal landfill) are needed while existing ones might need an upgrade (expansion of disposal area and investment in leachate treatment plants) to protect human health and environment from inappropriately disposed waste.

It is estimated that 93 non-compliant municipal landfills are found in the country. There is one operating landfill for inert waste located in the Municipality of Neum, while another one is under construction at Sarajevo landfill. That one will be equipped with construction and demolition waste crushing unit. 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 1,200 illegal dumpsites. All these landfills exert significant pressure to human health, environment and climate change in terms of pollution caused by uncontrolled discharge of leachate and biogas. Therefore, cleaning of dumpsites and land remediation activities the location are considered to be one of the priority actions.

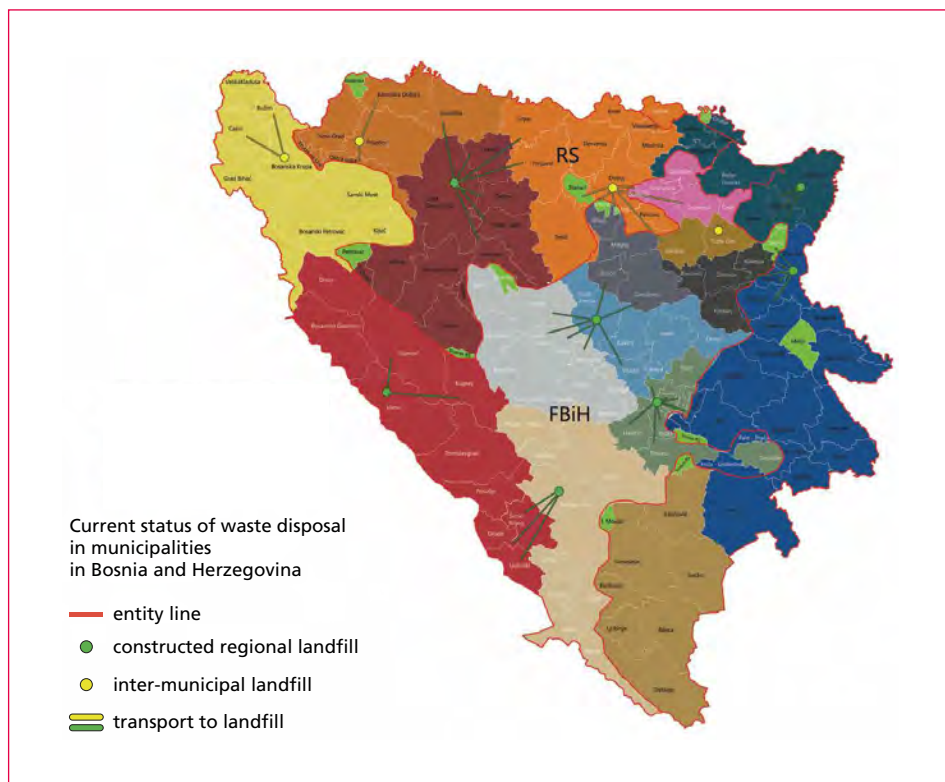


Figure 2: Current status of waste disposal in each region in Bosnia and Herzegovina

There are 5 sorting/separation lines installed in BiH (Mostar, Konjic, Sarajevo, Tuzla, Dobo) for sorting of pre-separated dry recyclables or mixed waste. No other options for waste (pre)treatment are available in the country. Other treatment options to reduce the quantities to be landfilled are investigated such as production of Refuse Derived Fuel (RDF) and Solid Recovered Fuel (SRF) for co-incineration in cement plants. Two cement plants in Bosnia and Herzegovina are interested for RDF/SRF as an alternative fuel, which was a driver for several municipalities to start thinking about RDF/SRF production. A feasibility study for the construction of such plant at the regional landfill in Zenica is completed, while Mostar regional landfill is also interested to investigate these options. Sarajevo recently initiated preparation of a feasibility study for mechanical and biological treatment (MBT) and waste to energy plant.

The country is lacking facilities for treatment and disposal of special waste categories, including waste sludge, animal waste, medical waste, hazardous waste etc. A feasibility study for sludge treatment from Sarajevo waste water treatment plant at Butile, showed feasibility of incineration of dried sludge at cement factories. Only three medical institutions have the equipment for the sterilisation and neutralisation of infectious waste.

This waste usually ends up at municipal landfills posing threat to human health and environment. Significant portion of industrial hazardous waste and other categories of special waste are transported for treatment abroad in line with the provisions of Basel Convention.

