



Municipality of Viti



## PLAN FOR SUSTAINABLE WASTE MANAGEMENT IN THE MUNICIPALITY OF VITI

**This plan is a step by step guide for the municipality to improve waste management.  
The timeframe of the plan is 2012 – 2015.**



Schweizerische Eidgenossenschaft  
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Swiss Cooperation Office Kosovo



**HELVETAS**  
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KOSOVO

### **Swiss-Kosovan Local Governance and Decentralisation Support Programme (LOGOS)**

Swiss Cooperation Office Kosovo finances the Swiss – Kosovan Local Governance and Decentralization Support Programme (LOGOS), which operates in 9 municipalities in the South Eastern part of Kosovo. The programme promotes the development of local governance and decentralization reforms in municipalities of Kosovo, thus contributing to the overall stabilization of rule of law and democratization of a multiethnic Kosovan state and society. In the first phase, LOGOS included a strong village level component, which consisted of activities with village councils and the civil society. These activities – together with the municipalities – contributed to the development of management and governance capacity at the sub-municipal level (public services) and, as a side impact, to the improvement of local infrastructure.

#### **In the ongoing second phase, LOGOS focuses on three working areas:**

1. Planning and Resources Management,
2. Administration and Public Services, and
3. Capitalization and Dissemination of Experiences.

None of the municipalities in Kosovo had drafted a plan on waste management. The municipality of Viti is among the first municipalities to have a plan drafted that will help them to better collect and manage the waste produced at the municipality. The plan is a very good tool that will instruct the municipality to plan and implement an advanced system for managing waste. Further to that the plan guides the municipality on how much budget should be allocated per fiscal year to improve waste collection and transport from its households/buildings to the landfill. Additionally the plan has calculations regarding the expenses for the waste company including the tariffs that the municipality should charge the households and businesses.

**Impressum:** The plan was prepared by the working group of Viti municipality led by the director of public services Agim Haziri under the supervision of LOGOS project and Shkipe Deda, Jim Budds and RECURA Financials (Hekuran Neziri). Additional inputs were given from Norbert Pijls, Merita Barileva and Fatime Rrahmani HELVETAS Swiss Intercooperation.

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## I. FOREWORD - THE MAYOR OF VITI MUNICIPALITY

Viti municipality has taken into account the Council of Europe cause, which aims a fulfilment of a close union in order to protect and develop the ideas and principles which are a common asset. The municipality is the basic unit of local self-governance in the Republic of Kosovo, and carries out power as a results of free elections, with full legitimacy and legality.

We are aware that environment protection and waste management is a strengthening point for local autonomy and represents an important contribution nowadays, based on the principles of governance decentralisation.

The municipality of Viti addresses the legal requirements within the legal framework with the aim of ensuring free practicing of its own competences guaranteed by the municipality as a local self-government unit.

Pursuant to Article 17, of the Law on Local Self-Governance No. 03/L-40, the municipality has full and exclusive competence, as far as local interest is concerned, by respecting standards provided for by applicable laws in the Republic of Kosovo.

Compliant with the abovementioned provisions, the municipality has the competence to provide and maintain public services, of which waste management is one.

The municipality has the right, but an obligation as well, to enable drafting of a “waste management document” which would develop a positive potential of responsibility and shall serve as a functional module for waste collection and will increase public awareness of waste problems.

### **A positive direction shall be given also to:**

- Waste sorting – lots of valuable materials can be reused, and in this case less cost is incurred to process the recyclable materials than working with raw materials.
- Composting – restoring valuable organic materials into their natural cycle
- Burning waste in special kilns ensures use of the potential energy of waste and reduces its volume. This is a method applied in developed countries, but it must be developed in such a way in order not to endanger the environment and people’s health, and it is quite a costly method.
- Disposal – waste is collected and disposed in big holes in the ground or underground (e.g. abandoned mines).

Incorporation of the abovementioned points would be useful and more than necessary not only for Viti Municipality, but for the whole territory of the Republic of Kosovo.

**The Mayor**

Mr. Nexhmedin Arifi

## II. FOREWORD - THE COORDINATOR OF LOGOS

One of the first things that citizens expect from a municipality is a clean living environment. Their satisfaction about the municipality is directly related to it. That is why it should be every mayor's priority to make sure his municipality is clean. Unfortunately that is not the case yet.

The problem of waste in Kosovo has been growing steadily since the nineties. Due to changing consumption patterns the amounts and types of waste have been growing. At the same time the young municipal and regional structures have not been able to effectively and efficiently organize its collection and disposal.

Nowadays garbage litters the cities, villages and country side. In spring, just before the leaves come on the trees, you can see plastic hanging from branches along rivers. Some specialists are seriously worried that the ground water is on the point of being polluted.

It has not always been like this. The older generations will remember a clean Kosovo. People used to take their own bags to the shop. People used to bring back bottles to the shops where they had bought them. That memory means that it is possible to clean Kosovo again.

When the second phase of LOGOS started in 2010 it was obvious that solid waste collection should be part of our program. I was very pleased that the mayor of Viti positively responded to our offer to assist in this field.

During the last 2 years we have assisted the municipality in drafting a solid waste management plan. First we determined the amounts, types and locations of waste produced. Then we calculated how much money would be needed to make the system work sustainably. Based on both we set targets for the coming years. We finished with organizing meetings with citizens and with the municipal assembly to get their feedback and support.

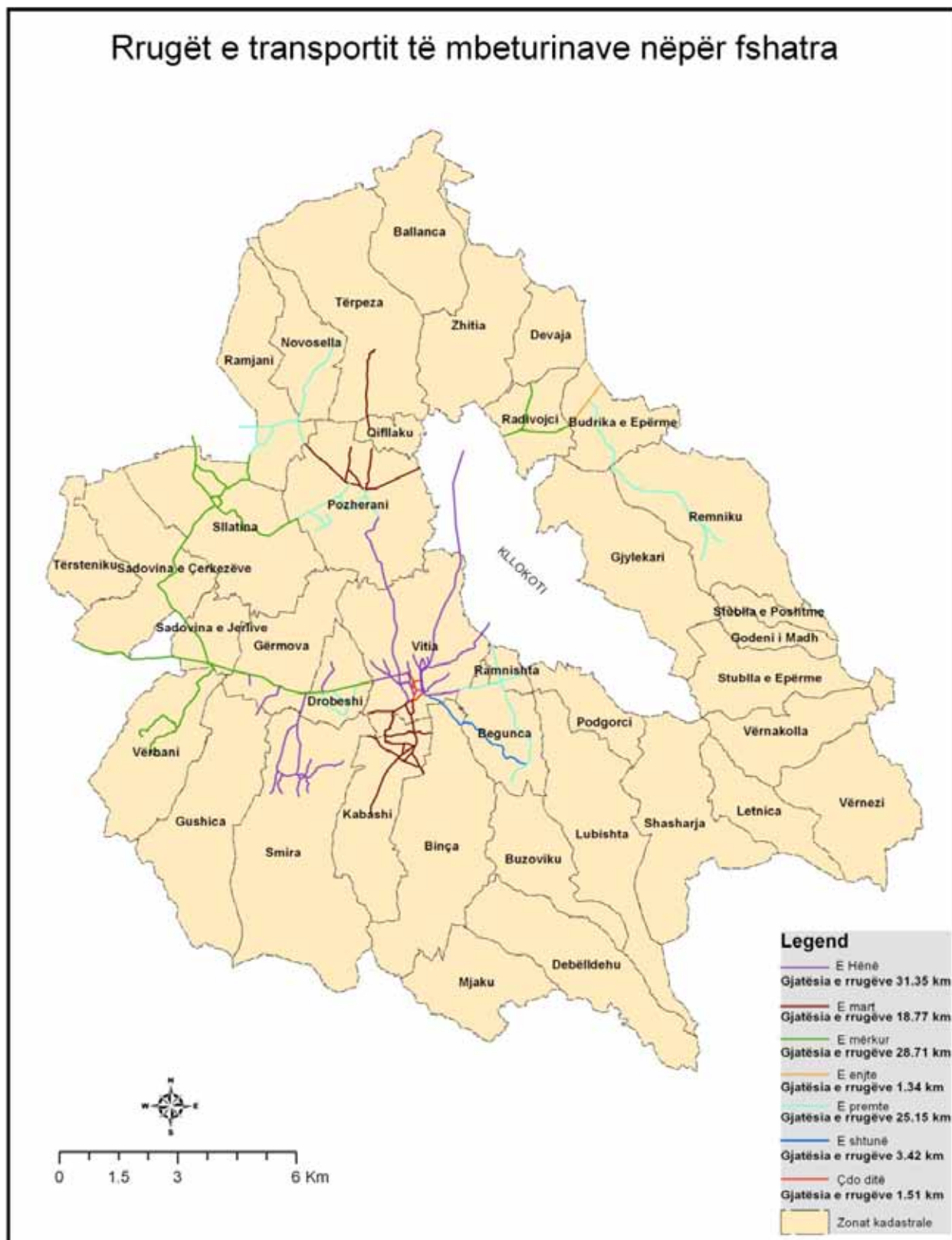
This solid waste management plan is an important step to clean the environment, but we have to realize it is also only the beginning. Fees should be collected. The municipal company should be established and managed. Investments have to be done. Citizens should change their behaviour. That is still a lot of work. But it is worth it.

