Planning Local Waste Management

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[1] Part of the Center of Competence established in the frame of dldp

List of Abbreviations

AAM	Albanian Association of Municipalities
AAC	Albanian Association of Communes
ABO	Area Based Organizations
ALL	Albanian LEK
BPEO	Best Practice Environmental Option
CBOs	Community Based Organization
C&DW	Construction and Demolition Waste
DLDP	Decentralization and Local Development Program
EU	European Union
FCA	Full Cost Accounting
IBRD	International Bank for Reconstruction and Development
HSI	HELVETAS Swiss Inter-Cooperation
KfW	KfW- Entwicklungsbank-Office in Tirana Albania
LGU	Local Government Unit
LSWMP	Local Solid Waste Management Plan
LSWM	Local Solid Waste Management
METE	Ministry of Economy, Trade and Energy
MI	Ministry of Interior
MoEFAW	Ministry of Environment, Forests and Administration of Waters
MoH	Ministry of Health
MoPWTT	Ministry of Public Works Transport and Telecommunications
MRF	Material Recovery Facility
MTB	Medium Term Budget
NWS	National Waste Strategy
NGOs	Non-Governmental Organizations
NWMP	National Waste Management Plan
O&M	Operational and Maintenance
PCP	Public Collection Points
PWSS	Primary Waste Separation Schemes
REA	Regional Environment Agencies
REC	Regional Environmental Center
RWSC	Recyclable Waste Separation Center
SADC	Swiss Agency for Development and Cooperation
SWOT	Strengths, Weaknesses, Opportunities and Threats
TS	Transfer Station
ToR	Terms of Reference
URI	Urban Research Institute
WAG	Waste Area Group
WCP	Waste Collection Point
WCTS	Waste Collection and Transportation Schemes
WM	Waste Management

Table of Contents

List of Recommendations

List of Figures

1 INTRODUCTION

1.1 Waste Management Planning in Albania

Since 1994, waste collection and treatment as well as other cleaning services were delegated to the local authorities. These authorities are now fully responsible for their management, and have inherited a system that consists of the collection of solid urban waste as one waste stream with no attempt and segregation, and the transportation of the waste to the local disposal sites.

The responsibility for this task, despite the gradual improvements observed, has proved challenging for the local authorities; they are faced with a lack of the necessary environmental management instruments, a lack of technology and investments, combined with inadequate human capacities and financial resources.

Planning, along with Education, Financial Resourcing and Legislation, has been defined as one of the four main policy pillars crucial to the implementation of the National Waste Management Plan (NWS) at a national, regional and local level. In fact, planning was viewed as the first step in the implementation of the national policy.

The lack of a waste management plan can affect local government units (LGU) in several ways. In certain circumstances when small communes do not have a waste management plan, they are unable to offer even basic waste collection services. In other cases, in the absence of a plan, municipalities are unable to offer efficient and qualitative waste collection services.

A National Waste Management Plan (NWMP) was approved earlier in 2011, as per a Council of Ministers Decision No.175, dating 19.01.2011, to be duly followed by the preparation of 12 regional waste management plans, and the development of local waste management plans by each local authority.

To date, a few local authorities have finalized the development process of their local waste management plan, such are the Municipalities of Korça, Durrës and Fier. The remaining, are currently in the process of developing and approving their plans including the local authorities supported by dldp phase 1 and phase 2 programs.

As a consequence of the work conducted by DLDP it became evident that there was a need to develop a guidance note for the preparation, by LGU, of waste management plans.

1.2 What is a Local Solid Waste Management Plan?

A Local Solid Waste Management Plan (hereinafter referred to as LSWMP) is a local planning document that enables the implementation of both the national waste strategy and the national waste management plan at a local level.

More specifically, a LSWM plan, at best, aims to deliver:

(i) **Conformity with the National Waste Strategy and the National Waste Management Plan (hereinafter referred to as the NWS and the NWMP) and its objectives**: contributing to waste management policy implementation and national objectives achievement;

(ii) **Local waste data gathering**: providing a description of the waste stream and responsibility on it, the volume to be managed and waste characteristics, as well as the definition of geographical extension of the plan, etc;

(iii) **An assessment of existing waste collection schemes, equipments and personnel involved, and disposal and recovery installations**: to define the baseline of existing waste management services and activities;

(iv) **Waste management options**: in order to enable waste collection and treatment in accordance with national objectives and local context;

(v) **Quality of the service**: determine the ways and instruments to guarantee the quality of services, such as key performance indicators, procedures, human/financial resources, skills, rules, etc;

(vi) **Institutional, organizational and regulatory framework**: recommends measures and instruments for the improvement of organisation components, public and private contribution and responsibilities for waste collection, transport, disposal, recycling, treatment, etc;

(vii) **Financial needs and investments**: defining and describing financial needs and investments that are necessary for the implementation & sustainable delivery of waste management services and processes;

(viii) **Financial sources for investments and a local strategy for covering the cost:** creating a favourable environment to secure funding from government waste funds and external sources, and to establish a local strategy on cost recovery.

1.3 LSWMP: A Strategic Perspective

Current national policy on waste management, including the legislative framework currently in place[2] oblige the authorities on a central, regional and local level to compile waste management plan.
Since the strategic planning documents at national level have been accomplished[3] as an initial phase, it will be pursued by the second phase of preparing of regional plans (within a year after approval of National Plan of Waste) and local plans within a year after approval of regional plan of waste.

Local authorities will be asked to include in their waste management plans projects for clean-up of unauthorised places for waste disposal, and rehabilitation of authorized locations. These plans should be followed by the compilation of the guidelines and standards, and in addition by technical support to enable their efficient implementation.

1.4 About the Manual

1.4.1 Objectives and Benefits of the Manual

This manual *Planning Local Waste Management*, comes as a practical guide for all LGUs dealing with waste management issues.

The primary objective of this manual is to provide a practical and comprehensive guidance to local governments considering developing a local solid waste management plan, covering drafting, implementing and monitoring process of the plan itself. In addition, this manual can also serve as a resource for the local authorities wishing to analyse the current situation, identifying and evaluating options, methodologies and scenarios, defining costs and financing needs, establishing regulations and organization at every stage of waste management, from waste generation through to final disposal.

Another objective of this manual is to highlight and disseminate good local experiences, projects and practices, which have developed over a series of training, coaching and consultation sessions with LGUs, particularly in the Shkodra and Lezha region. Such practices have been used to illustrate the technical and guiding steps of the manual to make it as user-friendly as possible, and in order to stimulate other similar initiatives in the regions.

1.4.2 Target Group

This manual is intended to be used by:

- The competent departments and local officials within local and regional government;
- All local experts engaged in preparing waste management plans or/and responsible for organizing and monitoring waste management activities;
- Other local authorities playing a role in the planning and implementation process of WM, such as local municipal councils and decision-makers, administrative staff and planners, contractors and different stakeholders;
- Regional Environmental Agencies.

[2] The Law on Integrated Waste Management, No. 10463 Dated 22.09.2011; Law No.8934, dated 05.09.2002, article 66/ç; Guideline No.6, dated 27.11.2007
[3] National Plan and Strategy on Waste, according to the Official Bulletin on 17 January, 2011

1.4.3 The Manual Methodology

The manual *Planning Local Waste Management* reflects the experiences gained during the development and implementation process of the waste management plans for a number of LGUs in the region of Shkodra and Lezha.

Feedback and technical inputs from different actors involved were also considered in the preparation of this manual, namely from, MoEFWA, MoPWT, MI, SELEA, KfW, URI, REC, Regional Environmental Agencies, The Albanian Association of Municipalities, The Albanian Association of Communes, and Local Authorities of Region of Shkodra and Lezha**.**

This manual relies on extensive use of international literature review, such as handbooks, guidelines and materials[4] on local waste management planning, technologies and practices on waste management sector.

1.4.4 How to Use this Manual

In this manual, the reader will find a structured and practical document, helping him/her to appreciate the importance of waste management planning as a first step in the process of developing an integrated waste management system.

The manual is organized into five sections:

Section 1: **Introduction** – Provides the reader with an overview of the waste management situation in Albania and it further explains what constitutes a waste management plan and then sets the scene in a policy and legislative context. It additionally includes a basic section on this manual and how to make best use of it;
Section 2: **(Steps to) Developing a Waste Management Plan**– introduces the reader to a general overview of the process of developing a local waste management plan. Further, this chapter focuses on the methodological aspect and explains the way basic planning steps are performed. It concludes with the 'preparation' stage of planning and monitoring and reviewing process of the plan;
Section 3: **Waste Management Operational Planning**–focuses on the technical planning issues. It provides steps and instructions on how to deal with the technical aspects of waste management such as service-planning, waste collection and transportation, transfer and disposal, waste processing and minimization, etc;
Section 4: **Financial Planning** – addresses the financial considerations of waste management planning as well as advice on how to enable local authorities to improve their financial practices on waste management, such as cost estimation, budget, investments, revenue, etc;
Annexes: provide further resources to the LGU in terms of the content of sections 2, 3 & 4 and about the key issues like organization and administrative structure, monitoring and evaluation, contracting and legal aspects, public participation, information and awareness, as well as **Glossary of Terms**, **References and Resources**. These should be used in order to further facilitate the plan development process.

In essence, section 2 of this manual provides a road map to the successful development of a waste management plan including the key steps and the action points to fulfil the basic elements necessary to develop a waste management plan. Sections 3 and 4 provide detailed technical advice on the issues of operational and financial planning.
The annexes provide additional considerations and examples on the key issues of waste management at local level.

[4] Listed at the References and resources

(STEPS TO) DEVELOPING A WASTE MANAGEMENT PLAN 2

The *(STEPS TO) DEVELOPING A WASTE MANAGEMENT PLAN* section has been designed to guide LGUs to develop, implement and review their local waste management plans and strategy, in line with the national waste management plan.

It provides a methodology on how to perform basic planning steps, how to organize and consult with main actors and local stakeholders; it also provides an introduction to the processes, activities and issues to be elaborated for the development of the local waste management plan.

2.1 The Waste Management Planning Process

2.1.1 Basic Planning Considerations

LSWMP in its entirety is a continuous cyclic process, and comprises of components, such as: overall planning, implementation and plan revision. The plan should be revised minimally in five-year-intervals; however in the event of significant developments the plan revision can be anticipated. The revision includes the evaluation of the objectives and measures, following the entire overall planning cycle.

The overall planning process may be broken down into the following phases: mobilization of the planning process and evaluation of the current situation (baseline including audits, public surveys, etc.), strategic planning and on-the-ground planning (at short and medium terms), consultation process, implementation, and monitoring and plan revision.

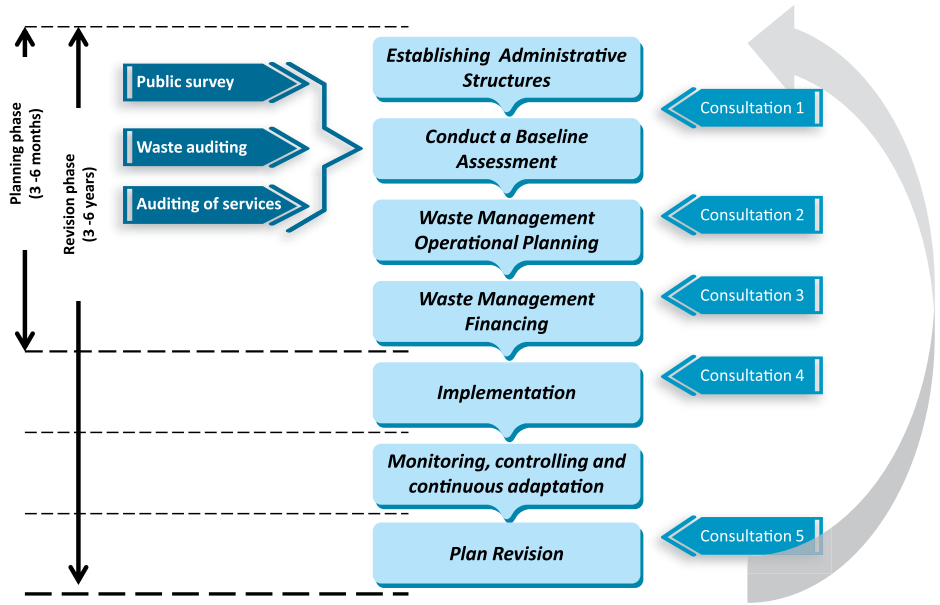


Figure 1: Waste Management Overall Plan Process scheme

2.1.2 Getting Started: Establishing Administrative Structures

The *Establishing Administrative Structures* phase constitutes the first step in the planning process, serving as the foundation for both the planning and implementation phases. From the outset, it is of crucial importance to:

1. Define the main actors to engage in the overall planning process
2. Involve the necessary stakeholders, be they directly or indirectly affected by the future waste management plan.

This phase comprises of a number of activities designed to give momentum to the planning process. Some of the main activities are:

- Preliminary consultations
- Stakeholder analysis
- Defining organizational roles and responsibilities
- External expertise

The following paragraphs and Annex 1 provide a detailed list of institutional structures which can be established to support the development of the LGU waste management plan.

Action Point 1: *Preliminary Consultation*

It is essential that the head of the LGU has acknowledged the legal obligation and the need to prepare a new waste management plan, or to revise an existing one. Following this 'need' identification, and commitment to proceeding with either of the options, the Mayor commences the consultation process with local departments within municipality and Municipal Council members. The purpose of these consultation processes is to:

- Highlight the necessity and importance of waste management planning in their respective local context;
- Create a mutual understanding of the waste management related problems and the necessity for action;
- Ultimately gain their support and commitment for initiating the plan preparation process.

It is essential that, both the Municipal Council and the local authorities agree from the outset on the importance of good local waste management and/or its further improvement.

Action Point 2: *Defining organizational roles and*

This phase constitutes the basis of the planning process, and is related to the allocation of human resources and the definition of their roles and responsibilities. The following model[5] is only an example of how roles and responsibilities can be defined within the organization:

Steering Committee constitutes an important group, which takes the role of leading, supporting and decision making throughout the process, and obtains the mandate from the general public. Therefore, a *Steering Committee*'s role is to provide direct support to the planning process, take

From an organizational point of view, this group consists of:

- The leader/ the head of the group/ chief, a position filled by the Mayor
- Local Council Representatives, who have the overall responsibility to decide
- Optional: An internal body of consultants, which comprises of a manager(s) and a coordinator(s)[6], head of public services departments and companies (public and private) including contacts with secondary and external stakeholders.

[5] IBRD/World Bank, 2000, Strategic Planning Guide for Municipal Solid Waste Management

[6] Responsible for managing and coordinating activities and human resources

Working Group As the name implies this group is responsible for guiding and conducting all the activities; offering expertise and commitment and preparing the local waste plan. Part of their responsibilities are: gathering information and useful data, identifying and analyzing obstacles, opportunities, threats, etc; identifying and assessing alternatives; analyzing costs and the cost-collecting and covering methods; recommend adequate measures etc. In order for the *Working Group* to function properly, it is important that roles, responsibilities and task allocation of the *Working Group* are clearly defined from the start, and agreed on by their respective institutions.

