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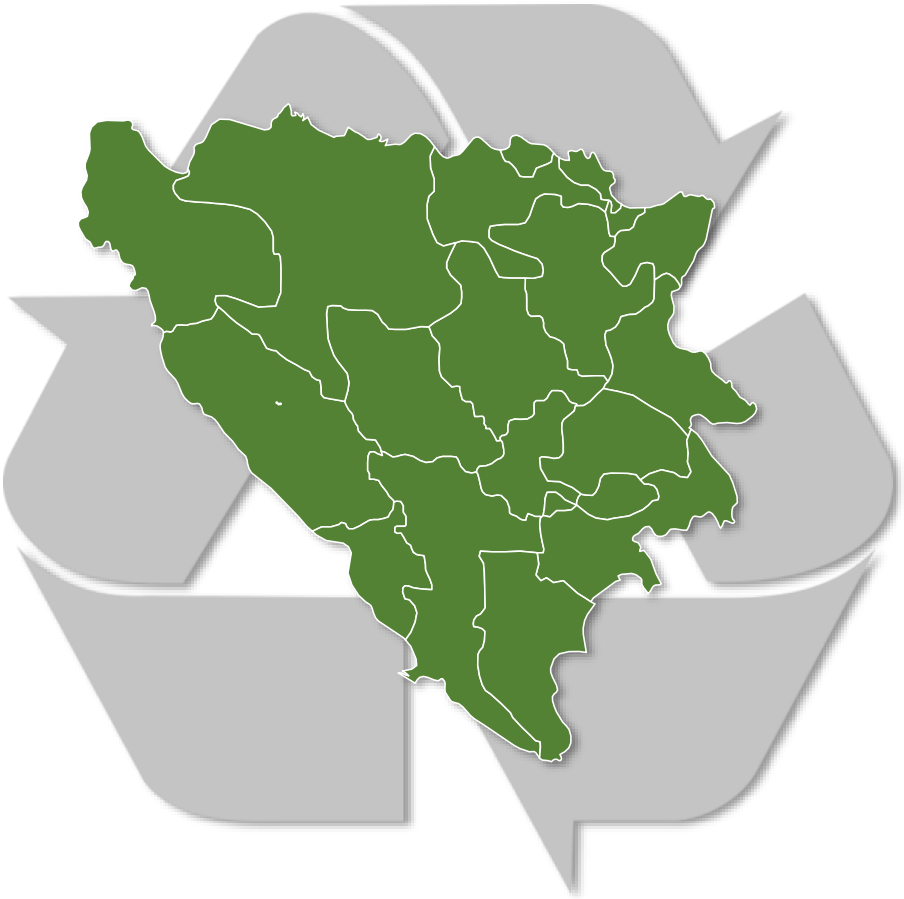
Building Long-term Sustainability for Integrated Solid Waste Management Technical Assistance

Municipal Solid Waste Management Sector Review

Strategic Directions and Investment Planning up to 2025



EXECUTIVE SUMMARY

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The study was performed by a World Bank team led by Ms. Kremena Ionkova and included international and local experts in waste management, namely Mr. Gerard Simonis, Dr. Ali Reza Abedini, Dr. Irem Silajdzic and Dr. Drazenko Bjelic as well as Mr. Igor Palandzic, Ms. Lejla Arnautovic and Mr. Senad Sacic.

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Suggestions and recommendations provided in this report are subject to the limitations inherent to availability of site-specific information, and based on authors assessment, experience and knowledge about the situations in BiH.