It was very important for LOGOS to work closely with the municipal officials. They will have to implement the plan in the coming years. We would like to thank them all for their commitment to making Viti a cleaner place.

Norbert Pijls

**Project Manager LOGOS Phase II**

## The road map for waste collection in Viti municipality



## ITINERARY OF THE TWO TEAMS IN VITI AND VILLAGES

### AGRON MISINI

BMC 200 06-722-AN					
MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
DOBRESH	POZHORAN	SLLATINA	VITI CENTRE	POZHORAN 2	OFF
SMIRË	FIRST ZONE	RADIVOJC	BUDRIK	SECOND ZONE	
			REMNİK	RAMJAN	

### BERAT YMERI

BMC 200 06-723-AN					
MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
VITI – FIRST	VITI - SECOND	VITI CENTRE	OFF	VITI ZONE 1	VITI ZONE 2
	KABASH	GERMOV		RAMNISHTË	BEGUNCË
		SODOVIN			
		VERBAN			

11.11.11

Viti

Prepared by

Haxhi Qerimi



## III. ABBREVIATIONS

<b>AMK</b>	Association of Municipalities of Kosovo
<b>BoDs</b>	Board of Directors
<b>EU</b>	European Union
<b>GIZ</b>	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
<b>KEPA</b>	Kosovo Environmental Protection Agency (MESP)
<b>KLMC</b>	Kosovo Landfill Management Company
<b>LOGOS</b>	Local Governance and Decentralization Support, Swiss Kosovo
<b>MoF</b>	Ministry of Finance
<b>MED</b>	Ministry of Economic Development
<b>MESP</b>	Ministry of Environment and Spatial Planning
<b>MLGA</b>	Ministry of Local Governance Administration
<b>PMU</b>	Policy and Monitoring Unit for Publicly Owned Enterprises (MEF)
<b>POE</b>	Public Owned Enterprise
<b>PSP</b>	Private Sector Participation
<b>RWCC</b>	Regional Waste Collection Companies
<b>SCO</b>	Swiss Cooperation Office
<b>SWMP</b>	Solid Waste Management Plan
<b>SWA</b>	Solid Waste Analyses
<b>WWRO</b>	Water and Waste Regulatory Office



## IV. WASTE DEFINITIONS AND NOTIONS

**Waste** - any substance or object belonging to a category of waste which the holder discards or intends or is required to discard.

**Waste Management** - means collection, transport, broking and dealing, holding, treatment, recovery and disposal of waste including supervision of such operations as well as aftercare of the disposal sites.

**Waste Treatment** - includes physical, chemical, biological, thermal processes, including sorting, that change the characteristics of the waste in order to reduce its volume or harmful nature, facilitate its handling or enhance recycling.

**Waste collection** - is the systematic activity of gathering, sorting and/or mixing of waste, for the purpose of transport.

**Hazardous Waste** - waste has at least one of the following characteristics, as set out below: explosive; oxidizing; flammable; irritant; harmful; toxic; carcinogenic; corrosive; infectious; teratogenic; mutagenic; release toxic gases in contact with water, air or an acid; capable of yielding another 'hazardous' substance; ecotoxic.

**Non-hazardous Waste** - are wastes that do not pose any risk to the environment and human health and do not possess the characteristics of hazardous waste.

**Inert Waste** - is waste that does not undergo any significant physical, chemical or biological transformation in the places where it is disposed. 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 the waste and the ecotoxicity of the leachate must be insignificant, and in particular not endanger the quality of surface water and / or groundwater.

**Municipal waste** - is waste from households as well as waste from other activities which, because of its nature or composition is similar to household waste.

**Commercial waste** - waste from premises used wholly or mainly for the purposes of a trade or business or for the purposes of sport, recreation, education, or entertainment but does not include household or industrial waste.

**Industrial waste** - are wastes produced from manufacturing or industrial activities or processes, handicraft and other production activities.

**Composting** - is a controlled biological process used to facilitate decomposition of organic waste by micro-organisms in the presence of oxygen, the result of which is compost.

**Construction and demolition wastes** – includes wastes produced during construction, re-modelling, reparation of individual and collective housing buildings, trade buildings etc. Mains components of these wastes are: rocks, beton, bricks, ferrous components, lead components, electrical components etc.

**Agriculture wastes** – involves wastes that are produced during different agricultural activities as: use of pesticides, vine production, processing and production of agricultural and farming activities.

**Infectious wastes** – involves wastes with high risk potential of infection if working or operating with them. They may harm the health of citizens and environment. These waste gets generated from hospitals and other health institutions, dead animals, butcheries etc.

**Special wastes** – includes radioactive wastes, used containers of pressed gases, wastes that contain high concentration of toxic heavy metals (arsenic, lead etc), expired chemical products.

**Chemical and pharmaceutical wastes** – includes chemical and pharmaceutical products within their packaging.

**Incineration** - thermal treatment of wastes. It is a complicated process, because the furnaces used for incineration should meet certain standards for environmental protection. It is an expensive and economically not favourable process but a needed one.

**Glass waste** – mainly packaging waste that may be successfully recycled

**Plastic waste** – biologically not degradable wastes, mostly created for packaging purposes

**Organic waste** – biologically degradable waste through aerobe or anaerobe process. In this group of wastes are included organic wastes classified as wastes from food, agricultural waste, paper etc.

**Recycling** - to subject waste to any process or treatment to make it re-usable in whole or in part.

**Scrap Processor** – company involved in collecting recyclable materials from individual collectors or collection points. They are the 'middle men' by preparing the material for export or transport to Mill.

**Collection Point** – Some scrap processors have established collection points throughout their respective region or municipality, these points are merely drop-off points for individual collectors. When the material has reached a certain weight, the scrap processors will remove the materials from that point and bring to the central facility for further processing.

**Mills** – Also known as production facilities, these companies are not only engaged in collection of recyclable materials but also in using that material to create final products. Final products found in Kosovo are plastic brooms and brushes, aluminum fence decorations, plastic pipes and garbage bags, and egg cartons.

## CHAPTER 1 - BACKGROUND

### 1.1. Overall waste problem in Kosovo

Waste management remains a priority issue for municipalities in Kosovo. The amount of waste generated is increasing while existing infrastructure is inadequate and does not coincide with the EU standards. Appropriate solutions to the problems with waste management should be made. Delays in finding solutions for all types of waste have resulted in the current situation which is quite critical.

The difficulties of the waste sector in Kosovo are multi-fold. There is insufficient knowledge about waste management practices and trends that currently apply in the EU; Insufficient education of the public and employees in companies in charge of waste management regarding the waste prevention, reduction and recycling; Creation of many illegal landfills of municipal waste; Lack of organization and a classification system for the separation of municipal waste; Partial implementation of environmental legislation on waste; Lack of data and information system for waste management; Inadequate implementation of the “polluters pay” principle; Difficulties in the process of regionalization of companies and infrastructure, etc.

The responsible institutions for waste management include the Ministry of Environment and Spatial Planning (MESP), Water and Waste Regulatory Office (WWRO), the Kosovo Environmental Protection Agency (KEPA), the Kosovo Landfill Management Company (KLMC), regional waste collection companies and municipalities.

Regional Waste Collection Companies (RWCC) are responsible for the collection, transport, and discharge of the waste to the sanitary landfills and KLMC is responsible for managing the licensed sanitary landfill sites. Solid waste collection in municipalities has a public character, and is implemented by the seven regional companies, which are licensed to collect and transport waste in all municipalities throughout Kosovo, as well as one central company (KLMC) that is licensed to manage the landfills in Kosovo. At the present the private sector participation (PSP) in waste collection and transport is still not legalised.

According to the waste law, municipalities are entitled to prepare their local solid waste management plans (SWMP). The SWMPs would enable municipalities to make the proper operational plan, and make the waste collection more effective. Also the separation of waste would be introduced, that would on one side create extra income for the waste collection company, and reduce the amount of waste that is dumped in the landfill.

Viti and Hani i Elezit are the first two municipalities in Kosovo that are preparing their solid waste management plans with technical support from LOGOS.

## 1.2. Regulatory framework

### 1.2.1. Harmonization of EU directives with national legislation

Kosovo is advanced in terms of transposition in the waste sector and the government plans to apply for accession to the Basel convention on the control of transboundary movements of hazardous wastes and their disposal sometime in the near future. Although transposition of the waste directives are somewhat advanced, practical implementation is at an early stage.

According to the EU Commission's Kosovo 2010 Progress Report, Harmonization of EU Directives with national legislation is estimated to be 95% for the Directive on Waste (2006/12/EC), 85% for the directive on hazardous waste (91/689/EC), 88% for the directive on packaging waste (94/62/EC), 77% for the directive on landfills (99/31/EC), and 69% for the directive on the incineration of waste (2000/76/EC).

Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 on waste - The transposition is almost fully completed through the existing Law on Waste (02/L-30). The only provision not being transposed yet is Article 9.1 concerning permits for disposal operations.

Hazardous Waste Directive (91/689/EEC) as amended by Directive 94/31/EC and Regulation (EC) 166/2006. Transposition of the directive is fully completed. Half of the provisions have been transposed by the Law on Waste and UNMIK Regulation 2006/31, the other half by the newly adopted Administrative Instruction on Hazardous Waste.