The process of setting up a *Working Group* is initiated by the Mayor, who also oversees the work and pushes for processes to advance, particularly on a communal level. The group should have a leader (manager, directly responsible for the local waste management), who should also be part of the steering committee. The *Working Group* comprises of experienced planners and waste management practitioners, and it is advised that the following combination of skills and backgrounds are considered:

- Management, organizational or planning
- Institutional knowledge and legal expertise
- Technical skills: (collection, transportation, disposal, landfill design, engineering)
- Social, economic and financial expertise
- Administrative support

The *Working Group* must maintain close links with the *Steering Committee* in order to translate the requirements of the *Steering Committee* into practical measures for action, while at the same time informing the *Steering Committee* on progress and key issues.

From an operational point of view, the *Working Group* should organize a mobilization/inception meeting with the *Steering Committee*. Among the main issues in the discussion agenda should be: stakeholder analysis and public participation: Who should be involved in the planning process and how? Time schedules and work plans; the importance of the waste management plan.

Should it be deemed necessary, workshops can be organized at a later stage for the Working group, *Steering Committee* and other stakeholders, once the plan starts taking shape.

The ***Stakeholder Group*** represents an important structure for it is designed to provide consultation and support during the plan development process. This group, which is selected by the *Steering Committee*, is designed to receive ideas, exchange information on aspects of waste planning, decisions, objectives and expected outcomes, as concluded in the stakeholder analysis. Ultimately, upon plan [draft] completion, the *Stakeholder Group* can intervene through consultations and provide feedback on the document.

From an organizational point of view, this group may comprise of all individuals and groups with an interest on waste management issues (mentioned at stakeholder groups), and that are not part of the *Working Group or the Steering Committee*. This group can include the head of local and regional institutions (like Prefecture, Qark, and government agencies), public actors from local community, private entrepreneurs, local industry, NGO' s etc.

Action Point 3: *Stakeholder Analysis*

Stakeholder analysis constitutes an important integral tool of the plan development, and should be conducted in regular intervals throughout the process cycle, starting from the outset and through to the implementation and monitoring of the plan.

The purpose of the stakeholder analysis is to identify both stakeholders and their interests, and analyze the latter following these steps:

(i) **Identify key persons, groups or institutions with an interest in the plan** (from the outset) e.g., main waste producers (key groups of individuals, business, etc) private sector or potential interested and experienced companies for collection, separation, recycling and treatment of waste, possible knowledge and expertise in the area (engineers, managers, etc) within municipality or other actors in regional level, neighbor communes and the authority (s) that manage the landfill, local NGOs, etc.

(ii) **Assess how their interests may affect its success and how their requirements are addressed***:* most of the stakeholders have direct and indirect interests on the implementation of the plan, which may consist of, for e.g. local priorities, general and specific requirements (e.g., good services at lower tariff, etc,) which should be considered from the plan or which interests may affect its implementation.

(iii) **Identify conflict of interests between stakeholders***:* foresee potential conflict between stakeholders and the overall local WM system, for e.g., the interest of waste pickers to collect recyclables directly from waste points is contrary with public and local authorities interests to keep them clean, etc.

(iv) **Identify relations between stakeholders that can be built upon to improve success:** for e.g. recycling companies or local authorities should work closely with public and key groups to have success on upcoming recycling schemes.

(v) **Assess the most appropriate way that different stakeholders should participate at different stages of the process:** for e.g., define where (workshops and public meeting) and how different stakeholders are required to participate, involved in decision making, consulted, or be part of the implementation phase, etc.

The findings and results from the stakeholder analysis will be further used in evaluating the existing waste management situation, establish needs and priorities, as well defining the measures and responsibilities on plan implementation. **Annex 3** provides the LGU with a suggested strategy for communicating with stakeholders.

Action Point 4: *Assess the need for external expertise*

There are certain activities that need external expertise for e.g. defining the methodology or needs for qualified assistance to carry out activities, as well as there are cases where internal resources are sufficient to guarantee success and effectiveness of activities. The need to involve external expertise for added professional support and expertise to the working group should be assessed and defined in this phase.

To ensure that external expertise is appropriate to the needs, and quality it is necessary to clarify it in terms of responsibilities, activities, outcomes and products. For this purpose establishment of clear terms of reference is recommended prior starting the hiring process. Should external expertise be required, the *Steering Committee* can proceed with the selection through an auction.

Step 2: Conduct a Baseline Assessment

2.1.3 Baseline Assessment

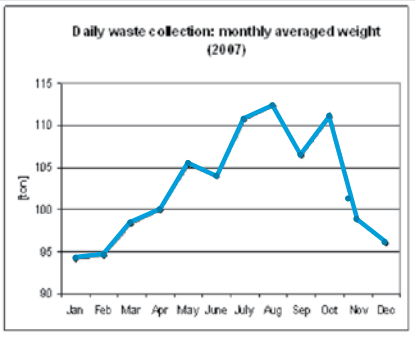
The aim of this section of the plan is to obtain a general and detailed overview and evaluation of the current state of the local waste management. Through this step and its associated action points, local authorities can set timelines and goals aligned with investments to facilitate achievement of local objectives.

Through this step, the *Working Group* collects and analyses all data and information on the current situation on the waste management field (technical, economic, environmental and social, legal and institutional aspects). The collection and analysis process entails obtaining all municipal documentation on waste management[7], performing site visits and interviews with managers and technical staff involved. Other source of information may result from reviewing waste services, carrying out public surveys and waste audits.

The analysis will need to pay particular attention to all the relations and consequences resulting from other plans, (e.g. urban regulatory plan or strategic development plan, etc.), regional and local studies on environmental field as well as considerations regarding the national waste plan.

Action Point 1: *Profiling the Consumer and the Waste Area*

Having assessed the current state of the local waste management, it is important to acquire a clear picture of the waste area and its consumer groups. Profiling the consumer and waste area entails: gathering useful general and detailed information on households, commercial units, industries (including tourism) and institutions– seasonal and/or temporary customers (e.g., coastal cities or communes have additional inhabitants and businesses during summer as a results of the holiday season) or permanent period of time, urban characteristics such as typology, infrastructure, urban characteristics, and natural resources, socio-economic and environmental elements etc.



The waste production is the amount of waste produced by the city (people, businesses etc);
This quantity is estimated, based on a daily production per capita;
The waste production varies during the year; e.g. monthly waste production in the city of Shkodra shows that a peak production can be expected in the summer period, with some 10 % more weight than the average production

[7] Nature and types of documentation required are described in detail later in this manual.

Other useful information about waste area includes the organizational aspect of local authorities and especially on waste management, political, administrative and executive levels including description of the public enterprises or involvement of the private sector and the ongoing regional cooperation. The existing legal framework on local environment and especially on waste management is described in detail as well as all arrangements and contracts related to waste management with private sector, neighbor local governments or other cooperation and partnerships in the region.

Municipal Council (45 councillors)	Discusses/adapt/approves the budget and prioroties based on the report of the Mayor
Mayor+Vice Mayor	Take the decisions based on the proposals done by the Public Service Directorate
Public services Directorate (5 employees)	Makes the planning and executive management of the public services
Administrative units (1 head of quarter + 2 inspectors)	Make the reporting of the work done and the problems

As part of the waste area and consumer profiling, *The Working Group* should also collect information on generalization, typology, characteristics, generated waste quantity, and a clear-cut grouping of the waste types for which the local authorities are responsible. Following, it is important to make a rough prediction about the future waste generation in the short and medium term based on current trend and on socio-economic development, and on the community behavior in relation to production and generation of waste.

Action Point 2: *Understanding SWM and its Elements*

Information about waste services, facilities, equipment, etc. will help to understand the application of waste management practices on the ground, to identify problems, limitations and constraints as well as advantages on local services provision.

The analysis comprises of the investigation of the performances on streets cleaning, waste collection, processing and treatment facilities (landfills, dumpsites), equipment, human resources (operators, managers, etc.). This investigation should also include the long-abandoned or illegal landfills, which constitute a potential risk for the environment, especially ground water, soil, water and the health risks of the people living close to the landfill.

Existing practices about the economic and financial aspect of waste management are of significant interest. The investigation should encompass past and current budgets, expenditures on waste issues, cost units for existing waste services, level of the service tariffs for different type of consumer, the construction of the tariffs current procedures on tariff collection, actors involved, etc., and the level of the actual cost-coverage.

Inquiry about management and financing, Municipality of Shkoder (CSD, 2008)

Current tariffs and its collection:

For the citizens, the tax is 700 ALL per family per year

For the businesses, the tax varies from 5'000 to 60'000 ALL per year

⇩

Not paid by everyone

⇩

Estimated income for 2007 : 32'800'000 ALL

Current budget, contact and supervision:

- **Current budget (2002 to 2007)= 57'000'000 ALL**
- **Budget/cost allocation to services, e.g.:** a: Sweeping of the streets (40% of the budget); b: Collection and transportation (54% of the budget); c: Washing of the streets (4% of the budget); d: Flattering of the waste at the disposal site (2% of the budget)
- **Supervision:** Human resources, capacity building, procedures, reporting, etc;

Action Point 3:
Evaluation

Assessment of the existing situation constitutes a summarized SWOT analysis, namely, of the problems (weaknesses), strengths, opportunities and threats of the waste management system in terms of technical and financial aspects, legal and institutional point of view.

The evaluation process requires the direct contribution of *Working Group* and active participation of *Steering Group* and C*onsultation Group* through organization of a workshop for this purpose.

Evaluation of current situation, Municipality of Shkodra, (CSD, 2008)

Main environmental problems:
- Negative visual impact with the presence of waste in the streets;
- Odor and sanitary concerns due to presence of waste;
- Water and air pollution due to the disposal site, etc.

Waste services performance
- Quality of services, equipments and their conditions, (e.g., lack or damage of bins, open points or truck);
- Cost of services and efficiency (e.g., low loading capacity, etc);
- Supervision and controlling is not effective, lack of technical specifications, etc.

Step 3: Waste Management Operationa Planning

2.1.4 Waste Management Operational Planning

The planning phase is based on the requirements resulting from assessment of actual/current state of the solid waste management and the projected assumptions for future developments. This phase is primarily about formulating the objectives, and identifying the procedures, methodology, and investments required to fulfill the objectives. Planning, as implied by the name, is also about determining and allocating in advance what should be done and by when; who should be doing what, how, and what cost. The planning process includes: establishing needs and priorities, defining the vision and objectives, and defining the technical and economic alternatives.

Action Point 1:
Establish Needs and Priorities

Identifying the need(s) and priorities for improving waste management services and operations, and communicating to political leaders, decision makers, managers, and to the public is a critical step for the planning process. They can be identified and roughly assessed by consulting the checklists of common problems, limitations or constraints recognized in the previous phase, or by asking responsible persons within the municipal waste management system, consideration the local priorities or by assessing public or specific stakeholder opinions through surveys, interviews, workshops etc.

Checklist on needs and priorities, Municipality of Shkodra, (CSD, 2008)

	Yes	No
• Cover the whole city with cleaning services;		
• To have no open point;		
• Minimize the exploitation costs;		
• Provide the same quality across the city;		
• Is frequency a priority, every day, 2/week, technical, financial problems;		
• Use a vacuum machine, wash the streets;		
• Who will be the owner of the containers, trucks;		
• Who does the repair and renewable of the containers;		
• Is the budget adequate; any possibilities to increase it;		
• Is it possible to make investments within the budget;		
• When will it be realistic to use the new landfill?		

Action Point 2: *Setting Goals and Objectives*

Before starting with the process of planning, we should define objectives, roles in the plan organization. As previously mentioned, part of the *Working Groups* responsibilities is to propose different solutions as to how accomplish the objectives; such options should be based on the local context, and with clearly defined consequences (costs, investments). The *Steering Committee* on the other hand, has the responsibility to approve the frame (the objectives), and level of quality and costs.

During the strategic planning process, the national and regional objectives and local priorities regarding waste management are translated into a local vision, main goals and setting of specific objectives. This process should be organized by the *Working Group* with the active involvement of *Steering Group* and *Consultation Groups,* which should share their point of view towards vision, goal and objectives on waste management. **Annex 3** of this manual outlines key issues in regard to public participation and information and communication.

Strategic planning outcomes - e.g., vision, main goal and objectives for the LSWMP of Commune of Velipoja (Co-PLAN, 2011)

Vision:
'Velipoja, a clean area and favorite tourist destination'!
Main goal:

'Keeping the beach of Velipoja clean to a progress toward a sustainable tourism development'

Objectives
In order to fulfill the vision of the plan, the local objectives for a short and medium term period as the following:

- Improvement of the cleaning service in the beach area; providing an efficient municipal waste management system;
- Strengthening financial policy framework and financial arrangements on local solid waste management (LSWM); provide an improved LSWM financial base based on a new tariff collection system;
- Improving dumpsite condition toward its environmental closure;
- Reduce littering and dumping of urban waste; prevent pollution from generation of special and waste hazardous waste;
- Strengthen inter-governmental cooperation and arrangement on environmental monitoring;
- Increasing public awareness;
- To promote avoidance and minimization (recycling and composting) of waste at source, incorporating it at every stage of production and consumption;
- Compliance with the national objectives for waste minimization at local level, communal, and touristic area.

Action Point 3: *Technical Planning*

An essential element of the planning phase is the determination of technical alternatives at every stage of the waste management process, where best options are identified and evaluated, investments, costs are estimated, tariffs and revenues are planned.

The process pursues with the establishment of the action plan, which sums up all measures and actions and links them with detailed objectives, timeframe and stakeholders. It is important that technical, economic, financing options, legal and institutional recommendations including action plan are all aligned and in function of achieving the local objectives and targets.

The public should be involved in the determination of the future waste management system and a consultation phase must be included in the planning process before adopting the final waste management plan and its initiatives. In this regard, consultation workshops are recommended with the participation of *Steering group* and of a wide range of stakeholders. Public hearings are also valuable to gain public opinions prior to the final plan being finalized and further approved. **Annex 3** of this manual has further guidance in this regard.

Technical planning is a complicated process with a number of different technologies available to, and a variety of methodologies for service delivery available to, the LGU. In this regard therefore section III of this manual is dedicated to examining these options in a comprehensive and practical manner to facilitate the decision making process for the LGU.

Step 4: Waste Management Financing

2.1.5 Waste Management Financing

Action Point 1: *Develop a Financing Plan*

Once the LGU has developed a methodology for delivery of the waste management service it needs to consider the how that service will be paid for. What are the investment costs and what are the operational costs. Financial planning is imperative to ensure that any system implemented has sustainability factored in from the outset. System affordability is imperative to the LGU.

In many cases where the overall cost of the system implementation is significant and it may even be beyond the resources available to the LGU the Unit must consider a phased approach to implementation. This and other similar issues can be considered once the LGU has undertaken the Technical and Financial Planning Action Points.

To aid the LGU in this complex decision making process section 4 of this manual outlines the key considerations for the LGU in the context of financial planning.

Step 5: Implementation

2.1.6 Implementation

Action Point 1: *Develop an Action Plan*

Following the approval of the waste management plan, its provisions are put into practice, through an action plan, which provides a road map of activities, responsible actors and timeframe to be followed. The action plan should clearly define three elements:

1. List of Actions
2. Person Responsible for the Action
3. Timeline for completion of the Action

The municipality is directly responsible for the implementation of the plan on the ground through its departments such as the waste management department (sometimes included within the public service department) and cleaning enterprises, financing and revenue departments, monitoring and enforcement structures.