Executive summary

1. Since 2000 the municipal waste management sector in BiH is under reform driven by the policy framework of the European Union (EU). As a potential candidate country for EU accession Bosnia and Herzegovina (BiH) has initiated harmonization of its legislation with that of the EU. Both entities (Federation of Bosnia and Herzegovina (FBiH) and Republika Srpska (RS)) and Brcko District (BD) have prepared Waste Management Strategies (WMS) and FBiH also prepared a Waste Management Plan (WMP) for implementation. The main objectives of the WMSs are related to the reduction of risks for environment and human health, reduction of waste disposed in landfills and strengthening of the legal, institutional and economic framework. FBiH and RS have partially implemented a regional disposal system with financing from the World Bank and the EU-IPA. Despite progress made in solid waste management (SWM), BiH continues to experience various difficulties such as high operational costs, lack of financing for investments, low waste collection coverage, very low waste separation, waste disposal at non-sanitary landfills, legislation not fully harmonised with EU Directives, weak institutional framework, insufficient staff capacity at all levels and low level of public awareness with respect to SWM. The 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. BiH has recently become eligible for IPA 2 funds for environment, which are expected to benefit SWM among other sectors. This provides an important opportunity for the sector to implement needed reforms.

Current state of SWM in BiH

2. BiH is a scarcely populated country (approximately 3.5 million inhabitants over 51,200km²) divided into 143 municipalities or an average size per municipality of about 25,000 inhabitants. Consequently, the generated waste quantity per average municipality is about 7,300 t/y of which approximately 67% is currently collected. These small quantities make the SWM system costly as practically each municipality has its own organization for collection and disposal (unless it has joined a regional landfill). This drawback has already been identified in the EU Phare SWM Strategy Study dated August 2000 mentioning (i) MSW arising within a single municipality are insufficient to set up an integrated solid waste management (ISWM) system at affordable costs and (ii) financial resources within a single municipality are insufficient to finance the required investments. As a result of the study BiH started to implement the regional landfill concept but still maintaining the system of individual municipalities as waste collectors.

3. The total amount of MSW generated in 2013 by a population of 3.5 million inhabitants is indicated in Table 1**.** However, these figures have to be taken with some caution as landfills are lacking truck weighbridges and quantities are estimated. Field tests indicate a waste generation rate in urban areas of 1.05kg/cap/day and 0.55 kg/cap/day in rural areas with an overall average of 0.8kg/cap/day. The average waste collection coverage is approximately 67% and the non-collected waste is thus contributing to the illegal dumpsites currently existing in BiH. Ad hoc waste sampling and composition analyses indicate an organic content of 25-50% and a dry recyclable (paper/cardboard, plastics, glass, metals) content of 33% of which about 3% is collected directly from the commercial/institutional generators and thus not disposed in the municipal containers. No regular waste sampling and analysis is carried out. The lack of reliable information on waste quantities is hampering a proper planning and investment policy.

Table 1: Waste generation in 2013 (tons/year)

	FBiH	RS	BD
Population	2,219,220	1,117,340	85,320
Waste generation	635,640	324,660	25,000
Collection coverage	68%	64%	80%

Source: National Census 2013; Existing field surveys and Consultant's calculations.

4. The SWM legal framework is guided by the Law on Waste Management in each entity**,** which promotes the Principles of *Waste Hierarchy, Polluter Pays* and *Producer Responsibility*. All three entities have prepared Waste Management Strategies up to 2018 (FBiH) and 2026 (RS and BD) promoting further harmonisation of legislation with EU Directives, regionalization of disposal, introduction of waste separation at source, and the creation of sustainable waste management systems. The targets laid down in the various Strategies (FBiH, RS) such as 50% packaging waste separation, 100% collection coverage, 100% upgrading/closing of municipal landfills, introduction of separate waste collection systems in practically all municipalities are very ambitious taking into account the existing situation and the achievements up to now. By-laws concerning specific waste streams are missing and proper implementation and management schemes for extended producer responsibility (EPR) have still to be developed guided by successful EU practises. The obligation of preparing WMPs is not followed up by all municipalities and Cantons. Monitoring and enforcing of legislation implementation is weak due to understaffing of the responsible organizations.