### 1.2.2. Key National legislation

The basic law that regulates waste management in Kosovo is the **Waste Law** (Law No. 02/L-30 Official Gazette of the RKS No. 23, of 01.04.2008). The Waste Law regulates types and classification of wastes; planning of waste management; conditions for waste collection, transport, treatment, storage and disposal; rights, duties and responsibilities of legal and physical persons involved in waste management; and conditions and procedures for waste management permits. It also defines principles for managing specific waste streams, sets basic provisions for waste incineration, etc.

Preparations of the "Local plans for waste management", are obligatory by the Law on Waste, No. 02/L-30, under chapter IV waste management planning documents, article 8.

Article 10 of this Law specifies the content of the document and emphasizes that the local plan has to be in accordance with the waste management strategic plan for Kosovo from article 8 of this Law. The waste management strategic plan for Kosovo has been drafted for the period 2011 - 2021 but is not yet adopted.

In addition to the waste law, the following administrative instructions regulate specific areas on waste management:

- Administration of used oil waste
- Construction and demolition waste
- Batteries and used accumulators
- Administration of end life vehicles and their wastes
- Packaging and packaging wastes
- Proprietor and operator competences for waste treatment;
- Administration of landfills
- Administration of hazardous waste

- Conditions for the location for landfills
- Administration of electric and electronic equipment wastes
- Liquidation of waste from medical products
- Administration of medical waste
- Import, export and transit of waste
- Administration of PCBs and PCTs
- Mandatory fines
- Removal of waste from public areas

The **Law on Waste** was approved during the autumn 2011. Advantages of the Waste Law are that the municipalities get more power and responsibilities regarding waste management.

Below is the concerning except from the waste law:

Based on the waste law, (article 13) the competent authorities for waste management are: MESP and relevant institutions and Municipalities.

MESP, among other duties, is obliged to issue license for waste management and monitor the waste management.

According to article 15 regarding the responsibilities and obligations of the municipalities, the municipalities can create a system for waste management in their territory, a local waste management plan, and conditions for its implementation. Also, municipalities organize and implement the waste management in their territories.

Municipalities initiate, draft and stimulate projects on waste management.

Based on the provision of this law, and the municipal acts, the municipality issues permission to the licensed persons for collection, transport, and deposit of solid waste, municipal, voluminous waste, from construction and demolition of buildings and commercial buildings within their territory.

Two or more municipalities, if interested, can make a joint agreement for waste administration in their territories.

Article 59, regarding the source of financing for the waste management, defines that the source can be secured from the municipal budget, donations, the state budget, and the payments from the producers, operators, and other persons as set by the provisions of this law.

The **Law on Publicly Owned Enterprises** (Law No. 03/L-087, of 13.06.2008 ) provides a legal framework for the ownership of publicly owned enterprises and for their corporate governance in accordance with internationally recognized principles of corporate governance for publicly owned enterprises. Based on article 3, each enterprise identified in schedule 1 attached to the present law shall be a central POE. schedule 1 includes 6 regional waste companies.

On the basis of the Law on Local Self-Government in Kosovo (Law No. 03/L-040 of 20. 02. 2008), article 17, position 17.1, municipalities are competent for provision and maintenance of public services and utilities, including water supply, sewers and drains, sewage treatment, waste management etc.

The Law on Local Self-Government is not consistent with the principles of corporate governance as laid out in the Law on POEs, thus harmonization of these laws is necessary.

Is it worth mentioning that that the current law is in the process of being superseded by the new law that will be in harmonization with the Law on Local Self-Government.

## 1.3. Description of national waste policy and prevailing principles

### 1.3.1. Kosovo environmental strategy 2011 – 2020 - draft

The environmental strategy for Kosovo represents an important document for overall long term development in Kosovo. The strategy is drafted through interministerial cooperation and with the support of other institutions. Regarding the waste management, the strategy indicates the following strategic orientations:

- Establishment of the infrastructure for waste management.
- Gradual reduction of waste at the source before disposal and energetic uses of the waste or reuse.
- Gradual reduction of waste hazard.
- Gradual increase of inclusion of the population in the waste treatment system.

#### Strategic priorities for waste administration:

- Completing of legal norms for waste management based on EU Directives.
- Establishment of infrastructure for waste management.
- Establishment of central database and information on state of waste management.
- Drafting of programs for construction of infrastructure premises in harmony with spatial plans.
- Arrangement and closing of old landfills.
- Use of existing industrial capacities for treatment of hazardous waste.

### 1.3.2. National environmental action plan (NEAP) 2011-2015 – draft

The NEAP is designed for a five year period. Due to this reason, only the short term ( 1 – 2 years) and midterm (3 – 5 years) projects are selected.

**The NEAP foresees a list of priority projects regarding the waste issues in Kosovo, as follows:**

- Improving management of solid waste
- Construction of facilities for waste treatment
- Improving management of municipal waste landfills
- Support waste recycling with subsidies
- Increased billing for waste collection
- Rehabilitation of areas polluted by waste
- Strategies for use of building materials and recycling of used building materials

### 1.3.3. Kosovo strategic plan for waste management 2011 – 2021 - draft

Pursuant to the waste law, the Ministry of Environment and Spatial Planning, in cooperation with other ministries and competent authorities drafted the Strategic Plan for waste management. The strategic plan includes the 10 years period of time, and shall be approved by the Kosovo Government. This plan should be reviewed at least each five years.

**The strategic plan for waste management contains:**

- Assessment of the current state of waste management;
- Main goals and measures for waste management;
- Measures for hazardous waste management;
- Directions for waste treatment in line with environmental protection principles and administrative principles;
- Directions for waste disposal;
- Directions for ensuring favourable technical conditions, to meet the goals for waste administration.

### 1.3.4. Extract from Viti municipal development plan 2010 - 2020

Regarding the waste issues, the goal is to introduce the waste management system throughout the municipality, including:

- Construction of landfill with standards foreseen for disposal of municipal waste and inert waste, and burying of animals and their waste;
- Treatment of hazardous waste and medical waste;
- Elimination of wild landfills in all villages;
- Elimination of places where pollutants, heavy metals are continuously emitted, such as battery factory in Gërmova village, as well as waste elimination from NATO bombings, which continuously emit radiation;



### The concrete actions foreseen in the municipal development plan are:

- Development of infrastructure for waste management and introduction of all villages in the waste management system;
- Mark the existence of illegal landfills for hazardous waste;
- Determination of points for temporary and permanent landfills for construction waste, industrial and pharmaceutical waste, for administration of municipal waste, minimal volume of waste and their re use and recycling, is one of the biggest environmental challenges;
- Continuous use of the infrastructure that provides regional landfill.

From the analysis performed by the working groups and the local waste collection company “Univerzal” and other actors, it is envisaged to: construct transit landfill for inert (construction) waste in almost all villages, transit landfill for municipal waste is planned in different locations, also the animal graves in cadastral zone of Ramjan, landfill for intelligent waste in village Budriga e Epërme and one sustainable landfill with standards, where also the recycling of waste is performed in cadastral zone in Zhiti village.

Interventions are foreseen at the old city landfill location (rehabilitation and isolation of this zone), it is also similarly planned to go through the rehabilitation of the place where waste is reallocated from old landfill in Viti – Letnicë road axis.

Collection and treatment of waste dumped in uncontrolled manner is foreseen with priority on the coast of Morava river and similar spaces;

In the settlements where there is no management, it is foreseen to introduce the waste management system; the settlements which are partly under the waste management system to introduce the full management; and in the settlements where waste management is introduced to strengthen management system through the infrastructure and other constituent elements.

## 1.4. Steps for preparation of the local solid waste management plan

The structure for preparation of the local solid waste management plan (SWMP) was based on the national legislation (The Waste Law, No. 02/L-30); the guidelines for preparing a waste management plan, by the European Commission, Environment DG (2003); as well as the GIZ report:<sup>1</sup>

### According to the documents above, SWMP was clustered in three main parts:

- Background
- Status part
- Action Plan and Implementation

Status part and a planning part were the key elements of the plan.

The status report presents an overview of the current situation.

For the preparation of a status report, it was necessary to collect data and to provide general knowledge of waste sources, amounts, types, collection, transportation, treatment and disposal of waste, and the structure of the current waste management system.

<sup>1</sup> GIZ report, household waste analysis in Prishtina, Kosovo (2009).

First step for the status report was to collect data and information. The second step was to describe the current system including identification of areas for improvement in the system. The third step was to evaluate the performance of the current waste management system.

Both the status part and the planning part were organized according to the “sources of waste” (different waste generating activities in the relevant area), waste streams (materials of which the waste is composed) and the waste management options (e.g. collection, sorting, treatment and disposal).

By identifying the “sources of waste” it was possible to direct awareness campaigns and waste prevention programs towards the sources with the highest volumes of waste.

#### **Basically, information and data were needed on waste amounts for:**

- the “sources of waste”;
- the waste streams;
- the waste management processes: generation, collection, transportation, sorting, treatment and disposal.

By addressing the waste streams it was possible to obtain information on the quantity and composition of different waste streams.

According to the EC guidelines, it was relevant to include a detailed description of the waste management system in place. A description of the local system for municipal waste included:

- Collection equipment (bins, vehicles)
- Transportation schemes (transport logistics, location of treatment plants)
- Transfer/sorting facilities
- Types of treatment plants (e.g. landfills, incineration plants)
- Recycling activities - both run by authorities and private organizations
- Payment schemes
- Regulation (national as well as local)

The planning part, together with the action plan was prepared on the basis of requirements in national legislation, and in line with EU, the status part and relevant assumptions for projecting future developments.