Action Point 2: *Develop an Implementation Plan Programme*

There are different options for implementation of the new system and in the main these options will be predicated upon by the availability of financial and human resources. Whether the implementation will be globally conducted across the LGU or whether implementation is to be a phased approach then there needs to be a robust implementation plan to ensure a smooth transition from the old system to the new one.

Action Point 3: *Develop a set of Key Performance Indicators and a System Monitoring Programme*

Once the system has been implemented it is imperative that the LGU continues to evaluate the system and this can be done using key performance indicators. This will ensure that the system performance is in line with expected or planned performance targets. This system monitoring should include both the operational and the financial aspects of the new system. **Annex 2** of this manual provides the LGU with a comprehensive breakdown of the key considerations when developing a programme for system monitoring and evaluation.

Step 6: Plan Revision

2.1.7 Revision of the Plan

The review up of the plan should be a continuous process with regular monitoring and periodical evaluation, as well as subsequent revising of the objectives and measures. The evaluation of the plan should include: monitoring (indicators and tools to assess the work done), verification of target accomplishment, and reporting to the decision makers. The purpose is to ensure that the responsible authorities are given the relevant information to follow the development and decide on additional measures, if necessary. The baseline assessment performed for the purpose of the plan will serve as a basic status upon which the objectives and targets are assessed and the changes of indicators are compared with.

The monitoring and evaluation process can be broken down into the following steps:

(i) The mayor assigns responsible officials for the monitoring and evaluation process, known as the *Monitoring Group*;
(ii) Upon establishment, the *Monitoring Group*:
- Reviews the situation - goals and targets are reviewed, assessing if they are realistic and measurable. The indicators are also reviewed;
- Gathers evidence - qualitative and quantitative data is collected;
- Analyzes the evidence- the data measuring the progress is analyzed, results and targets are compared, checking if targets were achieved within the allocated timeframe;

- Shares and discusses the findings- findings are shared with the interested stakeholders and decision- makers with respective suggestions for possible adaptations.

This process usually covers a 5 year-span; but it could be for a number of reasons depending on the situation, for instance it could be that an old plan is being out-dated, or that an anticipated revision of the plan is required. Among the main reasons we can stress additional legal requirement from central government, major changes on local or regional waste management, the objectives and measures far from the reality, etc.

2.2 Contents of LSWMP

In this section, a summary of the LSWMP content is provided, to which local authorities should make reference. It is understandable that each local government can include other items depending on the diversity of their context. However, the following is a suggested structure with chapters deemed important and fundamental to local waste management plan content. In the table below, you will find an outline of the possible elements of a LSWMP:

Recommendation 1: Outline and elements of the LSWMP

Introduction and national context on waste management	• Purpose of the plan • National background on WM • National policy, legal framework • Roles and responsibility on regional and local level
Local context on waste management	• City profile (urban, economic, environment, etc) • Waste management organization (institutions, by-laws, contracts) • Waste amount and its characteristics, sources, predictions • Current waste services and practices, facilities, vehicles, personnel, etc • Economy and financing, tariffs current procedures, and tariff collection • Assessment, (advantages, weaknesses, opportunities and threats)
Waste management Planning	• The scope of the plan (spatial and time definition and wastes object of the plan) • Strategic planning (vision, goals and objectives) • Identification and screening of options (WM components) • Identification and evaluation of the scenarios, approach, costs, investments etc • Financial perspective, tariffs, cost-recovery • Legal and institutional framework, public awareness
Action-Plan on short and medium terms	
Monitoring and reviewing	

[8] See similar models at www.dldp.al

3 WASTE MANAGEMENT OPERATIONAL PLANNING

The *WASTE MANAGEMENT OPERATIONAL PLANNING* SECTION has been developed to assist local authorities to improve or set up a new waste management system in a sustainable and effective manner. This part of the manual provides a step by step guide to the planning procedures concerning the technical aspects to be considered when developing a waste management plan.

In addition, this section draws from a selection of the best case studies and experiences developed by the local authorities in the region of Shkodra and Lezha during training and coaching sessions. In addition it draws on experiences gained from the technical support for development and monitoring of the LSWMP of municipalities of Koplik, Puka, Lezha, Commune of Velipoja and on the assistance given for the Municipality of Shkodra. Moreover, other examples and practices from development of NSW and NWMP and of other LGUs experiences (like LSWMP of City of Fier) have been used as reference.

3.1 Organization of Services Provision and Operations

The local authority has the ownership and responsibility for the provision of services of waste collection, street cleaning, recycling, and disposal of urban waste. The function for provision of waste services and operations are classified into four subcategories:

- Self (public) organization
- Delegated (private) organization
- Joint organization
- Shared public private

The organization of the services for the collection, transportation, treatment or disposal of municipal waste, starts from the decision as to whether those services will be:

- Self operated
- Delegated to the municipal structures (public enterprises) or
- Contracted out to specialized companies, or
- Joint approach by the LGU in the form of common partnerships (public & private partnership, inter-LGUs or regional cooperation, etc.).

The objective is to choose a good organization of service provision in terms of ensuring effectiveness (professionalism, quality and lower costs), to reduce investments requirements (usually local authorities in Albania have lower capacity to provide financing of capital investments), etc.

Once this decision has been taken, local authorities have to take appropriate measures in order to upgrade or empower the organizational structure by improving the public entity (management, infrastructure, tasks and accountability) or by improving contracted services (more competitions, better contracts, control and enforcement). During the process of LSWMP development, local authorities proceed with the analysis and recommendations concerning the following political[9] issues:

- Choose public or private solution
- How to upgrade public service provision
- How to upgrade private service provision

3.1.1 Choice of Public or Private Solution

Local authorities are responsible for ensuring that a service is provided, and that it meets the required standards in terms of reliability, efficiency, customer relations and environmental protection. The question to be addressed therefore is what will the local authority decide? to invite private sector participation or to keep the waste management services in the public domain?

The following issues are important to be considered and examined in the process of decision making, The considerations outlined will help the LGU to decide on whether to involve the private-sector, or to allow competition between the public and private-sectors or to choose a public service delivery, for the provision of solid waste management services are set out in the following analysis:

[9] Decisions on political issues are taken by the *Steering Committee*

Is the size appropriate for public service?

Most of the communes do not have a critical mass of population to sustain the use of a waste collection truck and its crew. It means that to have a sustainable use of the truck as a resource it must be engaged 7 days a week and 8 hours a day. If the quantity of waste of the commune is not enough to utilize the truck to this capacity the global cost will be too expensive.
This will be the case if the commune is less than 15'000 inhabitants. In this case, the only reasonable options are a private delegation or an Inter-LGU organization.

Is there enough competition?

High competition, which can be achieved in large cities for service provision of waste collection or other cleaning services, can reduce costs of services and raise effectiveness if they are accompanied by effective procurement procedure and strong enforcement (monitoring and control).

On the other hand, public organization of service provision appears cheaper as it is excluded from income and taxes, but has hidden expenditures caused from lack of motivation and accountability. Therefore, the important questions rely on is there enough competition to reduce costs of services and then are local authority able to assure adequate contracting procedure and effective enforcement?

Technology and quality of personnel

Improved access to technology[10] and to qualified personnel is supposed to add to the reasons why the private sector seems advantageous. Current experiences in Albania have shown that there are few examples of local governments in Albania that are able to ensure appropriate investments and better reward system that motivate good work and qualified personnel.

In particular, it is important to consider if the public organization has enough human resources and capacity of management to ensure the technical maintenance of the trucks and of the containers all over the year. Typically, if a truck is damaged, the capacity of decision and finance must be enough to buy pieces, make the repairs and find alternative solution in very few hours or days.

But these constrains can be resolved by public organization if local authorities will have sufficient financial resources to make adequate investments and to hire good personnel. For example, it is easier for public companies to take international donations for their investments.

On the other hand, there are certainly other cases where the private sector uses very unsuitable vehicles. This is either because the duration of the agreement/contract is too short to allow the companies to take out and repay loans for the purchase of suitable vehicles, or because the agreements do not specify requirements or the requirements are not enforced properly.

Risks and reliability

There is the risk of commercial failure of the company providing the service, especially if the prices are too low or if the payments of the service are not done or if contractual conflicts are unsolved, resulting in a service breakdown. Sometimes, private companies are afraid to participate for example in small communes where they perceive a threat of non-payment of service fees.

[10] It has more flexibility and access to financing resources

Furthermore, these risks can discourage the private sector involvement, and consequently affect quality of service or worse local authority cannot provide basic waste collection.

In conclusion, a set of recommendations can be given at the end of the analysis for local governments in terms of size, capacity or location as well as for type of service. Nevertheless, current experiences on the level of competition, implementation of contracts or public services and if possible comparison with typical service cost from similar (size or capacity) cases: private or public can help them to take the final decision.

The box below gives some typical findings on the organization of public or private service provision:

- For both public and private organization a good control of the quality (indicators, standards) and efficiency (cost, time) of the service is an essential condition of success;
- For large municipalities, there are good opportunities to benefit (reduce cost) from competition in services like waste collection and transportation, if procurement are effective and transparent;
- Size of a local government and location of it have stronger effect on private sector interest. For small government units located in remote areas (for example city of Puka or Fushe Arrez) a public organization of basic services (e.g. waste collection) seems advantageous than private. But still, it needs to resolve the issue of buying waste trucks and equipments.

3.1.2 How to Upgrade Public Service Provision

Following the decision to go for public service provision, local authorities should plan appropriate measures to improve in terms of efficiency and quality, such as:

External support for investments

External support for financing investments is fundamental, especially for small local governments. For example, due to a financial aid taken from the dldp-1 program, municipality of Fushe- Arrez was able to establish a successful public organization of basic services[11].

Other financial support for buying trucks and containers, enable the commune of Guri i Zi[12] or Inter-communal Zadrima introduced waste collection for the first time.

Structure and personnel

The organizational structure should be simple, with a minimum of administrative and management layers between collection crews and top management. For example, the organization of operational structure in the Municipality of Fushe- Arrez, contains one manager, one driver and 10 workers.

The employees must have a very clear definition of the quantity and quality of the work: working schedule, indicators for quality of work, etc.

***Job description*:** Personnel should have clear responsibilities and job description: This means that at first it a job-description should be prepared (working program), and working schedule documents on each activity (A detailed job description model is given at the Annex 2 of this manual).

[11] Increase of tariff collection up to 60%
[12] dldp-1 program

General description of personnel types and job descriptions for public service		
Position	**No. of personnel**	**Job description**
Supervisor	1	Control daily work operations, schedules, equipment maintenance and repair, direct supervise of personnel and direct control of safety procedures, etc
Manager	1	Overall manage and control of the operations and human resources and direct supervise of the supervisors; plan and design services, investments, estimate costs, safety and health measures, etc.
Driver	6	Collecting and transporting waste, supervise worker operations, ensure the fulfillment of schedules, procedures and rules, etc;
Mechanic	1	Maintain vehicles and equipments, follow procedures and rules;
Worker	12	Operate waste collection process, and collection aggregate of the truck, follow the schedules, procedures and rules, etc.

Working environment: Provide a safe working environment: insurance, participatory problem solving and worker incentive payments (approve rewards for good work). A continuous use of safety clothes and material is also important to develop an image and a team spirit of the service.

Commercializing the public sector operations

Introduce commercial principles of management and supervision: remove the restrictive labour practices, so that incentives can be given for good performance or vice versa.

Costs and expenditures of services should be checked regularly in a transparent and accounting system in order to guarantee working in a cost-efficient manner. It is important to make clear reporting with time-tables of all the activities like time of departure, discharge and come back, name and number of personal, fuel and consumables consumption, km, maintenance, tons or volumes of waste collected, etc.

Ensure the effective use of equipment and vehicles: appropriate maintenance; increase level of utilization, for example, by providing waste collection for neighbouring communes, etc.

Control of services

The local authority should ensure separation of the supervising function ('control function' e.g., supervisor) to control the quality of services from operation structure ('operator function', e.g., service provider). Independent supervisor should check and assure the delivery of planned services. (See Annex 2, Terms of reference for the supervisor).

3.1.3 How to Upgrade Private Service Provision

When the local authorities decide that a certain waste service should be contracted or given to a concession, efforts and resources are concentrated towards monitoring, enforcement and control.

Raise competition

Competition leads to efficiency, motivation and accountability of service. It provides a standard upon which performance can be compared and assessed. In order to ensure efficiency gains when contracting-out services, it is essential for municipal authorities to develop their expertise as 'clients'.

(i) Accountability, Ensuring that the contract works*:* In order for the private-sector contracting to deliver real improvements in terms of both the efficiency and effectiveness of the service provision, a number of basic criteria must be fulfilled**:**

- well defined performance measures; (quantitative and qualitative indicators)
- enforceable sanctions for not complying with the contracts (e.g., several times higher than the price of services);
- vigilant and transparent monitoring structures and procedures;

(ii) Transparency: Financial dealings and decision-making should be transparent especially during procurement procedures which raise reliability and competition and reduce price of contracts.

(iii) Appropriate duration of agreement and the provision of equipment: Contracts that involve investment in vehicles should have a minimum length of five years, and investment in fixed facilities requires minimum agreement duration of ten years. Shorter periods lead to higher prices, because contractors are forced to depreciate their investments over periods shorter than the normal economic life of the machines or facilities. For example, it is recommended that for a transfer station or a sanitary landfill, concession agreement spans from 7-15 years *to match the depreciation period of the new investment*.[13]

Ensure reliability and reduce risks

It is very important that the local authorities make all necessary efforts to ensure that the payments of the service are made and services are checked at the contractual level and on a very regular and continuous basis to ensure the sustainability of the service.

Ensure quality service

There are several measures aimed at increasing the quality of contracted services:

(i) Improve pre-qualification procedures: to eliminate companies without sufficient resources or experience to support their tenders;

(ii) Empowerment of local authorities in supervising contractors (e.g., in inspection of works and in the approval of contractors' invoices);

(iii) Improve the quality of contract documentation, particularly the specification of

[13] Sandra Cointreau Levine and Adrian Coad (2000), '*Private Sector Participation in Municipal Solid Waste Management Part II'*

performance and methodology, penalty clauses and bills of quantity; there are good examples of cleaning contracts in Albania, which can be used as guiding templates by local authorities;

(iv) Expand contracts to include all cleansing services within the contracted area (waste collection, street sweeping, other cleaning, etc.), to reduce overlap and potential conflict of responsibility with parallel municipality services;

(v) Insist that contractors improve their image (e.g., by use of uniforms**)** to enable the public to distinguish easily between contracted services and municipality services.

Select appropriate type of contracts

An important issue is the selection of the appropriate types of contracts for specific waste related activity. Private sector participation in solid waste management may involve any of the activities listed below:

Collection of general municipal wastes from entire neighborhoods/ city - service contract	Operation of a disposal site - by service contract or concession. Example concession contract of the Landfill of Bushat;
Sweeping or cleaning of streets and open areas - service contract	Conversion of waste to compost - by service contract or concession (no example yet)
Maintenance, cleaning and repairing of municipal solid waste equipment - service contract;	Operation of a transfer station and long distance hauling system - by service contract or concession (no example yet)
Provision of vehicles or heavy equipment - by lease or rental agreement with equipment owners	Collection of user tariffs or waste taxes - bill collection agents, water authority, or electricity utility.
New: inert waste collection… market waste collection or separate waste collection…e.g. only paper etc.	