5. The institutional architecture of the SWM sector in BiH is divided over several levels such as the (i) State level with the Ministry of Foreign Trade and Economic Relations (MoFTER) as the overall coordinator of all activities and harmonisation of plans of the entity bodies, the government and institutions including the Agency for Statistics of BiH, the (ii) entity level (FBiH, RS) and the level of BD each having its own Parliament/Assembly and Ministries and the (iii) Cantonal level including the 10 Cantons in FBiH and (iv) the local level consisting of about 143 municipalities. The key institutional actors for planning and preparation of legislation in the field of waste management are the Ministry of Environment and Tourism FBH and the the Ministry for Spatial Planning, Civil Engineering and Ecology in RS. These Ministries are heavily understaffed and missing the capacity to prepare and implement the required reforms. Funds for Environmental Protection are established in FBiH and in RS. The main role of these Funds is the collection of environmental fees and penalties while recently they were assigned with the task to collect statistical information on waste generation, collection and treatment. The Statistical Institutes at entity level and the Environmental Funds in FBiH and RS are operating in parallel without proper coordination in the collection of statistical data. The entity Institutes are informing the State Agency for Statistics in view of international reporting. It is not unusual that the statistical information from the Institutes and the Funds are different. The main players in the SWM sector are the municipalities being responsible for its implementation and management including the setting of the tariffs and any decision taking on regionalization, waste separation, treatment and required investments. The exception is Canton Sarajevo where communal services are organised at Cantonal level. All waste management activities are carried out by municipal companies i.e. collection, separation/sorting and landfill management. The municipal SWM companies are part of the Municipal Departments for Public Utilities, which could also be responsible for water and electricity supply, infrastructure maintenance, and other services. The various services rendered by this Department are financially not always strictly divided. Some private companies are active mostly in the field of dry recyclables collection. Only one foreign company in public-private partnerships (PPP) with the municipality is operating for 18 years in FBiH while in RS several local companies are in PPP with the municipality. In addition, there are umbrella organisations representing the interests of stakeholders such as the Association of Municipalities, Bosnian Solid Waste Association (BASWA) and the Association of Communal Utilities.

6. Waste collection, transport and landfill management are carried out by municipal companies operating mainly depreciated equipment. It is estimated that 65-85% of the truck fleet in RS and FBiH is more than 10 years old, while in BD collection trucks are leased. Most of the trucks are imported second-hand. 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 (5-8m³) mainly for non-hazardous industrial waste collection. Collection frequency depends on the municipality but can vary from 1x week up to 5x week. Collection coverage in urban areas is 90% and in rural areas average 40%. The municipal companies operate also their own landfill, which is normally a dumpsite not complying with the most essential environmental criteria such a bottom liner, gas collection and leachate treatment. Landfill operations are poor due to lack of compaction equipment, covering of the waste layers, waste acceptance procedures resulting in all kind of wastes being dumped. Municipal

landfills are not provided with truck weighing scales and the waste quantity is estimated on basis of the truck volume. In addition to the official municipal landfills there are many illegal dumpsites. However, over the last decade a total of eight regional landfills were established including Sarajevo, Mostar, Zenica and Livno in FBiH, and Banja Luka, Prijedor, Bijeljina and Zvornik in RS. Although municipalities signed an association agreement to bring their waste to the regional landfill in reality it is not always happening mainly because of the high transport costs and thus these landfills have difficulties in receiving sufficient revenues needed for repaying their loans. A total of 53 municipalities out of a total of 143 municipalities are currently disposing at regional landfills of which 28 in FBiH and 25 in RS. Apparently, there is no enforcement for using the regional landfills although agreements were signed. Some collection companies are introducing very simple transfer points dumping waste on the floor and loading with a front loader in a high capacity truck (e.g. Visoko) or constructing a low-cost ramp (Gradiska) with the objective to reduce the transport costs. It is generally believed that implementation of Transfer Stations (TSs) would reduce the transport costs. Thereto RS has proposed in their WM Strategy a total of 15 TS with an investment of about Euro 542,000 for each TS. Analysis shows that none of these TS's would offer transport cost reduction as compared to direct transport by the waste collection vehicle mainly because of the high investment costs and the relatively low quantities to be transported. In our assessment, such investments cost would not be financially feasible. Instead, cheaper TSs could be considered and they could reduce transportation costs in some cases.