Implementation - After the adoption of the waste management plan, its orientations are put into practice either via legislation and regulation, negotiations with the industry, or information to the general public.

#### **The waste management system in the planning period - action plan**

When the analyses of the current situation and the expected future developments in waste quantities have been made and the objectives agreed upon, it should be decided how these objectives can be met. This may be considered as the core of the planning process.

The time horizon for the plan depends on a number of factors and consists of 2 parts; the first part is for immediate action, the second part has a long-term perspective.

*Implementation* - after the adoption of the waste management plan, its orientations are put into practice either via legislation and regulation, negotiations with the industry, or information to the general public.

## CHAPTER 2 - STATUS PART

In order to prepare the waste status report, one of the main key elements of the plan on solid waste management (PSWM), it was necessary to collect data and to provide general knowledge on waste sources, amounts, types, collection, transportation, treatment and disposal of waste, and the structure of the current waste management system. The first step in preparation of the status report was to collect data and information; the second step to describe the current system including identification of areas for improvement in the system; and the third step to evaluate the performance of the current waste management system.

During February and March 2011, a field survey was organized in Viti in order to define the waste profile, determination of waste source, and waste streams and quantities.

Following the recommendations in SWA Tool, the collection team collected the sampling units from the predetermined areas on the day of the regular collection interval. The population was not informed about the field survey in order to avoid their waste generating behaviour.

### 2.1. Waste sampling collection and sorting procedures

Collection of samples in municipality of Viti was done in the period of February - March 2011.

The households use plastic bags for their garbage, and at certain days of the week (usually three times per week) put their garbage in front of their houses. In case of multiple dwellings, and rural areas, there were no standard recipients. So, waste was collected from several families using a 1.1 m<sup>3</sup> container. Each collected sample was tagged with a unique identification reference code.









*Photo 2; household waste collection samples in Viti municipality, March-April 2011; photo taken by Shkipe Deda*

Separation of samples corresponding to the groups of materials was done using the sorting guide from the SWA tool methodology (EC methodology for the analysis of solid waste, SWA-Tool 2004, user version): 12 primary waste categories and 23 secondary waste categories, which are presented in the table below.

Table 1: Groups of materials

Primary waste category	Secondary waste category
<b>Organic</b>	Biodegradable kitchen/canteen waste
	Biodegradable garden/park waste
<b>Wood</b>	Wood
<b>Paper and cardboard</b>	Paper/card packaging
	Paper/card, non-packaging
<b>Plastics</b>	Packaging
	Non-packaging
	Dense plastic bottles/jars (packaging)
<b>Glass</b>	Glass container packaging, clear
	Glass container packaging, brown
	Glass container packaging, other
	Miscellaneous non-packaging, glass
<b>Textiles</b>	Textiles
<b>Metals</b>	Packaging
	Non-packaging
<b>Hazardous household waste</b>	Batteries/accumulators
	Miscellaneous hazardous waste
<b>Complex products</b>	Composite/complex packaging
	Composite/complex, non-packaging
	Waste electrical and electronic equipment (WEEE)
<b>Inert</b>	Inert
<b>Other categories</b>	Other categories
<b>Fines</b>	10 mm sieved fraction







*Photo 3. Waste collection and separation as per their type in the municipality of Viti, February-March 2011*





*Photo 4. Waste collection and separation as per their type in the municipality of Viti, February-March 2011*



*Photo 5. Waste fraction measurement in the municipality of Viti, February-March 2011.*



*Photo 6. Waste fraction measurement in the municipality of Viti, February-March 2011.*

## 2.2. Assessment and waste analyses in Viti municipality

Four locations were determined for collection of samples in Viti municipality. The total number of samples was 12 with 3 repetitions (during week days and weekend). Total net weight of the samples was 1485 kg.

**Location 1. Suburban area, Pozharan.** There are around 11.000 inhabitants, partly working in agriculture and farming. There are individual houses. The waste collection is done twice per week. It is one of the rare places where 1.1m<sup>3</sup> containers are used.

**Location 2. Rural area, Remnik.** Remnik is a village that mainly practices farming and agriculture. The waste collection is on weekly bases. There are around 7,200. The 1.1m<sup>3</sup> size containers are being used.

**Location 3. City area,** commercial/residential. No containers – collection in plastic bags, door to door.

**Location 4. City area,** collective building “Banesat e verdha”. The waste is being collected every two days. No containers – collection in plastic bags, door to door.



### 2.2.1 Presentation of the sample results in Viti

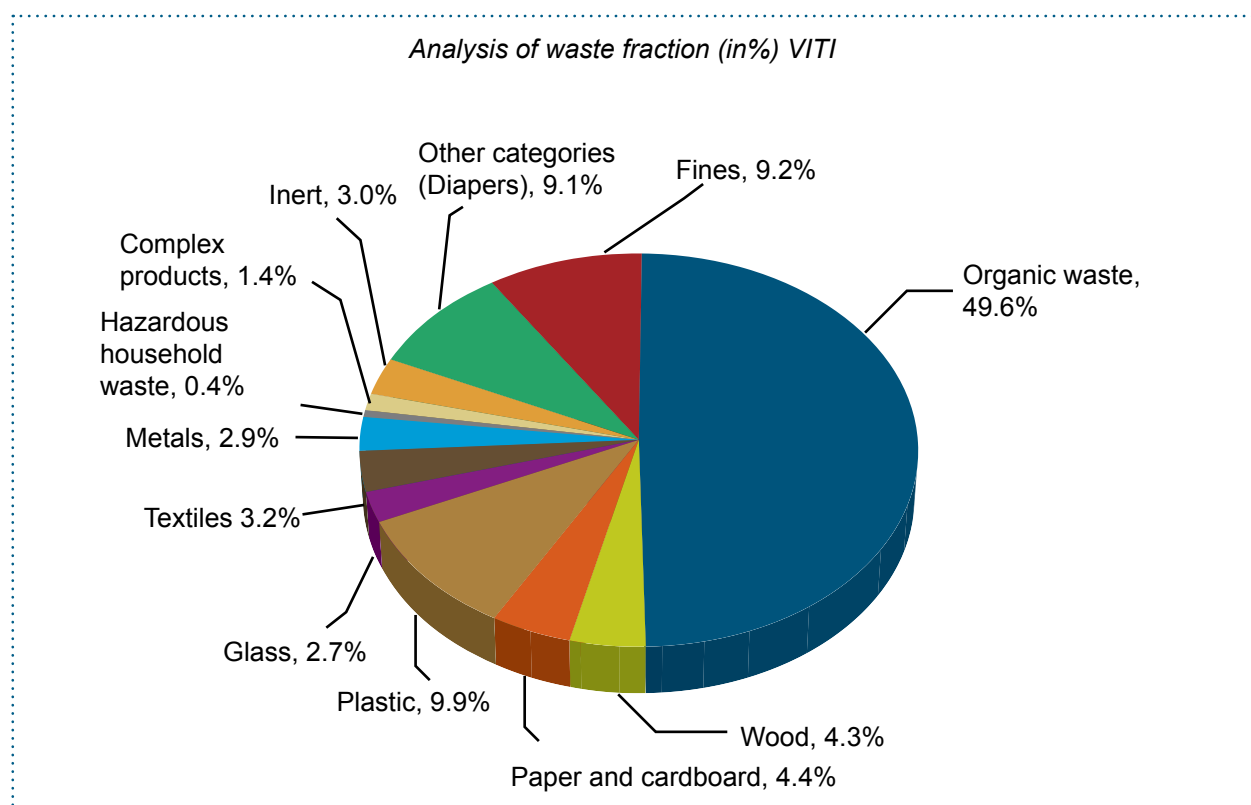
In the table below, the selected locations for waste sampling in Viti are presented in details, including the number of households and approximate number of inhabitants. The amount of collected samples is presented in kg.

Weight of samples (Kg)							
Municipality	VITI						
Location	No. of house-holds	No. of in-habitants	Frequency of collection	2.03.2011	4.03.2011	7.03.2011	Average (Kg)
Pozharan	15	90	twice per week	114.1	193.2	81.7	129.7
Remnik	12	70	weekly	152.8	187.4	149	163.1
City area-Commercial/Residential	na	na	daily	50.8	71.2	45.5	55.8
City Area-Collective buildings	28	170	every two days	164.3	163.3	111.7	146.4