(i) Contracting: For waste collection and transportation, street cleaning, rent or repair of waste vehicles: contracting is the most appropriate model.

(ii) Concessions: Investments in new transfer, treatment and disposal facilities to improve the environmental and public health quality of services will be required in most Albanian regions and cities. The involvement of private sectors is considered more favorable usually through a consortium of local and international companies if they provide financing of investments and technical knowledge and experiences.

Each LGU is eligible to act as the contracting authority for concessions on economic activities under the relevant jurisdiction and consequently, also for concession projects on waste.[14]Local concessions are granted for those economic activities, fall under the competence of the LGAs (art. 3/10 of the Law on Concessions). In cases that local authorities act together (like inter-LGUs), the right of concession state under the competence of the *Council of Ministers,* which does have the ultimate authority to determine the contracting authority.

[14] Article 5 of Law no. 9663

3.1.4 Inter-LGU Cooperation and Regional Organization

a) Regional Approach on WM

A general consensus[15] has been reached on the final process of waste treatment (e.g., landfills), which must be made in a regional or inter-regional plant including one or more waste areas. Working together in this direction, will optimize the utilization of the economy of scale (landfill cost will go 2-3 times lower for an area with a population over 200,000 inhabitants). Moreover, inter-LGUs cooperation can lower waste collection cost by increasing the level of utilization of the trucks. Sometimes, this cooperation could be the only possibility for small local governments (communes) to organize basic waste collection schemes.

Regional waste management plants or landfills will be under the ownership of and run from managing authorities/companies created by key local actors. Specificities related to the creation and management of these managing companies will be defined by the steering boards consisting of representatives of local authorities participating in the enterprise.

The Qark or groups established under Qark responsibility (e.g. Waste Area Group) will be the coordinating authority for the activities of the waste area and will also be responsible for the collection of data from the reports of municipalities and communes.

b) How to organize an Inter-Local Government Cooperation

Joint organization

There are several possibilities for two or more LGUs to jointly develop a waste management project. This would be the case where two or more local government authorities agree to develop a common waste collection scheme (like Inter-Communal Zadrima), to build and operate a transfer station which will be necessary in the future; or to operate a landfill, where the solid waste generated in the jurisdiction of these two or more authorities would be managed.

There are several ways to initiate and formalize inter-municipal waste management organizations, ranging from non-profit companies to private companies with public majority shareholding, from organizations created by a few municipalities to organizations with direct representation of all municipalities in the service area.

Reach consensus

It is not necessarily important that all municipalities in the service area take part in the ownership structure, as long as these municipalities are bound by individual contracts.

Recommendation 2: Start by reaching consensus among most interested LGUs

International experience shows that reaching consensus among a wider group of municipalities can be a difficult and time-consuming process, so it is often easier to start the organization on the basis of the most interested municipalities.

[15] Recommended by National Policy on Waste

Joint agreement and potential legal structures

The current legal framework on local government issues already allows two or more local government authorities to establish an inter-unit cooperation for public services including waste management activities. To regulate their cooperation it needs a joint agreement between all the local government authorities involved.

A common joint agreement comprises of:

- The purpose and functions to be carried out jointly;
- The methods and manners used for the realization of the purpose;
- The organizational process, to take decisions and delegate responsibilities;
- The degree and duration of delegation of competences;
- The manners and amount of contributions and the profit sharing (art. 14 of the Law on Local Government).

The union of local government authorities can be identified as the contracting authority. They can then establish a board or entity by the inter-unit cooperation agreement for the sole purpose of realizing the object of the service/ concession contract.

Through this agreement the participating authorities can determine:

- Responsible persons from each local government authority;
- Procedures for procuring, signing the contract, supervising while implementing the contract;
- Benefits and obligation deriving from the contract.

Some local authorities in Albania have started to cooperate with each other in realizing the public function of waste management under their own territorial jurisdiction. For more information see **Annex 1**, *Examples of Inter-LGUs cooperation in Albania*.

3.2 Waste Collection and Transportation Systems

Based on the current practices of most LGUs in Albania, it transpires that the waste collection absorbs most of the waste management current costs. Therefore, this step places a strong emphasis on improving efficiency and effectiveness, i.e. *doing more for your money*, as well as the quality of the service. The local objectives, as well as the human, technical and financial resources, and the following considerations about waste treatment affect the *Waste Collection System* (WCS) in its entirety, namely: elements, its complexity and costs.

Some of the most important elements to be considered while planning a WCTS are:

- General and technical information on the waste area
- Waste collection and transportation schemes
- Waste separation schemes

3.2.1 General and Technical Information on the Waste Area

When in the initial phase of planning a new collection scheme set-up, or the improvement of an existing system, special consideration should go to the previous and current situation of waste collection and the way the public deals with the waste (they generate) in the absence of a frequent waste collection service.

The authorities, therefore should collect detailed information upon which they plan, analyze and take basic decisions concerning the main elements of waste collection scheme, and in order for it to prove useful, it should include:

- Waste area[16] characteristics
- Waste generation and its composition.

a) Waste Area Characteristics

Waste area characteristics include useful information regarding waste area, such as borders and neighboring LGUs, responsibilities within and outside the Waste area, information about consumers and built infrastructure.

Waste area boundaries

At first, it is important to define the collection zone, or the waste service area where the local authority plans to offer, or to improve the waste collection service.

The definition of local waste service area and/or inter-LGUs[17] waste service area serves to clarify the area where the contractor (a private company), or the municipal enterprise performs its waste collection activity and/or other waste services as per contractual agreements. Defining the waste service area also helps establish the service area local responsibility.

In the Albanian context, local authorities aim to extend waste area borders toward the administrative boundaries of their cities. At times however, the authorities fail to provide frequent waste services within their administrative boundary, and select a smaller waste area in accordance with their technical and/or financial capabilities. In addition, when defining the waste area the road network should also be taken into account.

Waste area responsibilities

Based on the administrative boundaries of the waste service area, it is crucial to define the responsibility areas, therefore clearly establishing who is responsible for waste service provision, and why. Clearly defined responsibility is particularly important in border areas between neighboring local units, where uncertainties and conflicts arise due to certain LGUs not offering any waste service at all.

Such conflicts and uncertainties can be prevented, or minimized by gathering available information on neighboring authorities, their respective administrative area (expressed in ha), their service provision, the administrative division or city neighborhoods, the number of villages under the local responsibility of each unit, and any existing arrangements/partnerships with the neighboring authorities regarding waste management (e.g. an inter-LGUs organization).

[16] Local area or local service area, where a local authority plans or already provides waste services
[17] Local authorities act together under a joint organization

Information about waste producers provides useful data about whom the local authorities are going to serve. It also helps them to estimate the volume and specify type of waste to be managed.

Waste producers and their characteristics

This information encompasses current data and previous trends (a five to eight year time span) concerning the population within their area of responsibility, and its characteristics; the number and average size of households; the type and size of business units; industries and institutions (no. of municipal buildings, education, social or cultural buildings); medical or health units within the waste area;

Additional information may comprise of further elaboration of the data on households and businesses in the city, by specifying the type of residency (permanent or temporary residents), as well as information covering residents living in illegal settlements nearby city borders.

Public infrastructure and environmental problems

Public infrastructure constitutes another urban specific data category. This category is instrumental to the provision of waste collection services, and includes road infrastructure, location and number of parks, recreational and open spaces, all of which summarized in general maps of public infrastructure components. The identification of environmental problems and their origin, within a given city or in the nearby city areas is also crucial to the definition of the waste area characteristics.

Recommendation 3: Specific information required for defining urban infrastructure

- Road types, length and specific roads waste trucks have access to;
- Settlement types (one-or-multi-family- houses) and respective locations;
- Maps of income zones (km^2), average income (Leke/household) per zone, and population per zone;
- Location and type of commercial establishments (including large units);
- Location and type of institutions (schools, libraries, religious buildings, hospitals, etc.);
- Location, number and type of factories and industries;
- Urban obstacles in terms of waste collection and transportation routes.

In order to organize appropriate waste collection systems, it is essential and highly recommended that the entire waste area is divided in sub-zones, based on similar urban and consumer typologies. This is important for planning or organizing common waste collection infrastructure, collection and transportation schemes, and similar service frequencies, and for organizing common waste minimization programs.

Waste Area and Waste Sub-zones of the city of Koplik, (Co-PLAN, 2011)

The following example (taken from the development of the LSWMP of Municipality of Koplik) illustrates the division of waste area into four sub-zones according to urban characteristics similarities, as part of the process of planning of adequate waste services.

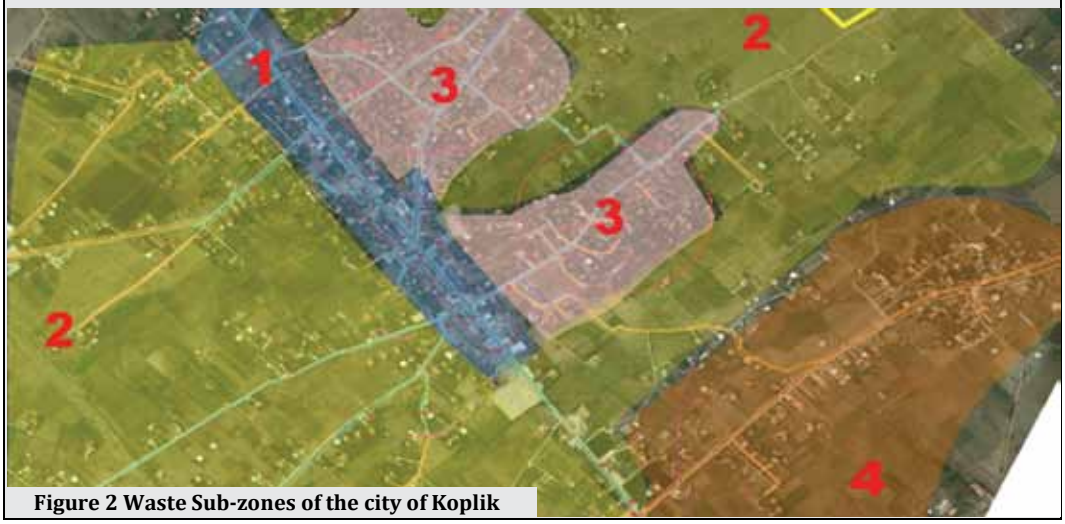


Figure 2 Waste Sub-zones of the city of Koplik

b) Waste Generation and its Characteristics

In order to forecast the future of waste management in any given LGU, we need to evaluate the current waste generation and evaluate their progress for a medium term period (e.g. 5-7 years). Accurate data on waste generation is instrumental to the plan preparation as well as to the monitoring process. This data is used for defining the baseline, setting objectives and targets, as well measuring the achievement during the implementation of the LSWMP.
Furthermore, it is also important to distinguish between the waste under local responsibility and the one that is not, classify waste based on its source of origin, and determine if it is hazardous or not. Waste generation and its characteristics will help decision making concerning technology/ methods to be chosen for waste treatment now or in the future.

There are two ways to determine waste characteristics:

- Refer to the national norms, studies, etc.
- Conduct a direct measurement.

Refer to norms, studies etc.

Take reference from the current national norms/data on waste generation; or waste composition as per national plan, regional plan, or a similar local government - sharing size and socio-economic similarity.

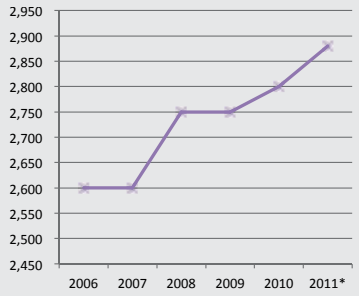
For this purpose the National Waste Management Plan has introduced some approximate values on waste generation for different cities in Albania depending on the size of the city (no. of inhabitants). Due to a number of restrictions resulting characterizing these figures (several other factors affecting waste generation are not considered), for cross-checking purposes it is best to take some measurements of the waste being collected or transported (by measuring directly waste trucks if there is no weighing scale at disposal point). In this way, it is possible to verify these figures, particularly with regard to the waste quantity.

Waste generation (per capita) in some typical cities:[2](INPAEL, 2010)			
Cities	**Inhabitants**	**Settlement Population Range**	**Waste co-efficient kg/ person/day**
		Rural Communes	**0.4**
Koplik	3,569	< 25,000 inhabitants	**0.7**
Klos	4,344		
Rreshen	4,498		
Billisht	7,966		
Vau Dejes	10,240		
Fushe-Kruje	12,154		
Lezhe	21,150		
Pogradec	27,104	>25,000 but < 100,000 Inhabitants	**1.0**
Kavaje	28193		
Lushnje	29,649		
Fier	51,773		
Korce	56,593		
Shkoder	75,097		
Elbasan	78,446		
Durres	127,851	>100,000 but < 200,000 Inhabitants	**1.1**
Tirana	468,718	> 200,000 but < 750,000 Inhabit.	**1.5**

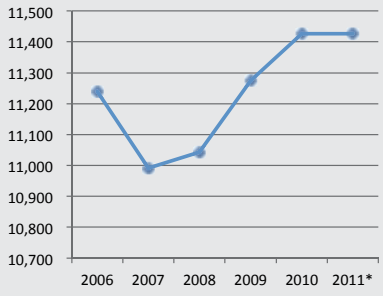
The following examples illustrate the type of information extracted directly from municipal data and whether they use references from previous studies for similar municipalities or communes.

The information required concerning the population and waste quantity, LSWM Plan of the Municipality of Koplik (Co-PLAN, 2011)						
Year	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Population	11,239	10,991	11,043	11,275	11,427	11,427
Population growth rate		-2.2%	0.5%	2.1%	1.3%	0%
Quantity of urban waste collected (ton/ year)	2,600	2,600	2,750	2,750	2,800	2,880
Generation rate per capita/ a day (kg/inhabit./day)	0.63	0.65	0.68	0.67	0.67	0.69
Growth of generation rate per inhabitant		2%	5%	-2%	0%	3%
Inert& voluminous waste collected (ton/year)	1,500	1,500	1,500	1,500	1,700	1,500

[18] Reference figures from the National Waste Management Plan, 2011



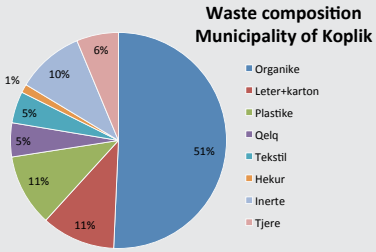
Waste Production trend (ton/yr.)



Population trend (no. of inhabitants)

The use of reference data from previous waste audits[19] of similar cities to determine waste characterization figures for the Municipality of Koplik (Co-PLAN, 2011)

Waste fractions (by weight)	**City of Vore**	**City of F.Kruje**	**Average composition**
Organic	51%	51%	51%
Paper and cardboard	13%	9%	11%
Plastics	11%	11%	11%
Glass	4%	6%	5%
Textile	6%	4%	5%
Metal-iron/non-iron	1%	1%	1%
Inert	10%	10%	10%
Others	5%	8%	6%



LGU's should note that population figures can often be contentious depending on which data source is used to collect and extract the population data.

Direct measurement

To ensure higher accuracy of waste data and appropriateness to the local context, it is also possible to conduct a waste analysis through which to determine the quantities and composition of the waste downstream.