7. Waste separation and recycling is in its infancy. Dry recyclables are separated through (i) direct purchase from the commercial/institutional/industrial (CII) sector by small private companies; (ii) using extra municipal containers followed by further sorting at a sorting line; (iii) separation of mixed waste at separation lines; (iv) waste pickers taking out recyclables from municipal containers; (v) landfill separation (e.g. in Sarajevo, Zenica. Goradze). The total separated quantity is estimated at about 5% i.e. 3% being direct purchased from the CII sector and 2% from household waste collection. No organic waste is separated, as there is no demand for compost. The RS Waste Management Strategy stipulates a separation of 50% of packaging or 23% of the total waste in 2026 and the FBiH Strategy stipulates 35% separation or 10% of the total waste in 2017. These targets are rather ambitious taking into account the results achieved so far. There are in total in FBiH and RS 4 sorting lines for pre-separated dry recyclables each with a capacity of 5t/h and 2 lines for mixed waste separation each with a capacity of 10-15 t/h. The separated saleable recyclables at the sorting lines is about 50% of the input while for the mixed waste separation lines it is between 2-3% of the input. All lines operate with financial losses due to lack of large input quantities and due to the sub-standard quality of manual sorting. The EPR system for packaging waste and for WEEE is legally implemented and has been the subject of a parallel review.

8. Public communication and awareness raising is very limited as municipalities and collection companies allocate no budgets for this activity. None of the collection companies or municipalities have experts employed for carrying out public awareness programmes. Practically all municipalities are complaining about lack of public awareness but none of them carry out regular and continuous public awareness programmes except for very limited activities in schools. The need and necessity of public communication and education is underestimated.

9. Financing is the backbone of solid waste management. However, no reliable information is available on the cost/ton as (i) quantities are estimated due to lack of truck weighing scales; (ii) costs inside the Municipal Department of Communal Utilities are often not clearly allocated per activity and (iii) costs inside the waste collection company are often not strictly separated from other services such as street cleaning. Based on information given in questionnaires completed by municipal companies it can be concluded that costs vary between BAM 60-130/ton for collection, transport and disposal. In view of the large variety in the costs/ton, indicative calculations were made to check the actual costs. The cost calculations are based on professional criteria for operations and amortization. Table 2 presents the actual costs reported by the municipalities as compared with average prevailing tariffs and the calculated costs for waste collection and disposal. Analysis of the current costs shows that in general amortization is very low and no amortization on landfill infrastructure is taken into account. In case amortization would be deleted in the calculated costs it would result in BAM 115/ton, which is lower

than the actual costs. Consequently, it could be concluded that operations might not be efficient or the current cost calculation system is not reflecting the actual situation due to poor cost accounting practises.

Table 2: Current costs and tariffs (BAM/ton incl. 17% VAT)

	FBiH	RS	BD
Current costs/ton	130	152	137
Average tariff/ton	113	142	88
Calculated costs/ton	182	182	124

Calculations based on:BD=85,000 inhabitants; RS/FBiH average municipality =30,000 inhabitants.

The municipality sets tariffs based on various calculation methodologies such as m² usable surface, fixed amount per person per household, fixed amount per household, etc. Therefore, the tariffs are different in each municipality. The tariffs for the CII sector are calculated per m²/activity, size of container or per individual transaction. Tariffs per m² might vary between BAM 0.12-17.5/m² per month as compared to BAM 0.1/m² for households.

Tariff contracting and tariff collection is the responsibility of the waste collector both for households and for the CII sector. The average tariff collection coverage is between 80-90% whereby it should be taken into account that 18% of the population is living below the national poverty norm (BAM 850/month). The contracting and tariff collection procedure is not only putting financial risks on the waste collection company but it is also creating administrative costs. Tariffs have not been increased since many years. Authorities are reluctant to increase the tariffs mainly for political reasons. In several cases municipalities have to subsidize waste management services by paying costs for waste sorting and for long haul transport to regional landfills. The average spendable income of households is BAM 1,672/month and it can be concluded that the average tariff is only 0.4-0.6% of the spendable income while international practises indicate 1-1.5%.