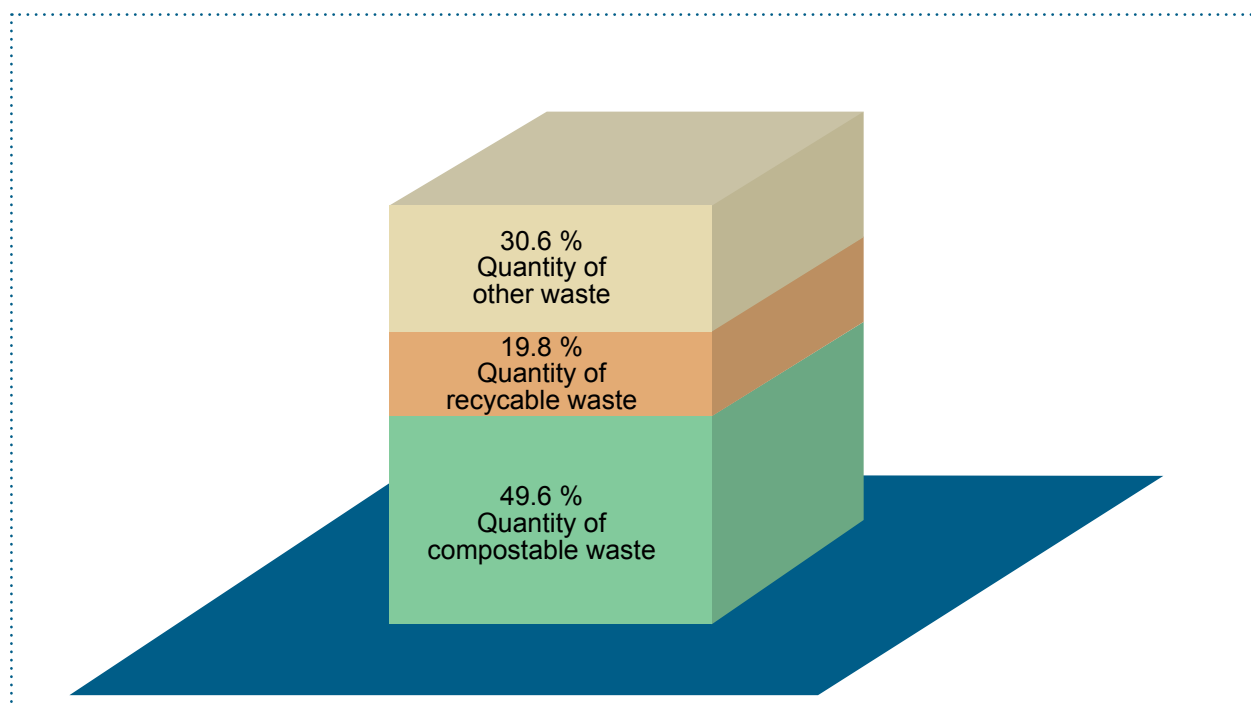
Table 2: Selected locations in Viti for waste sampling

## 2.3. Waste composition in Viti

Measurement of the waste fractions in four selected locations of the municipality of Viti, showed that a large amount (almost 50 %) of waste that ends up in landfill is organic, mainly kitchen waste, followed by plastic, fines and hygienic products (diapers). Amount of metals and glass fractions are less than 3 % in both cases.



*Figure 4: Analyze of waste fractioning (in %) in Viti*



*Figure 5: Quantities of municipal solid waste, recyclables and compostables in Viti (compostable waste is considered the organic waste; recyclables include: paper, plastic, glass and metal; other waste is: fines, wood, textile, hazardous waste, complex products, inert, and other categories (diapers)).*



## 2.4. Conclusions of the field survey

Results of our field survey show that from the total amount of collected waste samples, 69.4% consists of recyclable waste fractions (paper, glass, plastic and glass) and compostable organic waste fractions. This indicates that the amount of waste that reaches the landfill can be substantially reduced by waste separation, and introducing composting in rural areas.

The percentage of metal in household waste is less than 2%, due to the fact that aluminium cans are widely being collected (although not in an organized way) since it is an income generating activity.

During our waste analysis, a significant large amount of diapers was noticed (up to 18%). Diapers have a large volume, and are unfortunately not suitable for recycling, reuse or reducing.

Current waste collection systems in Viti do not cover all villages with their services. The waste company has not been established according to the legislation that is currently being applied.

## 2.5. Waste treatment

One cannot speak about a real waste treatment in Kosovo. To date initiatives and efforts have been without any results. The waste treatment in Kosovo is on its very first steps of development, still at the level of self initiatives, but with its symbolic and importance. Waste treatment is a complicated and expensive process. It impacts significantly on the decrease of the quantity of waste remained for landfill. No large projects that deal with waste treatment are undergoing in Kosovo, but there are evident small private initiatives in few localities, and that is encouraging for the future. In this case we may emphasize plastic recycling in Rahovec and Mitrovicë, paper collection in Xërxë, Lipjan, Fushë Kosovë, Prizren, Prishtinë; glass bottles in Pejë; glass collection and recycling in Therandë; different metals in many centres in Kosovo (Prishtinë, Ferizaj, Lipjan, Mitrovicë, Gjakovë, Pejë, Janjevë, Podujevë etc). Recently there are evidenced initiatives for composting in a few centres in Kosovo, emphasizing the centre in Klinë.

## 2.6. Waste disposal

Viti disposes its solid waste in the regional landfill in Gjilan (Velekince). The municipalities that deposit the waste in this landfill are: Gjilan, Kamenicë, Viti, Novobërdë, Kaçanik, Shtimje and Ferizaj. The size of the landfill is 24 ha and the lifespan of the landfill is 15 years. Its total capacity is 1.200 000 m<sup>3</sup>, while monthly capacity is 4 000 tons. The state of this landfill is not satisfying. The pumping system is out of order and consequently surface water and landfill waste water get mixed.

## CHAPTER 3 - PLANNING PART

### 3.1. Waste generation and composition

The current waste collection services offered by the existing company cover around 25% of households in the municipality. There is no official record on the quantity and composition of the collected waste. However, a sampling analysis was conducted and data on waste collection was gathered. Based on the gathered data, it was possible to estimate the total amount of waste generation in the municipality of Viti and the composition of the collected waste, which is necessary for planning an integrated solid waste management system.

Considered samples in the analysis are for the collections during the first week of March 2011 in Pozhoran, Remnik and Viti (commercial and collective buildings). The averages of the collections were divided by the number of inhabitants served and the daily waste generation per person in the municipality was estimated to be 0.39 kg/person. The following table presents estimations of waste generation levels used in this report.

Waste Generation	
Population	46,959
House holds	7,513
Estimated Daily Waste Generation per person (kg)	0.39
Estimated Monthly Waste per person (kg)	11.8
Estimated Monthly Generation (Tons)	552
Estimated Yearly Waste Generation (Tons)	6,714

The estimated yearly waste generation in Viti is 6,714 Tons. The information about the composition of this amount is crucial to the waste treatment planning process. Based on the available industries, and other business activities in the municipalities, waste composition is significantly different. The following table shows the waste composition in Viti in categories as defined by the Ministry of Environment and Spatial Planning and compared them to the figures for Kosovo reported in the “Current waste situation in Kosovo 2008” published by Kosovo Agency for Environment Protection.

Waste Composition		
Category	Kosovo	Viti
Organic Waste (kitchen and garden)	35%	49.50%
Glass	21%	8.54%
Wood	11.00%	9.99%
Plastic Waste (bottles and packaging)	9.40%	9.90%
Metals	9.30%	8.49%
Textiles	8.20%	8.89%
Paper and Cardboard	4.60%	4.36%
Hazardous House hold waste	1.20%	0.35%

## 3.2. Action plan

This section presents a comprehensive action plan for what the municipality intends to do and how they intend to do it. Assumptions and results on fee calculations and sustainability of the managing company are provided in the financial analysis in annex 1.

### Basic assumptions:

1. The municipality shall provide services for removal of waste for the maximum of 50% of population (flats and businesses) within the first six month period of 2013 (upon plan approval), in the second half of 2013, 70% of the municipality territory shall be covered, and in 2014 100% of the territory will be covered.
2. The municipality has decided to establish a municipal public company for waste as a structure and management mechanism for waste removal.
3. The municipality will provide door to door collection service for all households and businesses using 140l/120 L. waste bins for collection.
4. The municipality will provide 120 L bins (or other capacities if deemed necessary).
5. Waste treatment (recycling will not be considered in the initial service (see objective 1.3)).
6. The collected solid waste shall be sent to the transfer station in Veleknice – the transfer/landfill station, regional landfill or other (the municipality is not going to establish a landfill as long as the law does not allow it).

**Overall Goal:** The municipality will insure that waste removal services are rendered to a maximum of 95 % of the population (residential and business) within 3 years from initiation date of the plan on December, 2012.

### Objectives

1. The municipality shall provide the necessary vehicles and containers as indicated in the financial analysis (see financial analysis, annex to the plan). Upon approval of this plan by the municipal assembly, the municipality takes the obligations for this project accomplishment.
2. The municipality will certainly pursue a course to include recycling, or other efficiency measures, as the economic conditions warrant.
3. The municipality will institute a citizens' awareness program to insure maximum understanding of the goals and objectives. (See citizens' awareness annex to the plan)

### Milestones

- **For objective 1.1 - The municipality** possesses the necessary vehicles and containers as described in the financial analysis (annex 1) which has to be provided for the plan implementation.
- **Milestone 1.1.1** - Identification of a funding source for capital expenses will be completed and reported to municipal assembly. These data will be shown after the approval of this plan by the municipal assembly.
- **Milestone 1.1.2** - In 2014 a working group shall be established for distribution of containers, which shall work as per schedule approved by the public debate and the municipal assembly.
- **Milestone 1.1.3** - The municipality will plan and discuss with citizens the waste collection route structure, which will be a part of the plan. This route will annually be reviewed by being adjusted to population growth and/or shifts. In compliance with milestone 1.1.4, such information shall be regularly transmitted to the citizens. The route, as well as the citizens' information, will be prepared after these above mentioned procedures are completed.