It is however to be clearly mentioned that the waste composition is changing strongly with the social structure and the activities (markets, commercial, touristic, residential, industrial, etc.) of each zone and with the seasons. In order to have an idea of the general waste quantity and composition of a whole city, this has to be integrated.

There are two main methods for conducting a full analysis on waste characterization (measurement and estimation) on the ground:

(i) The *door-to-door* sample collection, by taking samples directly from the consumers;
(ii) The *coning and quartering method*, by taking samples at the truck or at disposal site.

[19] INPAEL& Co-PLAN, 2009, Waste characterization survey in Albania

Recommendation 4: On the appropriate waste audit method

From an economic point of view, as well as from human resources stance, the door-to-door method appears unfavorable compared to the second one; yet, it does provide and yield more accurate results. The best selection depends on the objectives and on the accuracy required. For example, when the analysis is focused on a specific type of consumer, or on specific types of waste stream (for recycling or composting purposes), then the door-to-door method is the most preferable.

The methodology of the direct measurement process consists of four steps:

- Pre-evaluation of study areas and determination of sample size
- Collection of samples
- Data sorting and measurement of the weight of the subcategories of waste
- Evaluation and Findings.

The realization of such a study for the first time will require external support (expertise), however any subsequent studies the local authorities should be able to perform by themselves.

3.2.2 Waste Collection and Transportation Schemes

Waste collection and transportation schemes (WCTS) are related to the local activities in terms of waste collection and transportation, and may often include or be associated to some other activities such as waste separation, processing, transferring, etc.

In the majority of LGUs in Albania, the waste management process starts with the consumers delivering the waste further proceeding with the in-site storage or waste acceptance, following with the waste collection and transportation, to finish with the waste disposal at the final disposal site.

All of these processes can be organised in a number of different ways (options) depending on the urban typology, suitability with the local context and the local financial resources. These options are put forward for discussion in terms of potential opportunities and analyzed in terms of their possible applicability at a local or at specific sub-zone level of the waste area. The quality, effectiveness, practicality and cost of the waste collection schemes is determined by several assumptions at the base of different aspects of these schemes.

The following components are to be analysed once, you need to evaluate the current situation (baseline), and/ or you decide to improve the existing scheme or plan to start a new service:

- Waste Collection Points
- Waste Collection Frequency
- Waste Containers and Trucks
- Optimization of trucks
- Human resources

a) Waste Collection Points (WCP)

Each Waste Collection Point (WCP) will contain one or more containers. The location of waste collection points constitutes an important issue for WCTS affecting a number of collection scheme components such as crew size, in-site storage capacity and trucks, all of which ultimately controlling the cost of collection. Usually, WCPs are placed in specific places near main or secondary roads (near sidewalks, intersections, etc) or near consumers (within residential areas/units, near or within markets, commercial zones, restaurant, etc.).

In the Albanian context it is common practice that most of the WCP are mainly located on the side of main roads, within neighbourhoods, and only a few of them are dedicated to individual consumers. Sometimes this WCP network proves appropriate to the local context in terms of service provision (easy, practical, and cost-efficient), nonetheless it has limitations and difficulties in matching with consumer behaviour. They usually complain that WSP are either too close or too far from their residence, leading to the practice of illegal dumping within our cities.

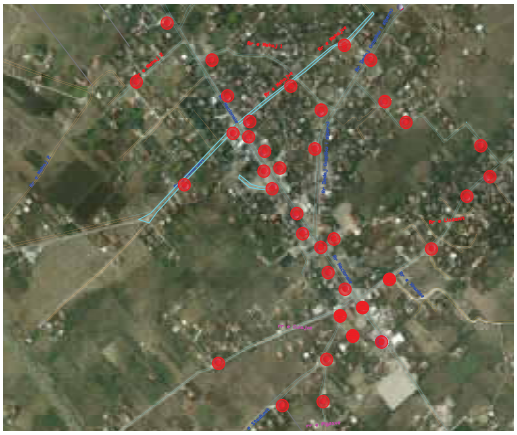


Figure 3 : WCP network of the City of Koplik

WCP main roads

Recommendation 5: Start-up solution for inexperienced local authorities

It is strongly recommended that for the communes with insufficient finances and no prior experience in waste management, to start with the placement of a reduced number of WCP placed in the main roads;

When determining the appropriate waste collection points system, there are two focal points that local authority should decide upon: type of WCP (common or individual) and location frequency of WCP (distance among them).

As part of selection process, in order to select the best option available (in terms of type, location frequency), the following elements need to be considered and analyzed:

Feasibility/ Practicality

Feasibility and practicality are important elements for ensuring a sound fit with local context, such as infrastructure, urban typology, and characteristics of the urban space.

Recommendation 6: The placement/location of the waste collection points

It is essential to place the collection points in places which are easily reachable and accessible: e.g. mainly on the main or easily accessible roads or near cross-roads, with the possibility for the truck to charge the waste without complicated or reverse movements. These problems are the sources of losing of time (and money), high risks of accidents and additional costs of reparation.

Local standards (if in place)

Local standards and rules are important elements to ensure equitable access to residents and at the same time to avoid illegal changes of collection points.

Ownership and responsibility

Defining the property rights of the premises where the collection point will be located is very important. The responsibility for cleaning and maintaining it should also be assigned and clarified.

Health and safety considerations

It entails allocating the locations of the collection points in a way that the distance inhabitant-collection point is minimal, minimizing therefore the chances of illegal dumping, and discouraging consumers from using the waste collection system in any improper way.

Recommendation 7: Definition of the distance thresholds for WCP placement

Local authorities may define and approve thresholds/limitations (e.g. via local rules) for allowable distances of WCP from commercial or residential units or for the distances between WCPs (for more information see the *Recommendations* 9).

Costs, affordability and effectiveness

Usually high number of WCP and individual schemes results in higher service costs. Therefore, while deciding on the adequate and the best waste collection scheme LGUs have to take into account whether the service costs can be afforded, by the community and LGU budget.

Recommendation 8: Reduce the number of WCP for small communes

In order to provide simple and affordable waste collection schemes and reduce the cost of recollection, small communes (especially), should consider reducing the number of WCP or alternatively, make use of common schemes, rather than individual schemes.

Compliance with the local objectives

When local authorities have specific local objectives, e.g. reduction of waste quantity, they have to select an appropriate waste collection system in regards of these objectives. An effective segregation system is based on individual or *door-to-door* collection system rather than on the common schemes; the same is true if you want to offer a personalized waste collection to a sizeable consumer.

Other considerations

Further to the aforementioned factors, the following ought to be considered also when determining the location of the WCP:

(i) Urban Density - the density of collection points is strongly influenced by the urban density (inhabitants or businesses) of a given area;
(ii) Street Cleaning - has an influence on the positioning of the collection points. It is advisable to plan WCP closer to the streets to be cleaned on a regular basis, in order to facilitate the collection of cleaning residues;
(iii) Existing WCP network - helps and influences the placement of new collection points- to add new points or new containers if you want to upgrade existing schemes.

The following table recommends some average distance standards for different types of urban areas:

Recommendation 9: Average distances of collection points for different urban areas

Type of area (m)	Very dense	Dense	Moderate	Rare
Average distances	100	100-150	150-250	250-400

It is strongly recommended that for the communes with insufficient finances and lacking proper experience in waste management, to start with a rare WCP network (distances between WCP-s of around 400 m or more). Once the system is in operation, in a second phase, the number of collections points and containers can be increased according to the needs.

Even though they are equally important, usually it is difficult to fulfil all these elements:

Recommendation 10: Considerations for final decision of WCP

The final decision of WCP should comply with legal requirements and (possibly) represent the best economical system (less costly and more economical) that fits to local context (feasible), fulfils health considerations, and is in accordance with the local objectives on waste minimization.

b) Waste Collection Frequency

For the waste collection service to run effectively, the collection frequency needs to be determined carefully. The collection frequency concerns and affects directly the collection points, the number of containers and waste trucks utilized, as well as cost and effectiveness.

Usually, LGUs or service providers contracted by them, organize daily waste collection schemes (even twice a day in very dense commercial and residential areas) leading to increased costs.

The following analysis is to be conducted while selecting the appropriate collection frequency:

Number of containers

It is supposed to be easy for local authority or service provider to collect the waste on a daily basis (7 days a week), requiring a minimum number of containers. Nonetheless, often the cheapest solution is to have the 'lower frequency- higher number of containers' combination. This combination would result in reducing the operation cost by as many times as the frequency of recollection.

At times, the collection frequency is determined by the given number of containers, this can lead to inappropriate results. The reverse is recommended, though, selects the most economic frequency of recollection and then estimates the number of containers.

Specific conditions

Climatic conditions, locality specific requirements (e.g. for typical consumers like markets, etc), and the conditions of the containers (open or closed containers) may influence the decision on collection frequency. The following recommendations should be considered according to specific circumstances:

Recommendation 11: Collection frequencies based on climate and the type of the containers

Given the Albanian climate, characterized by hot and humid weather, urban waste must be collected at least twice a week, as the decomposing urban wastes produce bad odor and leakage. For specific locations or consumers to be served such as markets, beaches, commercial centers, daily waste collection schemes are recommended.
Sealed or closed containers allow for a collection frequency of up to three days, whilst open and unsealed containers require daily collection.

Other considerations

Collection efficiency largely depends on the demography of the area (such as income groups, community, etc.), where it is taking place. Therefore, when determining collection frequency, you must consider the following:

(i) **Cost,** e.g., optimal collection frequency reduces the cost as it involves fewer trucks, employees, and reduction in total route distance;
(ii) **Storage space**, e.g., less frequent collection may require more storage space (more containers) in the area;
(iii) **Sanitation,** e.g., frequent collection reduces concerns about health, safety and nuisance associated with stored refuse.

c) Waste Containers and Trucks

In-site storage (containers and bins) and transportation trucks are important components of the collection scheme. The standardization, quality and quantity of the containers and trucks are key elements to reduce the cost of the collection and guaranteeing qualitative and sustainable service.

There are two important elements influencing selection of both the containers and the trucks:

- Selection of the appropriate type
- Estimation of the adequate in-site storage capacity
- Determine the need for the waste trucks.

Selection of the appropriate type

Containers should be functional and suitable for the amount and type of materials and collection vehicles used. Containers should also be durable, easy to handle, and economical, as well as resistant to corrosion, weather conditions and animals.

Recommendation 12: Selection of the appropriate type of container

For instance, in the Albanian context, the standardized metal containers are more favorable than plastic containers, as they provide more durability (e.g., are more resistant considering the fact there is a high risk of being damaged or set on fire, and easier to repair), and accessibility for both the residents and the collection crew to do the job.
If they are planned for internal use, then plastic containers are preferred as they are lighter and easily manageable.

The 1.1m^3-container is mostly used by local government as it seems appropriate to the existing WCP type because it.is easily manageable for short distances (while larger container such as the 1.7, 2.4 or 3.2 m^3 are not so current for WCP system), and at the same time can store large amounts of waste (better than smaller-size types like 0.07-0.15 m3). However, such containers need specifically selected mechanized truck-mounted loading equipment.

As far as public health and safety is concerned, both service providers and households/businesses pay very little attention to keep waste containers closed or covered to prevent odors spreading and ensuring higher standards on public health and safety.

Judging by the facts, it would appear that there seems to be an agreement between all parties to keep the containers uncovered/open. In fact, such behavior comes as a result of poor consumer awareness, lack of rule enforcement, and the lack of clean/serviceable containers.

Recommendation 13: Ensuring hygiene of the containers

Health and safety concerns require for the containers to be more hygienic (washed regularly 2-3 times/ month). Also, it asks for more public awareness activities, increased local rules and regulations enforcement, including contractual agreements.

Estimate adequate capacity of containers (in-site storage)

In order to determine the number of containers needed for a waste collection scheme, we need to identify and estimate waste production for the whole waste area, parts of it, or for a specific consumer (in the case of individual waste collection).

It is necessary to consider the annual variation and the additional production of waste, for e.g. it is approximately 10% more waste during the summer period than the rest of the year. Following, it is necessary to select an adequate collection frequency in order to determine the waste quantity to be collected in each collection day:

If waste is not collected on a daily basis (7 days/week), every consequent collection round will need to take double or triple quantities etc., e.g. 2-3 times of daily production.

Having determined the daily quantity for the waste area, the next step is to estimate the total volume of containers, taking into account an estimation of the waste density in the container. Waste production measurements in the city of Shkodra (2010) have shown a density varying considerably from: 0.075 to 0.160 ton/m3 in 1100 liters containers, with an average of 0.112 ton/m^3. This density is significantly conditioned by cartoons and organic waste.

Recommendation 14: Calculate the need for containers

- An average estimation of 0.1 ton/m^3 is recommended in urban areas, and 0.15 ton/m^3 in rural areas;
- Following, the calculation of the total number of containers required at a city level can be done, taking into account the standard type of the container and using the coefficient of container filling at a level of 85% in order to prevent overfilling:
  Total number of containers = daily quantity/density (in ton/m^3)/standard volume of container/0.85;
- Usually in Albania the 1.1 m^3 container is used for common/public waste collection scheme, while smaller types (0.1-0.24m^3) are used for individual schemes.

The required number of containers may not initially be a perfect-fit for the situation, which is perfectly understandable for a first time; an experimentation period of two months should be allowed. Following this period, it is necessary to check the percentage of fullness of all containers and estimate the additional number of necessary containers, or the necessity to change their location. Proper estimation of on-site storage capacity and correction of the number of containers will minimize waste collected outside containers and ensure maximum efficiency. The latter, through the increase of collection speed, crew size and service cost reduction.

Recommendation 15: Checking procedure to evaluate the need for new containers

- Count of the containers 100% full;
- Estimate to what extent the containers are filled (in %), and mark them;
- Unload into the truck all the marked containers;
- Throw into the container any waste found on the pavement; following, estimate how full the containers are, and then load them onto the truck.
- The addition of the total volume unloaded divided by the volume of one container will give the required number of containers:
  Required no. of containers = Total volume unloaded/ volume of 1 container

Determine the need for the waste truck

In order to determine the required number of waste pickup trucks, first we need to estimate the total daily waste production rate (in ton, and waste density in truck, which differs from the waste density in the containers). Following the pre-selection of suitable waste trucks to fit the waste scheme (road network access and waste area characteristics considered) and the container type, the average time for a full round-trip is calculated.

Based on this calculation we can establish the number and total time for round-trips per vehicle.

Under certain circumstances, the number of the trucks is affected by the time of transportation from the town to the landfill or to the transfer station (for e.g. further than 5-km from waste area where there is no transfer station involved). Sometimes, a larger waste truck is preferred when direct hauling is chosen to transport waste to final disposal, located in a certain distance.