10. Capacity building at all levels of the administrative system and among operating companies is urgently needed to implement an efficient and effective SWM system with accountable stakeholders. Presently the responsible departments at the ministries are heavily under staffed. Preparation of (amendments to) legislation, preparation of by-laws for landfill design and EPR implementation, setting up of a waste information system (WIS), preparation of guidelines, control and enforcement, policy development such as new WMP are some of the activities to be carried out on short term. Unfortunately a mentality that delivery of hardware will resolve the problems is common. At municipal level the capacity in the field of MSWM needs urgent strengthening both inside the Municipality and inside the waste management companies. The municipalities have to prepare themselves on changes in their future role in view of regionalization policies and possible PPP developments. Policy development should become more important including preparation of annual WMPs, communication and public awareness (PA) campaigns, complaint handling, tariff collection, etc. At operational level the collection and disposal companies need strengthening and training of staff to become more efficient by improving accounting procedures, tariff calculations, cost control, planning, maintenance, equipment procurement, data collection and reporting, etc. Better knowledge of prevailing SWM practises throughout the EU would be helpful at all levels in understanding the required reforms.

Need for reform and investments up to 2025

11. Key recommendations of the Reform Plan include (i) 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; (ii) Improvement of the waste collection coverage from 67% up to 85-90% by renewing and extending the collection fleet; (iii) Further harmonisation of legislation with EU Directives meeting the affordability principle and strengthening the enforcement of its implementation; (iv) 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; (v) 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; (vi) Involving all stakeholders in the development of improvements especially the Association of Municipalities and the professional umbrella organisations such as BASWA and Association of Communal Utilities for advice and dissemination of information; (vii) Introduction of regular public communication and awareness programmes by municipalities including budget allocation obligation for this activity; (viii) Creation of financially sustainable services by reforming the tariffs and the tariff collection system; (ix) Revisit and enhance the regional landfill concept and allocation of the service areas based on the experience gained during the past 17 years; (x) 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; (xi) Preparation of investment projects to improve collection, transport, separation and disposal of MSW including capacity building at all levels.

12. Reliable statistical information is the basis for future waste management development and investment planning. Introduction of a weight-based information system through the installation of weighbridges at landfills and the regular carrying out of waste sampling and analysis is a must to obtain reliable information. Thereto the Ministries should prepare amendments to the legislation and develop guidelines. The institutional set up for information collection and analysis should be centralized. Reporting by stakeholders such as collectors, disposal site operators, recyclers and transporters should meet their capabilities to understand the forms to be completed.

13. Institutional and legal strengthening at entity level is a high priority as Ministries/ Departments should be the initiators of reforms by developing legislation and policies. WM Strategies should contain realistic targets and investments meeting the capability and affordability. The proposed developments as laid down in the current WM Strategies are not always matching with the political unwillingness to increase tariffs. The existing legislation has to be further harmonised with the EU legislation. Development of by-laws and guidelines for implementation such as EPR for packaging and packaging waste management is needed. Thereto strong competent staffing is required at the ministries. Presently the staffing is lacking. To improve the situation on short term it is suggested to contract outside expertise for 2-3 years to carry out the tasks and simultaneously train new staff for a newly to be established SWM section inside the Ministry. The creation of an autonomous EPA (Environmental Protection Agency) for carrying out the executive tasks of Ministries is recommended. Thereto the existing Funds for Environmental Protection (FEP) of FBiH and RS could be re-organized with a reformulation of their tasks.