- **Milestone 1.1.4** - The municipality, in addition to the regular scheduling noted in 1.1.3 above, shall also set forth a schedule for irregular trash collection (for oversized materials and hazardous waste) and promulgate that to all collection households and businesses. A separate arrangement with the disposal area will anyway be made to accommodate such waste.
- **Milestone 1.1.5** - The municipal assembly shall pass an ordinance prohibiting the transfer of solid waste materials by other than licensed entities, and provide an approval system for special removal for items such as construction debris, with licensed contractors. Upon approval of the plan by the municipal assembly, one more regulation to regulate this matter shall be issued.

**For Objective 1.2** - The municipality will establish a funding mechanism and collection procedure to insure funds are available and proper collections are made.

- **Milestone 1.2.1** - The municipal assembly will annually set the fee for waste collection during the budget approval, and it needs to be in accordance with the laws of the Republic of Kosovo.
- **Milestone 1.2.2** - The municipal assembly will annually determine the distribution of funding in accordance with the needs of the waste management company (during the process of planning and approval of the budget).
- **Milestone 1.2.3** - The municipal assembly is going to establish a mechanism for collection of the taxes for solid waste collection in order to make sure that the full collection is completed as determined in the main aim and it shall be accomplished not later than in one year period.
- **Milestone 1.2.4** - The municipal assembly will set up a special fund for the waste company with the purpose of repairing, maintenance and replacement of equipment of the company as per financial part of this plan.

**For Objectives 1.3** - The municipality will pursue a course to include recycling as the economic conditions warrant.

- **Milestone 1.3.1** - The Mayor will annually appoint a committee that will investigate the latest recycling progress in the Republic of Kosovo and make a report to the municipal assembly on the viability and desirability of engaging in such activity.
- **Milestone 1.3.2** - The recycling review committee will report prior to the submission of the budget for the upcoming year, what action the municipality should undertake toward upgraded treatment of solid waste, insuring that it is in the best environmental interests as well as fiscally sound for the municipal budget
- **Milestone 1.3.3** - In order to promote efficiency the mayor shall annually appoint an individual or committee, to investigate the fiscal and operational potential for inter-municipal cooperation in solid waste collection, treatment or disposal. The individual or committee will report not later than three months before each budget preparation cycle.

**For Objective 1.4** - The municipality will institute a citizen's awareness program to insure maximum understanding of the goals and objectives (see the plan annex on citizens' awareness).

- **Milestone 1.4.1** - The municipality, under the auspices of the mayor's office and public relations office shall develop and implement a citizens' awareness program to maximize the citizens' understanding of the waste management improvements which should be implemented at least two months in advance of the plan implementation.
- **Milestone 1.4.2** - The mayor shall propose to the members of the assembly to name a citizens' committee, with a minimum of one representative from each inhabited area, who will report regularly on the effectiveness of the solid waste management program and offer suggestions for improvement.
- **Milestone 1.4.3** – As part of the citizens' awareness program, the municipality will take and encourage measures to reduce the amount of packaging in biodegradable waste, and packaging materials from municipality waste. (e.g. incentives to shop owners to reduce the use of plastic bags).
- **Milestone 1.4.4** – The municipality is going to release from payment the individuals registered as social cases, war victims in compliance with the existing procedures in the municipality.

**The mechanisms that the municipality is going to apply to make sure the payment is completed**

- Providing 2 phone numbers free of charge available for the citizens to be able to report illegal dumping
- To build a stronger cooperation with the citizens
- More frequent visits by inspectors in the field
- Entering into an agreement with the court
- Determination of fines and punishments for the citizens
- Introduction of all citizens in the system
- The company shall collect the payment in the fourth week, namely at the end of the month, and while collecting the waste they collect the payment as well – whereas the list of persons who do not pay shall be submitted to the inspectorate, and they (inspectorate) shall follow that family where they throw the waste, and if they throw the waste in illegal manner, they shall be fined.
- Each customer shall have the personal number on the bill, according to which the payment shall be followed up.

## ANNEX 1 - FINANCIAL SUSTAINABILITY ANALYSIS

This section presents an analysis of providing waste management services in Viti municipality. Projections of the financial performance are used as the basis for deciding on the tariff levels for family households and businesses, and to analyze the sustainability of managing the newly established municipal company.

The working group engaged in planning the waste management system has concluded that a municipal public company will provide the services.

The cost of providing waste management services comprises of the operational costs and the costs of any potential investments required for providing such a service. Since a public company will be providing the service, no profit margin is assumed. However, generated revenues should cover the operational costs. This reports aims to provide guidance on the level of fees necessarily to be collected in order to cover the cost of providing the service.

Based on the available data and proposed operational plan on waste management, the following are the main points of the operational plan considered:

- A “door to door” collection service combined with a public collection method using 2 technological vehicles and 1 small collection vehicle to collect waste stored in plastic waste bins (120 L) and containers (1100 L).
- Collected waste to be sent to the regional landfill in Velikince (Gjilan).

### Decisive factors

The major factors of waste management system decided by the working groups which directly affect the level of tariffs and costs are listed below:

- “Door to Door “ service provided for each household using plastic waste bins of 120L
- Public collection method using containers of 1100L
- Disposal at the regional landfill in Velekinčë, Gjilan
- Waste treatment not considered at this stage
- Waste collection services provided by a municipal public company
- Service should be aimed to be provided to all households.

A “door to door” collection service using plastic waste bins of sizes 120L is provided for households, excluding the area of the municipality of Killokot, while containers of sizes 1100L are provided for collective buildings, businesses and institutions. The number of plastic waste bins and containers provided is determined based on the amount of waste generated, container/bins capacity and level of population living in collective or residential buildings. According to “Current waste situation in Kosovo, 2008” a report published by Kosovo Agency for environment protection, 63% of the population live in residential areas. This number has been used as an approximation for the number of population living in residential areas in Viti and Pozhoran, in order to determine the number of plastic waste bins and containers provided in these locations. A waste bin is assumed to carry a load of 56 kg of waste while the container’s loading capacity is assumed to be 440 kg.

The initial allocation is determined by the municipality staff members, and a need for 2,500 plastic waste bins is estimated together with a need for 100 containers of size 1100L. Such an allocation is necessary to serve around one thirds of the households in the municipality, which will be the initial targeted number by the municipal waste company.

The following table presents the estimated waste generation in kg/day for each of the locations,

the number of plastic bins and containers that is targeted to be provided to these locations using the above-mentioned criteria, and the targeted frequency of collection for all zones.

The villages that fall under the gray area are currently not being served, but the newly established company will try to start serving the prioritized ones, by the number of inhabitants as sorted in the table below.

#### Waste Production, Planned Waste Containers and Frequency

Location	served	Nr. Of Inhabitans	Esti-mated House-holds	Waste Generation (kg/day)	Plastic Waste Bins (120L)	Nr. of Containers
Viti	Yes	5,792	926	2,268.63	700	60
Frequency					Daily	
Pozheran		5,176	828	2,027.59	600	40
Sllatinë	Yes	2,818	450	1,103.69	200	-
Smirë	Yes	2,627	420	1,028.83	180	-
Beguncë	Yes	2,477	396	970.12	160	-
Kabash	Yes	2,244	359	879.10	145	-
Remnik	Yes	1,840	294	720.57	120	-
Drobesh	Yes	1,491	238	584.17	80	-
Vërban	Yes	1,481	236	579.92	80	-
Radivojc	Yes	1,350	216	528.88	60	-



Ramjan	Yes	900	143	352.49	50	-
Sadovinë e Jerliv.	Yes	893	142	349.65	50	-
Gërmovë	Yes	702	112	275.07	30	-
Budrikë e Epërme	Yes	659	105	258.06	30	-
Ramnishtë	Yes	449	71	175.82	15	-
Gjylekar	No	2,396	383	938.65		
Stubëll e Epërme	No	2,107	337	825.22		
Terpezë	No	1,672	267	655.07		
Lubishtë	No	1,549	247	606.86		
Trestenik	No	956	152	374.32		
Ballancë	No	948	151	371.49		
Sadovinë e Çerk.	No	941	150	368.65		
Zhiti	No	767	122	300.59		
Goshicë	No	639	102	250.12		
Vërboc	No	608	97	238.21		
Novosellë	No	552	88	216.37		

Podgorc	No	543	86	212.68		
Gërçar	No	434	69	170.15		
Binçë	No	420	67	164.48		
Debelde	No	378	60	148.03		
Goden i Madh	No	257	41	100.67		
Devajë	No	240	38	93.86		
Buzovik	No	232	37	90.75		
Stubëll e Poshtme	No	210	33	82.24		
Qifllak	No	135	21	52.75		
Letnicë	No	65	10	25.52		
Shoshare	No	9	1	3.40		
Vërnakollë	No	3	-	1.13		
Vërnez	No	1	-	0.28		
Mjak	No	-	-	-		
Frequency					Once for week	
Total		46,959	7,513	18,394	2,500	100

The method of collection is flexible and individual private containers or plastic waste bins can be served if requested by using either the small collection vehicle or the technological vehicles. Serving all inhabitants will significantly increase costs, which can be manageable if the frequency of collection is properly administered. However, the initial plan of the company is to serve the inhabitants in Viti as frequently as possible, while try to serve the others at least once a week. Pozhoran is initially targeted to be served once a week, but the company should be planning to increase the frequency of collections from this place. The timetable for collection will be advertised through media and campaigns targeting both urban and rural citizens. A time will also be advertised for waste which cannot be collected by using the plastic bins and metal containers.