The following graphic illustrates the recommended basic steps to determine the amount and characteristics of the waste pickup trucks:

Determine no. of waste trucks

Calculation of the number of waste containers and vehicles for the Commune of Milot[20]

Step 1: Estimate waste generation

	No of consumers	Generation rate	Daily amount	Annual amount
	no.	kg/inh./dy	ton/dy	ton/yr
Inhabitants	11000	0.6	6.6	2409
Small business	135	8.5	1.2	421
Large business			0.0	0
Institutions	57	20	1.1	416
Total			8.9	3246

Within commune boundaries are generated 3246 tons/year;

Step 2: Estimate effective time of waste collection (without transportation)

In reality, the average required time to serve one WCP of 2 containers and to travel to the other WCP, varies from 3-5 minutes;
The total time needed to charge a waste technologic truck (that operates in 40 WCP with around 80 containers)goes from 2 to 3.3 hours;

Step 3: Estimate number of containers

	Anual amount (2010)	Daily amount	Proposed frequency	Urban waste density	container capacity	Coeficient of filling	Need for containers
	ton/yr	ton/dy	days/week	ton/m3	m3	%	no.
Inhabitants	2409	6.6	7	0.15	1.1	85	46
Small business	421	1.2	7	0.15	1.1	85	8
Large business	0	0.0	7	0.15	1.1	85	0
Institutions	416	1.1	7	0.15	1.1	85	8
	3246	8.9					62

Results: The commune needs 62 containers of 1.1m3;

Step 4: Estimate number of waste vehicles

	Annual amount (2010)	Daily amount	No of collec-tion routes a day	vehicle capacity		Required number of transport		Vehicle required
	ton/yr	ton/dy	Routes/dy.	m3	ton	Trsp./yr.	trsp./dy	no.
Inhabitants	3246	8.9	1	18	10	324.6	0.9	1

Results: It needs one vehicle of 10 tons which can be used at 90% of its capacity;

d) Truck Optimisation

The truck optimisation can be reached through selecting/designing effective collection routes and by ensuring adequate repair and maintenance of both equipment and trucks.
There are some essential issues that need to be considered to optimise the use of the truck and to reduce its operation cost:

Waste storage in containers

All the waste must be unloaded from the containers- it takes approximately 1-3 minutes to charge a 1100 l container of 150 kg[21]. It takes 5-10 more time if the same quantity is found on the pavement and must be removed manually (by hand), hence reducing the overall collection efficiency.

[20] Case-study developed during the coaching session with the center of competences, under implementation of the "dldp- phase 2" program
[21] Technical support for the Municipality of Shkodra, (CSD, 2008)

This means that it is very important to adapt the number of containers so that to avoid the waste being dumped on the pavement. On the other hand, large cities represent a vast problem with the placement of inadequate number of containers in dense urbanized areas (often opposed by inhabitants or commercial units), where the service provider is left with no choice but to provide an additional and costly – waste collection service during the peak hours, facing delays from the traffic or from other urban barriers.

Recommendation 16: How to avoid numerous emptying of the containers in commercial areas

At times, in order to avoid numerous emptying of containers within a day, specific timetables are recommended (1-2 hours before waste collection) for different types of consumers to bring out their waste. This would need social acceptance and collaboration as well as strong enforcement measures. This may be a good solution for commercial waste in high commercial zones

Good accessibility of WCP and avoidance of barriers

The containers should be placed in a way that they are easily accessible by the truck. It is also important to avoid urban barriers such as cars parking in front of WCP.

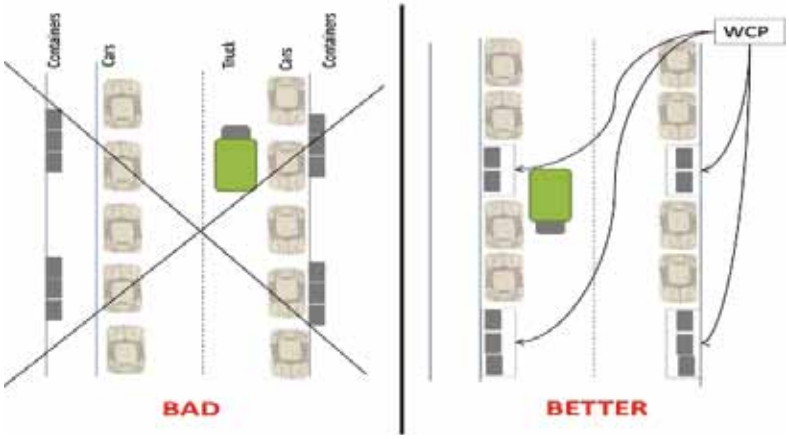


Figure 4 Adequate placement of the WCP

Effective collection of the containers

The containers must be grouped in specific WCP, rather than be scattered alongside roads. This would save trucks from having to load significant amounts of waste at each stop, which would increase the *STOP-and-GO* operation, and consequently the operation time and cost.

Recommendation 17: Initial solution for waste collection routes and gradual extension of it

The most affordable solution would be to stick to main roads and easily accessible routes, at least in the first period. This could discourage people from bringing the waste over longer distances, consequently resulting in illegal dumping in remote areas. Only once a simple solution shows it is functioning and it is economically feasible, the possibility to extend the service can be evaluated.

Full loading of the truck

Trucks must be full (85-100 %) at the end of the collection routes, in order to reduce the cost of the transportation to the treatment site. This means that the collection routes must be designed effectively in order to accumulate the waste quantity for one truck. It is important to avoid transportation of waste to final disposal when the waste truck is half-filled.

Sometimes, in small towns and communes, large capacity waste vehicles are used for fewer amount of waste, which means that they are using these vehicles in an unproductive way.

Recommendation 18: Maximize the use of the waste trucks

The cheaper solution is to use the truck full time making more collection routes within a day (two or three routes a day, and if possible to do more shifts: up to 2 shifts), which requires better organization of collection routes for each truck. For this reason, the possibility to have various LGUs share a vehicle can reduce collection costs further.

Avoid traffic barriers

Traffic congestion can reduce service efficiency. There are a number of ways as to how to avoid urban barriers. Collection hours are important aspects to be considered when planning waste collection services, which mostly affect truck-use effectiveness. By selecting appropriate collection times, we can reduce the number of the required trucks.

Recommendation 19: Organization of waste collection hours in big cities

It is better to organize the waste collection routes in the center and in the main roads during the night shift, or early in the morning (from 5-7:30), before the heavy traffic begins, and then to proceed to other suburb areas and market places (after 7:30).

There are other elements that optimize truck routes such as carefully planned routes (both at a macro and micro level) considering some route planning rules/principles, aiming to avoid any natural and urban barriers and optimize the vehicle *stop-and-drive* movement.

Condition and maintenance of the containers

The state of the containers is also a very important factor impacting the effectiveness, costs and efficiency of the entire waste collection service. All the containers in use must be in a good condition: a worker can take a 1100 l container to the truck, but it would require 2-3 workers and longer time to take a container to the truck if it is damaged (wheels are broken).

Conditions and maintenance of the trucks

Experience has shown that the waste trucks generally suffer more wearing and damage than a normal truck does, because of the frequent stop and go, the abrasiveness of the waste, the specific needs of the hydraulic system, etc.

When the emptying cycle does not work properly, because a container or the wheels are warped, or containers are out of services, the operation is delayed (2-5 minutes or more per stop) or completely blocked, consequently costing more and increased personnel and time of using the truck. Also, since technological vehicles will be running during the operation, the delays caused from improper vehicle and containers conditions or the presence of large amount of waste outside containers, are translated into increased waste collection cost.

Recommendation 20: The need for maintenance of the trucks and containers
It is important that waste service providers and local authorities pay more attention to the need for strict maintenance of trucks and containers and be aware and evaluate the cost they have to face at a moment in time from improper operation of vehicles and containers.

e) Waste Collection Human Resource Requirement (operational personnel and administrative staff)

One of the most important factors of service cost is the size and the working hours of the waste collection crew. It is therefore necessary to find a way to maintain an optimal, reduced, crew size; a good and motivating working environment, as well as have a clear job description, effective time allocation of personnel and control.

The optimal crew size normally has two persons per truck but many service providers use larger crews (up to three or four members). The reasons leading to bigger crews can be:

Elements leading to personnel increase	**Possible measures for 'reducing' personnel**
Lack of containers: Part of the waste is disposed on the pavement and requires more time to be loaded onto the truck	Verify the fullness of the container and the correct number of container in each collection point.
Inappropriate or uniform containers: If the containers are not appropriate, (small), or varying in shapes and sizes, it will take more time to do the same job.	Use only standard and big containers (1100 l)
Inappropriate truck: Only *technological trucks* (specific trucks for waste collection with hydraulic loading system) have sufficient efficiency to be used for waste collection.	Use technological trucks for the waste collection. All others are too expensive in recollection costs.
Lack of truck maintenance: If the loading system or any other parts of the truck do not function properly, the total working time will be significantly longer.	Regular truck maintenance

Lack of container maintenance: If the containers (wheels) do not function properly, more workers are required to load the same amount of waste	Systematic maintenance of the containers
Poor organization of WCP and street cleaning: If the crew of the truck is also required to clean the streets or the WCP, it will require longer time.	WCP ought to be cleaned prior to the crew arriving, so that the truck stops for a minimum time.
Poor equipment: Crew will take more time to do the job if their equipment is not adequate.	Provide the crew with good, working equipment.
Poor safety equipment and regulations: Accidents, which could lead to increased personnel costs	Provide the crew with good and simple safety equipment and regulations.
Poor time management: The collection crew is not properly engaged, e.g. when the truck goes to the landfill.	For example: when the driver goes to the landfill, the crew must do engage in another work process (cleaning the WCP, the container, etc).

Personnel and truck use optimization[22]

Based on the current practices in the region or in the wider Albanian context, there is a continuous trend for local governments to lower the cost of waste collection through:

- Decreasing the frequency of recollection, e.g. the case of the City of Koplik, providing waste service three times a week for remote areas instead of every day at the rest of the city;
- Using technological trucks (e.g., the City of Puka and the Commune of Velipoja which ultimately want to avoid the use of their open truck and to buy new technological truck for their waste collection services).

Nevertheless, attention should go to the services, the cost of which results in lower waste collection expenses. We need to compare the increased costs between the following two options:

- Operating with increased personnel but faster service, or
- Having smaller crew but higher fuel cost for longer service.

3.2.3 Transfer Station

a) Importance of Transfer Station

The future municipal waste management will experience an increase of the overall transportation work deriving from transportation of larger quantities of reusable and recyclable materials to regional or inter-regional processing facilities and longer transportation distances for residual waste to regional or inter-regional landfills. Reusable and recyclable materials will need collection and selection stations, including compressing and bailing. Moreover, the residual part of the urban waste will require transfer stations (TS) for the reduction of the transportation cost to the regional landfill.

[22]LSWMP in the Municipality of Koplik, Puka and Commune of Velipoja (Co-PLAN, 2011)

b) Transfer Station Justification of Need

To assess the need for these facilities it requires a feasibility calculation to determine if investments in such facilities will be viable and bring economic benefits. Key elements that assess the need for a transfer station are based on the *economy of travel time*[23] and the *distance for direct deposit* of waste collection vehicles, which operate within the city.

The collection of waste is usually done with small waste trucks, with a capacity varying from 5 to 7 or 10 ton of waste, as they are more convenient to operate in the city area. The cost of transportation from the waste area to the regional landfill is more or less the same for any type of trucks. Fuel consumption and time of transportation for a 5, 7 or 10 ton waste truck is more or less the same as that for a 20 or 30 ton waste truck;

Therefore, the cost of transportation per ton of waste is up to 6 times higher with a smaller truck (of 5 to 10 ton) rather than a big one (of 20 to 30 ton). The cost is higher, if the collection vehicle is not 100% full at the end of the collection route (which in reality happens often).

This is the main reason why it is cheaper to make the transportation of waste with the big trucks and to raise the interest for a transfer station. The longer the distance to the landfill; the greater the interest for a Transfer Station. (For more information see **Annex 2)**

Currently there is no local transfer station established in Albania, but the need for such stations will increase with the realization of regional waste management solutions and the necessity to reduce the transportation costs of wastes to points of final disposal.

Compaction and baling systems may also be of interest to isolated communities or communities with significant seasonal variations due to, i.e. tourism. There are baling systems in the market that include a sealing of the bales so they can be stored intermediately without nuisances such as smell and leaking. The main constraint remains their high operational cost.

International standards to evaluate the need for Transfer Stations

Based on World Bank[24] standards for developing countries, it is not necessary to build a transfer station if the travel-time to the deposit area is less than 30 min (one way) for a machine that holds up to 5 tons, and not longer than 45 minutes for the vehicles carrying out up to 8 tons. Other guiding distances of 30-40 km can be found in literature as the break-even point for introduction of waste transfer, but this would be accurate only for larger quantities of waste. For distances exceeding these deposition rates, the use of transfer stations is required. (For more information see **Annex** 2)

[23] Economic benefits coming from the avoidance of direct transport to landfill at long distances
[24] IBRD/World Bank, 2000, Strategic Planning Guide for Municipal Solid Waste Management

Cost-related analysis of disposal alternatives, Municipality of Koplik (Co-PLAN, 2011)

In the case of LSWMP of the Municpality of Koplik, the road distance to transport urban waste from the city of Koplik to the landfill of Bushat is 36km, and the travel time is 43 min if considering the average driving speed of 50km/hour. Referring to the threashhold of traveling time of 45 min (see box above), this case results borderline, when it comes to the assessment on the profitability of the need for a transfer station.
Therefore, if the local authorities decide to go for the direct transporting to the landfill of Bushat they have to replace the existing waste collection vehicle (from a capacity of 5 tons to a capacity of up to 10tons). Unless the need for a transfer station will be necessary to reduce the cost of transportation. The total cost of a regional trasfer station (including all the local goverments of region of Malesia e Madhe) goes up to 660 Lek/ton.

c) Transfer Station Types and Design

Important factors to be considered in the designation of Transfer Station include:

- Type of transfer operation to be used
- Capacity requirements
- Equipment and accessory requirements, and
- Environmental requirements.

A transfer station should be located as near as possible to the solid waste production areas, within easy access to roads, meeting minimal public and environmental objection and optimal construction and operational costs.

Depending on the method used to load the transport vehicle, transfer stations may be classified into two types:

- Direct discharge
- Storage discharge

d) Transfer Station Organization and Operation

Transfer stations require a minimum of waste quantity, corresponding 20’000 to 30’000 inhabitants in the Albanian context. So that in most cases, they must be organized on an inter-local or a regional level where one station can be used by various communes or municipalities of the region; the arrangement of the transfer or transportation can be managed by an inter-LGU organization or by a private one.

In terms of operation, in a direct transfer station, the waste coming from the collection vehicles is usually emptied directly into a bigger container (often with a compacting system). Then, the container, when full, is loaded onto a truck and transported to the final disposal destination. These stations are constructed in a two-level platform and employ stationary compactors.

In a storage-discharge TS, waste is emptied either into pit storage or onto a platform from which it is loaded onto transport vehicles; waste can be temporarily stored, and if preferred, searched for recyclables or unacceptable materials. The waste is then pushed into open-top trailers, usually by front-end loaders.
There is also compaction station, where the mechanical equipment is used to increase the density of waste before it is transferred. Generally, this type of station creates problems of bad smell, leakage and risks of fire, hence it is not recommended.

Figure 5 Illustrative photos of a Municipal Waste Transfer station (Storage discharge type)

3.2.4 Waste Separation

When planning a waste collection system, it is important to plan waste separation or segregation schemes, which should be combined with existing waste schemes and be part of the general waste management system. Even if, initially these schemes are an additional cost raiser of existing schemes, or are seen as complicated for the service provider and the public to follow, they should be seen as future obligations and essential measures to be embraced by local authorities in accordance with current national policy on waste.