14. At local (municipal) level an autonomous SWM section should be created inside the Department for Communal Utilities preferably comprising a separate collection company and a separate landfill company. Accountability, transparency and cost control can be better regulated. Moreover, it will put these companies in a better position for the creation of PPP's and for the setting up of an association with other municipalities to realize regionalization of both collection and disposal services. In this way managers of collection and disposal companies will be accustomed to a more commercial way of thinking, as they will be accountable for the results achieved. Better knowledge of the waste market and its cost/benefit mechanism is a condition to avoid disinvestments as is happening currently with the sorting line investments. In this respect, the Association of Municipalities should play a more dominant role in giving information, support and advice. Through the Association more international contacts and exchange of information should be initiated about developments and prevailing successful waste management practises throughout the EU. A template for a Municipal By-law has to be developed indicating the responsibilities and tasks of all stakeholders (Canton, Municipality, waste collector, waste generator), payment procedures, cost and tariff calculation procedures, penalty provision, etc.

15. Efficiency improvement will reduce the costs of SW management. Separate cost allocation and control of the various services provided by waste collection companies are rarely carried out. Accounting practises are not always matching modern principles. The introduction of Key Performance Indicators is needed to assess the operational efficiency and costs. In order to understand in detail, the current operations it is recommended to carry out an efficiency analysis on a major waste collection and disposal company such as Brcko Cistoca as part of Komunalno Brcko being also the electricity and

water supplier in BD. In addition, an average sized municipal company in FBiH and/or RS could be selected for a similar efficiency study.

16. Tariff collection system from households to be transferred from Collection Company to Municipality. In accordance with international practises the municipality should become the collector of tariffs from households. This will alleviate the collection company from an administrative burden and extra costs and from financial risks in case of non-payments. Moreover, it will create a more favourable position for the collection company to conclude a PPP (especially in case of regionalization) with private companies and associated investment opportunities. The municipality has the possibility to subsidize low-income households. In addition, the municipality will be in a better position to achieve high tariff collection coverage through combined innings with other taxes or service bills.

17. Tariff adjustments will be needed to create sustainable services. Environmental improvements and shifting up in the waste hierarchy will increase the costs for SWM services. Based on the "Polluter Pays" principle the households and the CII sector have to pay. Tariff increase seems to be inevitable but efficiency improvements and changes in the tariff calculation methodology might reduce the required tariff increase. In accordance with international practises it is proposed to exempt households from VAT payment as the municipal companies are rendering a public service. Consequently, the household tariff will be improved with 17%. The ministries could start discussions about VAT payment exemption inside the government. Otherwise the VAT payment on services could be replaced by a landfill tax for the use of non-sanitary landfills or a reduced VAT rate for SWM services could be introduced or VAT payment to government could be deleted in case of non-payment by waste generators. In general, it is calculated that the average tariff for households under current conditions (no separation at source and disposal at municipal landfill) have to be increased with average 43% or 23% in case services will be VAT exempted to meet costs.

18. Separation at source has to be introduced on large scale to meet the Strategy objectives. Extensive and continuous public awareness campaigns will be needed. Municipalities should include an annual budget allocation for PA activities and they should employ specialists. The budget allocation is proposed to be BAM 5/inhabitant per year for an average municipality of 30,000 inhabitants. However, PA campaigns are only useful if they are carried out in parallel with improvements in the collection services. Separation at source will result in higher collection costs estimated at BAM 22-25/t. Currently, several sorting lines exist in BiH and all these lines are operating at financial losses as a result of the small annual quantities and the quality of separation. The viability of the lines can be improved if they are served by a regional collection system for pre-separated dry recyclables and by improving the public awareness. Calculations indicate that positive revenues could be obtained when serving about 120,000 inhabitants generating at least 3,500 tons dry recyclables requiring 30% pre- separation. It is proposed to carry out a pilot project in a large area where a sorting line is available. This could be Sarajevo Canton. Containers should be supplied and extensive PA campaigns have to be carried out to reach 30% pre-separation at good quality with maximum 25% rejects at the sorting line. Single municipalities cannot generate positive financial results due to the small quantities.