### Operational and investment costs

The operational costs of the waste management company comprise of a number of different components. Each of the components is described below and assumptions used in calculations are presented.

### Route schedule and transportation

The most important cost which should be properly managed is the transportation cost. An average of the distance is assumed and calculations include the cost of fuel and lubricant for the vehicles. The distance data is taken from the map in the previous page.

The following table presents the calculated approximate monthly distances.

### Route Schedule Distance Calculations

km	Municipal Routing	Roundtrip to Landfill	TOTAL
Monday	30.82	50.00	80.82
Tuesday	40.54	50.00	90.54
Wednesday	60.42	50.00	110.42
Thursday	5.68	0.00	5.68
Friday	53.30	50.00	103.30
Saturday	9.84	50.00	59.84
Sunday	0.00	0.00	0.00
Daily Average	28.66	35.71	64.37
Monthly Average	859.71	1,071.43	1931.14

The approximate monthly distance of 1,931.14 km is increased to 2,000 km travelled monthly by the vehicles in order to account for the fuel consumed while collecting waste at the respective locations (for estimation reasons). The technological vehicles are assumed to consume 40 liters per 100 km. Around 1.5 liters of lubricant are assumed to be used by the vehicles, while the price per liter of fuel is assumed at 1.35 Euros.

The following table presents the approximation of transportation costs using the above-mentioned assumptions.

## Transportation Costs

Materials	Litres	Price for Unit	Monthly Total
Fuel (2000 km transport and collection time / 40 litra për 100 km)	800	1.35	1080
Lubricant (1 liter for truck for 100km)	60	3.5	210
Total monthly amount			1,290

## Maintenance and depreciation

One of the major components of the costs includes the maintenance and depreciation of vehicles, containers and bins necessary to provide waste management services.

The following table presents the necessary assets and the recurring expenditures from these assets.

Purchase and Maintenance of Technological trucks	FS type	Units	Price	Total Annual Amount (EUR)
Waste collection trucks (8-10 tones)	Asset	2	20,000	40,000
Small collection vehicle (2 tones)	Asset	1	12,000	12,000
Maintenance of vehicle (7%)	Expense		3,640	3,640
Depreciation of vehicle (5%)	Expense		2,600	2,600

The rates for maintenance and depreciation are commonly used rates by reports on waste management systems.

Another component of the costs is the provision of plastic waste bins and containers by the waste management company. This includes the cost of purchase of containers and bins, their maintenance, depreciation and lime used for disinfection when collecting waste from these locations. The following table presents an estimate of these operational costs.

Waste Collection from waste collection Points	FS type	Units	Price	Total Annual Amount (EUR)
Lime for disinfection (0.7 KG per collection point)	Expense			800
Purchase of containers (1100 L)	Asset	100	200	20,000
Purchase of plastic bins (140 L)	Asset	2,500	20	50,000
Maintenance of containers (7%)	Expense		1,400	1,400
Depreciation of containers (5%)	Expense		1,000	1,000
Maintenance of waste bins (2%)	Expense		1,000	1,000
Depreciation of waste bins (20%)	Expense		10,000	10,000

## Labour

Labour is another cost component. It is supposed that employees will collect waste almost daily in Viti while they will try to collect it weekly in as many villages as possible. They will then transport the waste to the regional landfill in Gjilan.

The following table presents the estimated labour costs necessary for providing the service.

	Unit	Monthly Wage	Total
Manager salary	1	400	400
Finance manager salary	1	350	350
Other menagerial position	1	350	350
Collection and other	6	275	1,650
Cleaning and other	2	275	550
			3,300

The total staff costs are estimated to be €3,300 monthly.

### Landfill/dumpsite fees

The municipality does not have a landfill or transfer station for waste, therefore, the company will have to pay a fee for disposal of waste. The fee is assumed to be 6.5 Euros per ton of waste. Having planned a collection of around 30% of the generated waste, the cost to the company is estimated to be around 13,000 Euros annually.

**Note that the total expected waste generation in Viti is expected to annually be around 6,700 tons.**



### Summary of operating costs

The total annual operating costs of the company are presented in the table below.

Cost	Total
Labor	39,600
Depreciation	13,600
Lime for disinfection	400
Water	224
Electricity	1,120
Maintenance	6,040
Fuel	600
Landfill expenses	15,480
Post, telephone, internet	13,092
Rent	600
Banking fees	-
Others	200
Total operating costs	91,956

### Summary of investment costs

Considering that a new company has been established to provide the services, initial investments in fixed assets are required as a start-up cost. However, the assumption here is that the facilities like land and buildings will be provided by the municipality at no cost.

Moreover, a percentage of assets of the current regional waste management company will be attributed to the newly established municipal waste management company, reducing thus the need for high amounts of initial investment in fixed assets. The total investment costs are presented below.

Assets	Units	Price	Total
Waste collection truck (8-10 tones)	2	20,000	40,000
Small collection vehicle (2 tonnes)	1	12,000	12,000
Purchase of containers (1100L)	100	200	20,000
Purchase of waste bins (120L)	2,500	20	50,000
Computers	2	1,000	2,000
Other office equipment		3,000	3,000
Total investment costs			1,27,000

The municipality is expected to have at its disposable the vehicles, while the other investment should be expected to be financed by other sources.

At disposal	Units	Price	Total
Waste collection truck (8-10 tones)	2	20,000	40,000
Small collection vehicle (2 tonnes)	1	12,000	12,000

Hence, the start-up public company will need the following list of investments to be fully operational as expected.

To be invested	Units	Price	Total
Purchase of containers (1100L)	100	200	20,000
Purchase of waste bins (120L)	2,500	20	50,000
Computers	2	1,000	2,000
Other office equipment	-	3,000	3,000
Total necessary investment			75,000

## Municipal tariffs for waste management services

The objective of the waste management company is to establish a fee structure. This would enable a self-sustainable system by covering the operational costs of providing the services and allowing that the amounts surpassing this level be used to improve the service to the citizens. The problems faced currently are two-fold. First, only 25% of the territory is currently being served and second, only 50% of them pay for the service. The municipality aims at increasing the territory coverage as well as providing the service to more than 90% of households and businesses in the future.

However, the service fee level is calculated using the initial costs that are to be incurred by the new-start-up company. The service fee was differentiated between families, businesses and institutions. A general rule used in similar studies suggests for a cost allocation among these categories of 65% to families, 32% to businesses and 3% to institutions.

To account for the initial lower number of households that are to be served, a correction measure is introduced, measuring the percentage of the constituents that will initially be served. Considering that the municipality is looking to purchase 2,500 waste bins and 100 containers, we expect that the correction factor is 40%. Hence, the fee to serve such constituents will be calculated based on the correction factor.

The following table presents the results of the allocation of operational costs among the proposed categories and calculation of the fee based on the number of constituents per category

### Service Costs

COST COVERAGE		
Monthly fee per constituent	Annual fee per constituent	Total operating costs
EUR	EUR	Total

Type of Service	Allocation	Constituent	Nr. Correction			91,555.99
Families	65%	7,513	40%	1.65	19.80	59,511.39
Businesses	32%	692		3.33	42.34	29,297.92
Institutions	3%	1		228.89	2,746.68	2,746.68

The minimum fee to cover the operational costs for families is €1.65 while for businesses €3.53.

### Tariffs proposed by the municipality staff members are:

- 3 Euro per family and small businesses making a monthly turnover shameless than 1000 Euro including: craftsman shops, taylor's, pastries etc.
- 6 Euro for every container 1.1 m3 produced waste for large businesses.

Factors taken into consideration when planning and for generating revenues and operational costs are as follows.

1. Number of households and businesses in the municipality (according to the municipal Development Plan)
2. The projected annual growth rate of population and businesses (taken to be 1.1% considering migration)
3. Number of households and businesses currently and projected to be provided with the service (Initially set at 40%, but can be changed accordingly)
4. Fees differentiated amongst two categories and collection of these fees (fees can be further differentiated amongst businesses or households in the future, but should always cover the allocated operational costs)
5. Annual projected increase in operational costs (taken to be 5%)
6. Initial operational costs in the first year estimated from the calculated operational costs, if the service was provided to all households and businesses
7. Projected financing requirements to cover the operational costs of providing the service
8. Cost of the collection route according to the most recent plan by the staff from municipality (refer to the map included in this document)
9. Costs include the purchasing cost of plastic bags for 120L waste bins A simple financial model was developed in order to account for the collection rates (receivables) of the invoices that are normally expected and for the change in fees during the years. The following initial estimations for the fees and percentage of coverage and collections are made:

	2013	2014	2015
Monthly fee for households	3	3	3
Monthly fee for businesses	6	6	6
% of households served	40%	50%	60%
% of fees collected	50%	60%	65%

The model differentiates the cash and non-cash payments in the expense side, in order to account for the cash financing gap that the company will incur in the first three years of operation.

According to the above planning factors, the following is the planned financial performance of the company during its first year of operations.