The planning and development of separation schemes should take into consideration and be based on the following issues:

- How important is waste separation for local priorities
- What, how much (waste composition), and where to find the highest quantity of certain wastes;
- Selection of effective scheme that fit locally.

a) How Important is Waste Separation for Local Priorities

Basically, the priorities and objectives of waste separation have to be clarified by the local authority from the beginning. The following issues are important to be considered:

Health and environmental protection

With this objective in mind, the focus should be on removing off the waste stream the most dangerous waste for the public health and for the environment. Decontamination costs also have to be taken into account.

Battery (vehicles)	Heavy metal
Battery (pocket)	Hydro-carbure
Medicament	Chemicals
Hospital wastes (if any)	Motor oil (cars), Others.

These waste types represent only but a small proportion of the total urban waste stream. Their treatment requires national solutions, leading to additional costs for local authorities.

Maximize waste separation, reduce urban waste volumes

The separation and maximization of the recycled waste and reduction of the waste volume are medium and long term objectives for local authorities in compliance with national policy and with their local priorities. Some of the major quantities that could be *extracted* from the waste stream are:

(i) **Organic / market / gardening waste**: vegetable, fruits, etc; Due to the high proportion of this kind of waste in Albania, the effect to the reduction of waste can be very high. It requires a home, local or regional solution of composting and the development of a market for the produced compost.

(ii) **Paper and cardboards**: weight and volume reduction potential is high, some 20-25 % in total, and there is an industrial market for its reuse. However it requires a specific waste collection system.

(iii) **Inert materials**: experience shows that the presence of inert or construction materials in the waste stream can be problematic in certain places, constituting additional costs. In cases where they are collected separately from urban waste, can be recycled and use as a raw material for the construction industry.

Waste management cost reduction

Should this be the local authorities' objective, they ought to consider the valuable material within the urban waste stream. The most valuable materials are generally: metals, aluminum cans, plastics (PET and others), part of which (metals, cans) is often collected by the informal waste sector.

In addition, local authority can also look at the costs for separate collection, transportation and treatment; as well as assess savings coming from the waste deviated from the landfill.

Should such costs be high, it could be feasible to reduce transportation and landfill costs by reducing the waste volume (cardboard) and weight (organic, paper, and inert);

Should such costs be low, then finding a solution for reducing the total cost through waste separation becomes a challenge.

Recommendation 21: Introduction of adequate waste segregation system

While segregation of hazardous materials from municipal waste stream is still far from the immediate local governments' objectives in Albania, the need to separate recycling materials has become a growing priority for them.

Introduction of adequate segregation schemes should be seen as the only way to prepare waste for processing and recycling steps, aiming for the minimization of solid waste.

b) What, How Much, and Where to find the Highest Quantity of Certain Waste?

Prior to planning a segregation scheme, it is important to answer the following questions:

- What to separate and in what quantity? Is there any potential interest for certain materials?
- Where to find most of the required waste- identifies consumers who produce most of the materials to include in the scheme?

What, how much, any interest?

Local authorities have to first know what to separate, meaning they have to focus on most recycling (plastic, paper, cardboard, metals, etc.) or composting (organic) materials. In turn, this could develop into a local authority objective.

These questions relate primarily to the local objective on certain waste streams or to the overall objective to reduce waste going to landfills. In the Albanian context, the major part of the communes and sub-urban part of cities generate more organic waste (over 50-60%), while urbanized areas produce more recycling materials (paper, cartoon, plastic, glass, metals, up to 40%) rather than other main components. Although, they have to know how much recycling or composting materials are within their waste stream.[25] This data helps to accurately identify potentials to separate.

Following, it is important to define specific fractions of urban waste stream which have greater interest to the recycling industry because they have a higher value on the marketplace. For instance, recently in Albania, there is a strong interest in collecting plastics and metals, which makes it economically feasible for the separate collection and transportation of these materials. But this is not the case for paper and cardboard materials at present, where for the moment the price of these materials may not cover collection and direct transportation costs for long distances.

Where to find most of the required waste

Identify the most important generators of these specific wastes and the type of waste produced. The following table introduces major of certain type of waste (for recycling or composting).

Generators and proper locations	Type of specific wastes
Markets	Cardboards, Plastics
Commercial zones	Cardboards, papers, Plastics, Organic wastes
Restaurants, touristic zone	Organic wastes, glass
Administrative activities	Paper
City centers	Paper, cardboard, plastics
Suburbs, communes, gardens	Organic wastes
Industry	Specific waste depending of the specific production

[25] As introduced earlier in the manual

Sometimes, information is organized in terms of location: where we can find most of the interested materials, or where it is easier or less costly to collect it separately.

c) Select Effective Schemes that Fit Locally

In order to reintroduce the discussion about the selection of adequate and effective municipal waste segregation systems that better fit with the local conditions and characteristics of consumers, it is worthy to introduce the potential waste segregation schemes at different levels and evaluate their applicability in the local Albanian context.
The following elements are taken into consideration when identifying and evaluating adequate waste separation schemes:

- Project/scheme size
- Number of waste streams
- Set appropriate methodology that fit locally

Project/ scheme size

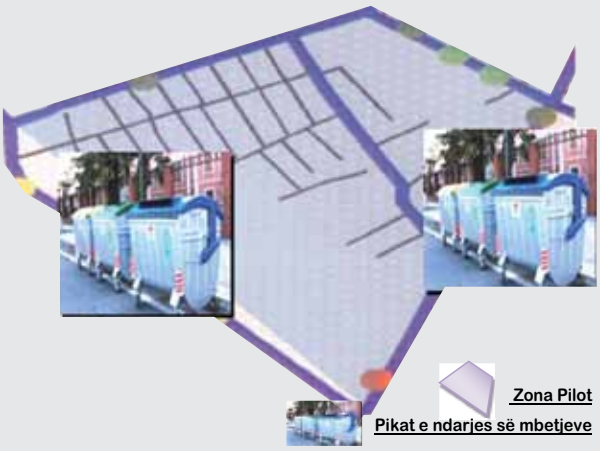
The experiences already introduced in some Albanian cities have shown that immediate implementations of large scale projects have resulted in confusion and failure to achieve the project objectives.

There are several factors affecting the implementation success of large-scale projects on waste separation, where the most important ones are related to the lack of public awareness, poor organization and the lack of experience by the service providers.

Recommendation 22: Initial steps to establish a waste separation scheme

- It is better to start with small-scale projects, as it is easier to compare and evaluate the programs and techniques, as well as to gain the experience, necessary to develop a large-scale program;
- Select a pilot area, which may contain a small group of consumers (some households or business units), any street or group of streets (e.g., commercial streets), or a single or more neighborhoods in the city (targeting typical households);
- Business plans, feasibility studies or cost-benefit analyses are recommended before undertaking any major initiatives or programs at a larger scale on waste separation.

Application of waste separation pilot schemes in the city area ,Municipality of Lezha (2011) and Municipality of Shkodra (2011)



Waste segregation project in the city of Shkodra:

For example, municipality of Shkodra have implemented a waste segregation scheme in a neighborhood
(Rr.Mark Lula) targeting 200 households.

Waste Segregation scheme in Municipality of Lezha: 46 % of households separate their waste at source, in two streams: in organic (NRC) and inorganic (RC); Recyclable waste are removed from appropriate containers and deposited in RWSC: **three times/week;**

Number of waste streams

Usually local authorities and recycling industries are interested in more than a single waste stream. But the separation of a waste stream into several components would bring more confusion and poor results.

Although the separation of municipal waste into two main streams: in a 2-containers scheme, would represent the best option. If there is a major interest for specific waste streams (certain dry materials), it is recommended that the *secondary system of waste separation*[26] *is used*.

Several combinations may vary on the desired waste streams to be separated, and the most commonly used are:

- Separation of recycling from non-recycling materials, or
- Wet fraction (organics) from dry materials (e.g. paper, plastics, glass, etc.).

[26] Includes drop-off facilities, recycling stations, etc;

Recommendation 23: Preferable waste separation system (number of waste stream)

There are cases when local authorities are very interested in more than two waste streams. Although, for instance, if a local authority has planned that apart from recycling and landfilling practices, it will undertake biologic treatment of municipal waste (through composting or other biological treatment methods), then the 3-bin system is recommended, unless the 2-bin system remains preferable.

Set appropriate methodology that fits locally

At this stage, it is important to assess and decide whether to introduce effective waste separation schemes, and if so, where? Are primary waste separation schemes sufficient for taking out valuable/required fractions from the waste stream?

(iv) Primary Waste Separation Schemes (PWSS) consist of the primary waste infrastructure and the target material sorting out, such as valuable (recyclable) or problematic (hazardous) materials, from municipal waste stream. The most used PWSS are a*t-source waste separation* which consists of collection of sorted materials directly at the source (houses and/or business units) and o*n the side (or common) separation*, which represents the collection of sorted materials at the public waste collection points located near side-roads, crossroads, within neighborhoods or near commercial centers. In order to define the most appropriate segregation scheme in a local context, both schemes at primary level should be introduced and assessed during the planning process.

- **At-source waste separation**: The waste containers (sometimes are used plastic bags) can be installed within individual houses or near (at the entrance of) condominium blocks. It is an expensive solution, which requires a strong public partnership in order for it to be feasible and effective. It also requires partnerships with businesses and the recycling industry to share costs and make it effective an effective undertaking. In terms of organization it seems complicated and complex (long distances to go house-by-house, variable time-line and frequency for collection including specific consideration about routing); it needs social acceptance and cooperation from the public (they have to sort out the required waste fractions and bring out containers or plastic bags in accordance with the schedule).

- At-source schemes seem[27] very effective at a rural and sub-urban residential level, and can be very effectively used in the commercial and industry sector (e.g. in the region of Tirana and Durres, recycling companies are now collecting recycling materials -plastic and paper) directly from the industry located nearby.
- Good public awareness, enforcement measures and financial initiatives are essential drivers for the functioning of these schemes.

[27] They are not officially introduced yet in Albania expect any temporary small pilot project in Tirana, Shkodra, etc

At-source collection in Commune of Velipoja (Co-PLAN, 2011)

Target group: 100 buildings; 100 individual collection points
(2 colored containers of 50-liter);
Service: 3-times a week for organic fraction and 1-2 times a week for recyclables;

Benefits: Offer waste service in an area with narrow roads; Prepare for recycling 20% of current waste stream;

Limitations: Increase with 4.5% total annual cost; lack of awareness knowledge; temporary residency

The north villas area in the Beach area of Commune of Velipoja

vehicle collection route

at-source waste separation point

- **On the side segregation schemes:** The placement of waste separation system/points near side-roads (common collection) remains a popular scheme for residential urban areas when waste is collected at common/public collection points. These schemes are less complicated, and less expensive than the first option; however they are not as effective as at-source schemes. Even if current initiatives in Albania have resulted not very successful so far, it still remains the most practical one used at a city level. For as long as citizens and businesses are familiar with this type of system, they can easily fit with its changes.

  These schemes are also financially affordable for the municipal budget, but still require extensive public awareness, knowledge and education. Moreover, these schemes are in line with national waste policy recommendations for municipal waste areas.

Implementation of the 3-bins system in the Municpality of Fier (Co-PLAN, 2010)

Target group: Business units, households living near main streets and at pilot neighborhood area, plus 8 schools;

Pilot area: Main roads, 8 schools, one neighborhood;
Service provider: Municipal cleaning enterprise of city of Fier;
Infrastructure: 35 common separation points (105 colored containers)

Collection and organization: daily for organic waste (Green containers) and residue waste (grey cont), and 3 times a week for recyclables (blue containers)

(i) Secondary System of Waste Separation

Stations or recycling centers, may serve as complementary to the primary segregation system of recycling materials (acceptance, temporary storage and further separation). For example, the establishment of recycling centers takes on special importance in remote areas or small towns (e.g. city of Fushe- Arrez or city of Puka). Therefore to ensure storage of recyclable materials until an acceptable amount is reached to make it economically feasible for their transportation and sale at regional recycling markets. These facilities can be also helpful to deposit and separate a wide spectrum of special wastes (household's hazard waste, voluminous waste or other kind of wastes).

Recommendation 24: The location of the secondary waste separation facilities

International practices show that the closer to the populated areas the recycling centers are, the higher the separation rate is. This would allow the local authorities to reduce the cost of collection and transportation, stimulate the functioning of other *collection schemes* or *on-call schemes*, and at the same time encourage the community and the businesses to bring their recycling materials directly to these centers.

It is recommended that secondary waste separation systems are built within or near populated areas, in the periphery of the cities.

Currently there are some local initiatives/projects supported by foreign donors/programs[28] to build local recycling facilities for separate collection of recycling activities. The main concerns to address are: firstly how to make them effective and helpful to the primary segregation system and to the market needs (ensure desired quality and quantity of recycling materials), and secondly how to ensure effective management and financing of their operation.

For as long as local governments are still unprepared, inexperienced and have financing insufficiency, and as far as there are good private experiences in this sector and a growing interest for the recycling business to be in, the privatization or active involvement of private sector is required.

Recommendation 25: Management of the recycling centers

Therefore, it is highly recommended that these recycling stations be managed by private entrepreneurships or public-private partnerships, with the proactive participation of the recycling industry.

[28] Only during "dldp phase-2" has been financed the construction of two recycling facilities in City of Lezha and Commune of Dajç, Lezha

Implementation of a recycling center in Municipality of Fier (Co-PLAN, 2010)	
Target waste: Segregated waste coming from a 3-containers system including separated waste from schools, as well as from other sources; **Location:** Municipality of Fier Dumpsite; **Service provider:** Municipal cleaning enterprise of the city of Fier; Roma volunteers, Private enterprise; **Waste streams:** waste is accepted and stored in 4 different streams: (1)paper, (2)plastic films and rigid plastic, (3)metals, (4) as well as in several smaller components like glass, textiles, batteries, etc.	

It is important to take account of an informal activity[29] currently very popular and spread among Albanian cities, which consists of waste segregation by digging through containers or into local disposal sites in order to sell them as recycling materials. In fact these informal activities are causing several problems for the waste collection schemes in the cities, in part accounting for the bad image of the city itself. Therefore, on the one side it is important to take such informal activities off the road, and on the other side this informal sector can be supported with finding optional ways for gathering recycling materials.

The objective is to bring them within municipal schemes of waste separation until the entire recycling sector is formalized. The measures proposed on this subject consist of formalizing their activity, establishing micro-enterprises, and then providing economic assistance to them.

Recommendation 26: Immediate measures on supporting informal sector include

- Formalize their activities and assign appropriate fields of operations (to set rules and standards; control and enforce them; assign specific places);
- Provide direct support for their activity (improvement of working conditions and introduce health & protective measures (equipment and clothes, etc), education and on-the-job assistance including financial support.

Regulation of the informal sector, Municipality of Korça (2005-2008)

A good example is introduced in the city of Korça in recent years, where the informal waste sector (Roma people) has been formalized (officially registered and considered a partner for local authorities); and has been made available a site and useful separation infrastructure (e.g. compaction and bailing equipment)

[29] Mainly managed by Roma people

(ii) Material Recovery System

The establishment of a mechanic systems or a Material Recovery Facility (MRF) of waste separation is also seen as useful, but at the same time as a very expensive option for waste management at local level.