19. Regionalization of collection, disposal and sorting should be promoted where possible and feasible. Cost calculations show clearly the financial advantages of handling large quantities (see Table 3). Thereto municipalities have to cooperate. Regionalization cannot be imposed upon municipalities but to leave it to the municipalities to cooperate recognising the cost advantages. Introducing the "stick and carrot" methodology i.e. economic instruments such as environmental taxes on the use of non-compliant municipal landfills and offering attractive financing conditions could support the implementation of regional concepts. Regionalization is not a panacea, as road conditions in mountainous areas might seriously hamper the regionalization of collection and disposal. Regionalization might result in higher transport costs for some municipalities but lower disposal costs. The construction of TSs using large capacity long haul trucks might be required to reduce the transport costs. However, long-haul transport with high capacity trucks might be hampered by the road conditions especially in wintertime. Each proposal for a TS needs to be carefully investigated, as it will not be possible to design an overall system. Upgrading of existing municipal landfills into controlled municipal

landfills following the "proximity principle" could offer an acceptable solution in some cases. To better understand the practical problems in implementing regional collection and disposal systems it is proposed to carry out a technical, operational and financial assessment of the only regional company operating in BiH at the moment i.e. KJKP RAD d.o.o. Sarajevo. The lessons learned can be used for designing future regional systems. The effect of regionalization and thus the large annual quantities on the cost/ton (BAM/ton excl. VAT) has been calculated and the results are shown in Table 3.

Table 3: Regionalization and cost/ton (BAM excl. VAT)

	Single municipality collection		Regional collection
Distance to landfill (average)	15km to ML	30km to RL	30km to RL
Collection and transport	50	62	45
Disposal	106[1]	58[2]	51[3]
Total (BAM/ton)	156	118	96

[1] Compliant municipal landfill: 6,000t/y; [2] Regional landfill: 24,500 t/y; [3] Regional landfill: 37,000 t/y.

20. Investments for upgrading of the MSWM system will be needed to improve the current WM system meeting EU requirements. The investments are related to infrastructural projects for improvement of waste disposal such as construction of new regional landfills, upgrading of existing regional landfills, upgrading of municipal landfills and closing of dumpsites. No estimates are given for any Transfer Station (TS), as it will depend on very specific local circumstances. However, calculations show that only low cost (BAM 150,000) TSs might result in less transport costs depending on distance of TS in relation to the collection area and distance to regional landfill. In addition, 65-85% of the collection truck fleet with containers has to be renewed in view of current lifetime and to meet future collection coverage. A number of pre-feasibility studies for landfill development will be needed. Pilot projects are recommended to introduce separation at source. Efficiency assessments on existing regional/municipal waste collection companies are advised to apply "lessons learned" in future developments. Re-organisation at entity and local level are needed to create autonomous SWM Sections supported by Technical Assistance. Expected investments up to 2025 are shown in Table 4.

Table 4: Expected investments up to 2025 (USD)

Description	**FBiH**	**RS**	**BD[1]**
Equipment			
Waste collection trucks	37.9 million	8.4 million	3.23 million
Containers	5.1-10.2 million	2.25-4.5 million	0.72-1.44 million
Sorting line			1.25 million
Transfer Stations + long haul trucks*	1.5 million	1.5 million	
Landfills			
Upgrading existing RL's	13.82 million	11.89 million	
Upgrading ML's	tbd	tbd	7.49 million
New RLs **	tbd**	tbd**	
Construction new RL's and upgrade of some MLs – (pre-)feasibility studies	tbd	tbd	
Inventory wild dumps	0.050 million	0.050 million	
Institutional strengthening			
Entity level- 2/3 years TA	1.2 million	0.8 million	0.5 million
Municipal level- reorganisation	150,000	150,000	
Strengthening Association of Municipalities and Communal Enterprises	500,000		
Efficiency assessment utility company	300,000	300,000	0.5 million

Description	FBiH	RS	BD[1]
Pilot project separation at source	400,000	370,000	

*Indicative and should be based on a case by case assessment

** Based on decision for number and location of the new RLs and pending results of site-specific feasibility studies, the amount can be assumed using approximately $5.0 million per RL that will cover initial cells and supporting infrastructure