## Financial Performance - 1st Year

	jan-13	feb-13	mar-13	apr-13	may-13	jun-13	jul-13	aug-13	sep-13	oct-13	nov-13	dect-13	2013
Total households	7,513	7,513	7,513	7,513	7,513	7,513	7,513	7,513	7,513	7,513	7,513	7,513	7,513
Total businesses	692	692	692	692	692	692	692	692	692	692	692	692	692
Nr. Households served	3,005	3,005	3,005	3,005	3,005	3,005	3,005	3,005	3,005	3,005	3,005	3,005	3,005
Nr. Businesses served	692	692	692	692	692	692	692	692	692	692	692	692	692
Total fees receivables	13,168	13,168	13,168	13,168	13,168	13,168	13,168	13,168	13,168	13,168	13,168	13,168	158,011
Total fees collected	6,813	6,813	6,813	6,813	6,813	6,813	6,813	6,813	6,813	6,813	6,813	6,813	81,752
Labor	3,300	3,300	3,300	3,300	3,300	3,300	3,300	3,300	3,300	3,300	3,300	3,300	39,600
Depreciation	1,133	1,133	1,133	1,133	1,133	1,133	1,133	1,133	1,133	1,133	1,133	1,133	13,600
Lime for disinfection	33	33	33	33	33	33	33	33	33	33	33	33	400
Water	19	19	19	19	19	19	19	19	19	19	19	19	224
Electricity	93	93	93	93	93	93	93	93	93	93	93	93	1,120
Maintenance	503	503	503	503	503	503	503	503	503	503	503	503	6,040
Fuel	1,290	1,290	1,290	1,290	1,290	1,290	1,290	1,290	1,290	1,290	1,290	1,290	15,480
Landfill expenses	1,091	1,091	1,091	1,091	1,091	1,091	1,091	1,091	1,091	1,091	1,091	1,091	13,092
Post, telephone, internet	50	50	50	50	50	50	50	50	50	50	50	50	600
Rent	-	-	-	-	-	-	-	-	-	-	-	-	-



Banking fees	17	17	17	17	17	17	17	17	17	17	17	17	200
Others	100	100	100	100	100	100	100	100	100	100	100	100	1,200
Total operational costs	7,630	7,630	7,630	7,630	7,630	7,630	7,630	7,630	7,630	7,630	7,630	7,630	91,556
Total cash payments	6,496	6,496	6,496	6,496	6,496	6,496	6,496	6,496	6,496	6,496	6,496	6,496	77,956
Cash financing gap	316	316	316	316	316	316	316	316	316	316	316	316	3,796

According to the above table, the expected cash generation will be enough to cover the operational costs starting from the first year of operations.

The following table presents the financial performance of the company during its first three years of operations, as expected, given the current situation and planning schemes.

	2013	2014	2015
Total households	7,513	7,596	7,679
Total businesses	692	700	707
Nr. Households served	-	-	4,608
Nr. Businesses served	692	700	707
Total fees receivables	-	-	216,797
Total fees collected	2,747	2,747	143,665
Labor	39,600	41,580	43,659
Depreciation	13,600	14,280	14,994
Lime for disinfection	400	420	441
Water	224	235	247
Electricity	1,120	1,176	1,235

Maintenance	6,040	6,342	6,659
Fuel	15,480	16,254	17,067
Landfill expenses	13,092	13,747	14,434
Post, telephone, internet	600	630	662
Rent	-	-	-
Banking fees	200	210	221
Others	1,200	1,260	1,323
Total operational costs	91,556	96,134	100,940
Total cash payments	77,956	81,854	85,946
Cash financing gap	(75,209)	(79,107)	57,718

### Summary

According to the financial performance 2013-2015 plan, the company is going to be financially sustainable in its third year of operations. The following table presents the total investment and operational financing needs of the company at this point in time.

	Current
Investment needs	75,000
1100 L Containers (100x200EUR)	20,000
120 L Waste bins (2500x20EUR)	50,000
Computers (2*1000EUR)	2,000
Office equipment	3,000
Total financing requirements 2013-2015	75,000
External financing raised	
Municipal budget 2013	-
Further financing needs	75,000

The municipal staff is currently discussing ways on cutting the current costs or finding new financing sources to cover the current investment and operational needs of the company.











*Photo 7: study visit on good practices of waste separation in Slovenia, April 2011, photo taken by Shkiye Deda*



## ANNEX 2 - OUTLINE FOR A CITIZEN'S AWARENESS PROGRAM

It is recommended that the Municipality seek a professional advertising firm to help with the design, slogans, logos and content's of a citizen's awareness program. With that caveat in mind the plan for the Citizen's awareness program as noted in milestone 1.4.1 of Objective 1.4 of the solid waste management Plan should include, at a minimum the following elements.

1. A series of public forums, to present the plan, get citizen feedback and after making whatever modifications deemed necessary to introduce the completed plan to the public. Each Forum should include:
  - A simple powerpoint presentation that adequately describes the plan and its impact on the householder/business person.
  - Ample members of the local government to answer questions and take suggestions regarding the plan.
  - An emphasis on citizen responsibility to make the plan work
  - Sufficient hand out material to allow those not attending the forum, to read and understand the vital plan elements.
2. An advertising campaign with at a minimum:
  - A logo, theme and slogan that identifies the program and clearly identifies it.
  - A series of posters for use around the municipality, in the schools and other institutions.
  - A series of brochures, possibly calendars, etc, that will provide the specifics of collection days and requirements of the citizens.
  - A program directed at school children designed to inform and gain cooperation among the younger generations.
  - Design and usage of public service announcements (Local TV/radio or other media) designed to engage support and provide the details necessary for compliance with the systems demands.
  - Adequate coverage by local print media.
3. Development and Implementation of a citizen's action committee that will provide feedback and recommendations to the local government and publicly owned enterprise. Key elements to such a committee include:
  - At least one member from each inhabited area.
  - A regular reporting process to allow for evaluation and modification of service as necessary.
  - Insure that meetings are held at regular but not intrusive time frames. (perhaps once a quarter though for the first six months monthly might be better)



*Photo 8: Example of public awareness campaign in Kosova*

## ANNEX 3 - DUTIES AND RESPONSIBILITIES OF MUNICIPALITIES ON WASTE MANAGEMENT

Law no.04/L-060 on waste; article 15 and 34

### Article 15

#### Responsibilities and duties of municipalities

1. Responsibilities and duties of municipalities to implement the provisions of this law are:
  - 1.1. establishment of waste management system under the principle of waste management hierarchies for their territory, the development of local plans for waste management under Article 10 of this Law and the creation of conditions and care for its implementation;
  - 1.2. municipal plan for waste management should be harmonized with national plan;
  - 1.3. municipalities shall be responsible for implementation of municipal plan;
  - 1.4. drafting annual report on waste management. Annual report shall be submitted to the Ministry, till 31 march of the following year;
  - 1.5. regulates the responsibilities and obligations to perform services for waste management, implement them and organize the waste management in their territory;
  - 1.6. maintenance and custody on the public information system and reporting on works performed as prescribed by this law, as well as other legal acts on waste management;
  - 1.7. application of procurement procedures, are followed on selection of licensed persons for collection, gathering, storage and transportation of solid waste, municipal, voluminous wastes, from construction and demolition of buildings and commercial buildings within their territory;
  - 1.8. municipality determines fees and manner for collection of funds for municipality services;
  - 1.9. identification of contaminated sites on their territory and develop projects for their rehabilitation, which includes notes about the location, spatial geometric features, type of pollution and waste quantity, the deadlines for improving the situation and other important data for the implementation of projects.
2. Two or more municipalities, where is their interest, they may make agreements on waste management.
3. Municipality exercises supervision and control measures and waste management activities in its territory, through the municipal inspectors on environment.
4. At the request of the Ministry, provide the required information and recommendations regarding for waste management.
5. The municipality is obliged to provide care and remove wastes that are dumped in public spaces or in waste dumps outside its territory.
6. If the responsible person for waste management in accordance with legal responsibility does not care for thrown wastes by unknown person, the responsibility for those wastes will take the municipality.



7. To implement the provisions of this Law, the municipalities issue the sub acts which regulate the functioning of the municipal competent authority and standards for waste management services.
8. Without prejudice to paragraph 1. to 7. of this Article, the performance of public services and the provision of public infrastructure in the field of municipal waste management within the exclusive competence of municipalities in accordance with the Law on Local Self-Government.

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## Article 34

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### Municipal waste management

1. Municipal waste should be collected, treated and managed in accordance with the provisions of this Law and other legal provisions that regulate local activities.
2. Municipalities, by sub-legal act, determine the terms and conditions for waste management of public spaces.
3. Municipal waste mixed with hazardous waste should be divided when there is economic account, otherwise will be considered as hazardous waste.
4. Households and other municipal waste producers are obliged to throw their garbage in certain places for collection of municipal wastes, whereas hazardous wastes shall be divided and delivered at designated places for them.
5. Municipalities are obliged to organize system for collection, and voluminous collected waste.
6. Households and other municipal waste producers are obliged to do separation of waste types, defined by the competent authority for the purpose of treating and recycling them.
7. Municipalities with special act regulate and conditions the manner of collection system, separation, processing and recycling, waste collection schedule, type, number and manner of distribution and deployment of containers for garbage, maintenance of places where garbage is collected and the manner of transporting wastes.
8. Municipal waste management by municipalities will be done through special contracts with one or more public or private operators who shall be licensed persons for waste management.
9. Two or more municipalities with the agreement under Article 15 paragraph 2. of this Law, can determine the rights and obligations associated with providing waste management conditions, the use of storage facilities, for waste processing and storage of waste, the rights and obligations of public companies for waste management, the manner of making decisions in cases of complaints on specific issues dealing with waste management, and other issues important to the organization and management of waste.

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