The municipality or the Canton (in case of Sarajevo) might subsidize directly the waste collection company by taking over payments wholly or partly for operations of landfills, sorting lines, gate fee at regional landfills, etc. In addition, the Federal Environmental Fund can make available grants for investments while the EPR system can provide payments for containers and/or public awareness raising activities to increase separation of packaging waste in case the municipality has a contract with the EPR scheme. The EU IPA funds, funds of the World Bank and SIDA were used in the past 10 years for financing infrastructure development in the solid waste sector.

2. Waste management perspectives

The reform in the solid waste sector started with development of National Solid Waste Management Strategy in 2000 through EU PHARE programme. Although the Strategy was never adopted by the entities and state institutions, it set the foundation of regionalisation concept in BiH. This concept became part of waste management laws in both entities and BD. Therefore, all activities in the sector in the past period were directed toward implementation of regional disposal concept.

A recently completed study on the municipal solid waste management sector reform financed by Swedish Development Agency SIDA and implemented by the World Bank, gave a throughout review of the problems in the sector with set of recommendations for the government on how to improve current situation and enhance the performance of the sector. Key recommendations of the reform plan, that should form the basis for further actions taken up by the government, include:

- setting up of a reliable statistical information system by improving the cooperation between the various organizations collecting statistical information, introducing a practical reporting system based on weight- based data,
- improvement of the waste collection coverage from 67 % up to 85 to 90 % by renewing and extending the collection fleet,
- further harmonisation of legislation with EU Directives meeting the affordability principle and strengthening the enforcement of its implementation,
- reduction of cost increases as a result of shifting up in the waste hierarchy by creation of more efficient waste collection systems based on regionalization and reducing the costs for waste collection companies,
- strengthening of the institutional framework at Entity (ministry), Cantonal (cantonal ministry) and Local (municipality) level by reforming the organizational structure such as the creation of specialised SWM sections,

- involving all stakeholders in the development of improvements especially the Association of Municipalities and the professional umbrella organisations such as Bosnian Solid Waste Association (BASWA) and Association of Communal Utilities for advice and dissemination of information,
- introduction of regular public communication and awareness programmes by municipalities including budget allocation obligation for this activity,
- creation of financially sustainable services by reforming the tariffs and the tariff collection system,
- revisit and enhance the regional landfill concept and allocation of the service areas based on the experience gained during the past 17 years,
- introduction of environmental taxes to enforce compliance with the objectives of the Reform Plan such as introduction of environmental tax on usage of non-compliant landfills,
- preparation of investment projects to improve collection, transport, separation and disposal of MSW including capacity building at all levels.

Other components of SIDA-WB project include analysis of Extended Producer Responsibility in BiH and recommendations for improvement; the extended capacity building program for municipalities, municipal service utilities and ministries at all level in BiH; the preparation of a country wide communication campaign; and the identification of priority investments for further assessment (pre-feasibility assessments). The entity governments and BD has high expectations from the WB SIDA project that is to bring proposals for the reform in the sector and preferably result in third WB Solid Waste Management project with investment component.

Additionally, entity Governments and BD are committed to improve the current situation and enhance the performance of the sector in a more economically, financially and environmentally sustainable manner. The overall vision of the sector is effective transposition and implementation of EU waste management acquis. Unfortunately, the responsible institutions are seriously understaffed and lack technical capacities to efficiently implement and monitor the waste management activities. The key needs of the sector are:

- further harmonisation of legislation with EU Directives meeting the affordability principle and strengthening the enforcement of its implementation,
- strengthening of the institutional framework at Entity (ministry), Cantonal (cantonal ministry) and Local (municipality) level,
- preparation of investment projects to improve collection, transport, separation and disposal of MSW including capacity building at all levels,
- closure of existing municipal dumpsites.

The assistance through IPA 2018–2020 will be sought to address these issues through interventions in legislation development, institutional capacity building, investment

projects to build new and equip existing regional waste management centres and close existing unused dumpsites. These interventions will help further align waste management sub-sector with EU waste acquis and protect human health and environment from inappropriately disposed waste. Interventions related to separate collection and sorting of waste will help to move up the waste hierarchy from disposal to waste reuse and recycling.

3. Sources

- [1] Agency for statistics of Bosnia and Herzegovina: Public transportation and disposal of municipal waste, 2016, First release
- [2] Environment and Climate Regional Accession Network ECRAN: Monitoring transposition and implementation of the EU environmental acquis, Progress Report 11 Bosnia and Herzegovina, May 2015–April 2016
- [3] Ministry of Foreign Trade and Economic Relations: Draft Sector Planning Document 2018-2020, May 2018
- [4] The World Bank: Municipal Solid Waste Management Sector Review in Bosnia and Herzegovina: Strategic Directions and Investment Planning up to 2025, January 2018

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