These facilities may serve for two main reasons:

- To improve the separation of materials which will be processed separately;
- To prepare waste stream for the future treatments.

The development of such facilities is particularly encouraged when the industry is interested for certain waste components, requiring mechanical and carefully manual separation. For instance, there are a number of recycling establishments and facilities built along the region Tiranë-Durrës, where mechanical recycling waste processing systems have been installed, mainly operating with imported materials and low input from the internal market.

Although the installation of a waste mechanical separation plant might be a future alternative, the installation of simple waste plants for manual separation might result very efficient and supportive to the new waste differential deposit pilot schemes;

An important objective, in turn a challenge for the local authorities in Albania, should be to establish sustainable partnerships with the recycling industry, to involve them in their waste segregation schemes. For example, a form of partnership would be to allocate to the recycling industry municipal facilities to be used as recycling stations, or may be to assign long-term waste collection contracts.

Figure 6 Example of Recycling facility in Hercegnovi, Montenegro and in Landfill of Bushat

Establishment of the Recyclable Waste Separation Center (RWSC) City of of Lezha)[30] (URI, 2011)

The RWSC is a recyclable waste separation center, which works as a complimentary operation of differentiated Waste Collection system in the city.

The Establishment: An object with a surface of 500 m^2 was designed by the municipality for the construction of the RWSC. This was preceeded by the preparation of a feasibility study for the construction/waste market, and a reconstruction project for the object and for the operation scheme.
Following the discussion of the legal options concerning this service management, the Municipality opted for renting the facility to a specialised private entity through emphyteusis, which would provide the service of separation and selection of the recyclable wastes.
The building requires reconstruction and installation of the necessary equipment for the waste separation, before the RWSC becomes functional.

The functioning of the scheme (Separation and storage processes): Recyclable wastes will be collected in a differentiated manner and transported to RWSC by the contracted entrepreneur (for cleaning, waste collection and disposal). The service covers one of three zones and will expand throughout the city in the years to come with the implementation of the WMP. The cost of management (additional investment, operation and maintenance) will be covered by a private entity that manages the service. Entry and exit of waste in the center will be evidenced and recorded for each day.

Benefits of the Municipality from the RWSC: during the first year, the RWSC is expected to separate about 1516 tons of recyclable waste (RC) of paper, plastic, glass and metal. The use of recyclables will reduce the quantity and volume of waste destined for treatment at the landfill site of Bushat. During the first year, the amount of waste in this destination is reduced by 17%.
In financial terms, the benefits from the operation of RWSC can be summarised as follows:

i. The annual income of the emphyteusis renting value is paid by the private operator of RWSC. The municipality's income will increase annually by 1,687,650 ALL;
ii. The cost of transportation of waste to the landfill is reduced, due to changed destination of recyclable waste, and
iii. The cost of waste treatment in landfill of Bushat is also reduced.

3.3 Waste Treatment

There are considerable arguments in favour of, or against local initiatives for waste minimization and more specifically on the recycling and composting of waste. These methods should be analyzed in the local context to include any process from the overall assessment through to its application on the ground.

[30] Under the Project "Waste Management Plan (WMP) in Municipality of Lezha, co-funded by Dutch Embassy/dldp/ Municipality of Lezha

The demand for waste minimization is not limited only to the fulfillment of national objectives; but it is seen also as the only way to reduce the financial burden caused by increase of the disposal cost.

According to the NWMP, starting from 2015 or may be earlier, LGUs will not be allowed to use their uncontrolled local dumpsite and the future option will be disposal in a regional landfill. These restrictions on final waste disposal will push local authorities to find other solutions to minimize waste weight such as recycling and composting rather than to bring it to a regional landfill. The main barrier on starting recycling and composting is related to the additional cost the local authorities must face to establish a waste segregation system.

Hence, waste collection and transportation cost will rise by 25-30 % only by shifting from common waste collection system to a 3-bin system.[31]

3.3.1 Recycling

a) The Significance of Recycling

Recycling is a fundamental part of waste minimization. Although, recycling alone cannot solve a community's communal SWM problem, it can divert a significant portion of waste stream from transportation and disposal in landfill. Significant developments and growing interest for recycling materials, mostly for metals and plastics, and less for paper, cardboard, glass, etc., have been identified lately in most of the big cities in Albania. At a strategic level, referring to the national policy on waste, it will require a coordinated and comprehensive effort to achieve the recycling targets set by this policy and an active involvement and cooperation between central, regional and local stakeholders. Moreover, recycling can constitute a popular and attractive solution for the LGUs as long as they are made aware of its advantages, particularly financial ones, e.g. reduce waste treatment cost, and possibly make a financial profit by selling the recyclables.

Recommendation 27: Local activities to support/induce recycling

In line with national policy on waste, regional and local authorities should include within their regional and local plans the following activities:

- Designing and delivering local promotion campaigns;
- Piloting alternative collection regimes to identify those most appropriate for different types of neighbourhood, including schemes for collection of commercial wastes;
- Developing community recycling initiatives for specific waste streams, such as wood, construction and demolition wastes, paper, plastics, aluminium, etc., offering opportunities for local businesses;
- Promoting market development for recycled materials including development of new uses and markets for recycled products, and measures to improve the consistency of recycled quality and increase the volume of supplies available for reprocessing;
- Promoting the development of local markets for recycled materials to reduce the distance recyclables have to travel before reprocessing and providing local business and employment opportunities;
- Conduct household waste compositional analysis.

[31] LPSWMP of City of Fier" pp.71

b) How to Make it Work?

Recycling is not a process where local authorities can act alone; it needs the active involvement and participation of both the recycling industry and of the local community. The responsibility of local authorities is to create a favorable environment for the development of this sector locally; establish and promote separate collection schemes; encourage recycling business to invest and actively participate. It is the LGU's responsibility also to raise public awareness and education on waste prevention, reusing, recycling, composting, etc.

The idea is not only to introduce segregation and recycling schemes as an obligation to national policy, which can then be turned into organizational and financial barriers for local management; but to establish a number of cost-effective schemes which produce qualitative and quantitative materials in response to recycling industry. The following steps are recommended for achieving success on recycling objectives. External expertise is required to accomplish these steps and activities:

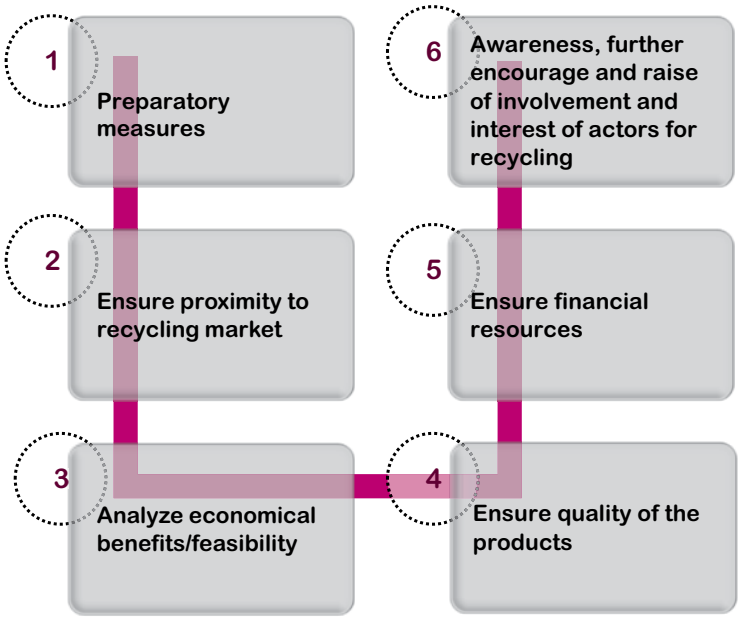


Figure 7 Steps to plan a Recycling Program

Preparatory measures

Define potential actors, valuable waste for the market and their origin sources: First, it is commendable to acquire broad information on the recycling actors and waste pickers operating in the city/region, and the current recyclables rates.

Therefore, the analysis of waste amount and composition will help to define and estimate valuable recycling quantities, and their generation sources. It is important to identify and start from the most important sources and the type of waste they produce.

Ensure proximity to recycling market

Proximity to the recycling market is an important indicator, which increases the involvement of recycling industries and businesses due to lower transportation costs. The most common questions are: Where are the markets?

Haulage distance to the markets; who will collect recyclables? Who will perform the sorting and baling of the recyclables, and where? How will the recyclables be transported and by whom?, What is the transportation cost?

The objective is not only to identify if recycling markets are close enough, and interested in the recycling materials the city can produce, but also to ensure a growing market interest.

Analyze economic benefits

The economic assessment of waste recycling is a challenging task as many of the environmental and social benefits and impacts of recycling are long-term and intangible, and, therefore, difficult to quantify.

The balance between benefits (including economic profits of selling recyclables or the saved cost of disposal), and the direct cost for separate collection and transportation of waste is an essential factor in favor of, or against the development of these activities on a large level. Recycling is a competitive business where prices paid for recyclables are subject to market fluctuation, supply and demand. If there is no market for the collected recyclables or if the public are not prepared to buy items made from recycled material, recycling will ultimately fail. It is important to critically evaluate any proposed large recycling scheme before an extensive and expensive program is initiated. A cost benefit analysis will need to be conducted to establish and weigh up both internal (internal to the operation) and external costs and benefits.

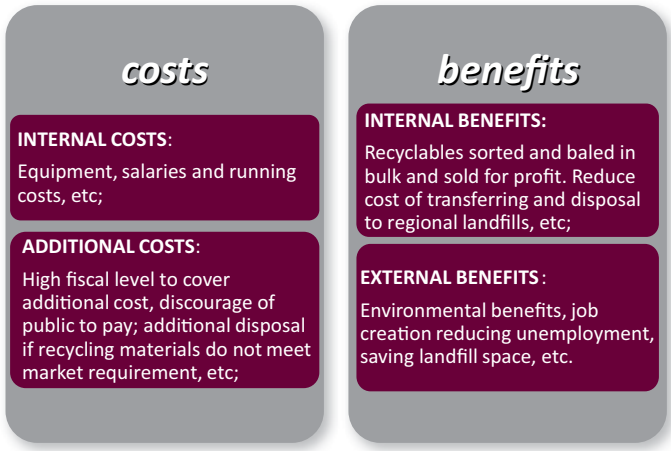


Figure 8: Cost and benefits from recycling activities

It is important that the costs are kept lower than the benefits so that a profit is made and the operation remains economically viable. Exception is made when recycling needs to be subsidized, in the event of environmental or other unquantifiable benefits or requirements.

Ensure quality of the products

Buyers of recovered materials will be interested in both the quantity and quality of your recyclables though it is worthy to consider:

- Aggregating sufficient quantities of recyclables is important to make their handling and transporting feasible;
- To address this consideration, local authorities should aim for the enlargement of the segregation schemes; and local collectors should establish temporary storage of recyclables till the quantity allows for their transportation to the final plant.

Quantity considerations

- The second key issue of selling recyclable materials is meeting the buyer's quality requirements. Quality refers to the extent to which the materials are pure, clean, consistent and contaminant-free, to ensure and preserve their value in the market.
- Awareness and education are important processes which should precede as well as follow the adequate segregation/separation schemes.

Quality considerations

Figure 9 Quality and quantity considerations

Secure financial resources

Even if it is supposed to be a cost-recovery activity, usually any recycling programs or projects need to be subsidized as some of the recycling benefits cannot be turned into economic profit.

It is important however for the local authorities to allocate appropriate local funds to ensure sustainable resourcing of the program. Despite external funding (governmental or donors sources), they have to plan local funding for the support of segregation schemes and facilities, promoting and awareness activities.

The Strategic Waste Fund

According to the NWMP in order to make progress in household waste recycling in Albania, a major increase in the public availability and promotion of both recycling sites and curbside recycling services will need to happen. The latter will be funded largely through the Government's Strategic Waste Fund. This means that local authorities have to prepare adequate projects/ programs and ask support from this strategic waste fund.

***Note**: The Government Strategic Waste Fund relates also to the establishment of waste infrastructure, as foreseen by National Strategy on Waste (Financial Support for Environmental Infrastructure).*

However, the involvement of external funding from recycling industry and business should ensure sustainability and success for local schemes on recycling. Encouragement and development of good private-public partnership are explored in detail further in this manual.

Public awareness, education promotion, and incentives

Further encouragement and involvement of interested stakeholders in recycling (the use of incentives, promotion, awareness and education) bring more success to the recycling program. The public has a right and responsibility to understand the full costs and liabilities of managing the waste they produce. In addition it will require additional economic and legal incentives, awareness and education efforts to support and raise the quality and quantity of the community involvement.

Recommendation 28: Economic tools/incentives to support recycling

A number of economic tools should be mentioned in relation to waste recycling, as these are important for support of waste recycling measures:

- Provision of economic incentives (e.g. lower waste tariffs) for households and businesses that are involved in segregation schemes or generate less waste;
- Introduction of full cost recovery for the waste generated by each waste generator (especially business and industry) to expose the waste generator to the *true* costs;
- Introduction of differentiated waste management treatment and disposal tariffs to encourage recycling and reuse of waste rather than landfilling.

Education and awareness community campaign (case of the Municipality of Lezha)[32]

A. Developing and implementing an educational program in schools focusing of the eduction of thestudents and also of their families, through means of knowledge dissemination.
(i) Dedicated educational sessions: students, parents and teachers of the six high schools and colleges benefited knowledge about the environment and environmental behavior, on the types of urban waste, waste composition, type of recyclable waste, new technological cycling scheme,
(ii) Screening of the 20 minutes movie *Life of a plastic bag* etc.
(ii)Discussion with the participants concerning the **booklet** *Differentiated waste collection in two streams and their recycling*, and distributing it to every student.

B. Organizing the cleaning days with community participation aimed not only at cleaning the city, but also at increasing the public awareness among community members, concerning the disposal of waste in the Municipality assigned points. In collaboration with the education departments, heads of schools, and a cleaning enterprise, four days of informal cleaning of waste collection were organized in different areas of the city. Approximately 400 students participated in these activities (11% of the overal total number of students).

Promotional tends were set up, disseminating promotional materials such as t-shirts, hats, gloves, masks, bags for waste collection and sharp sticks.

[32] Under the project "Participatory Plastic Clean-Up and Waste Management in the Municipality of Lezha 2011, URI/ Municpality of Lezha

C. Promotion of the waste separation at source for families: aimed the increasing the number of families who will separate the waste at source. Under the waste management plan, during the first year Zone A will be equipped with all the necessary containers for dividing the waste into two streams: recyclable and non recyclable:
(i) Placed in the city, bar-cafes etc., posters *For a plastic-free environment all starts from your house*;
(ii) Local Media (TV, newspapers, radios) became the main partner in this communication, through spots, special programs and accompanion in any specific activity of the project

D. Campaign results:
(i) About 50% of school students were informed about plastic wastes and their differentiation;
(ii) About 30% of families were informed by their childrens during the hours of educational information and cleaning days;
(iii) About 1700 booklets were distributed to students;
(iv)About 1 ton of waste were removed from informal settlements or 4.2% of the daily quantity of waste.

3.3.2 Composting

As recommended by the National Waste Plan, LGUs are encouraged to consider the implementation of the composting of selected components of the biodegradable (organic) waste stream.

Composting rarely generates profits on its own. However, when viewed as a component of an integrated solid waste management program, composting can provide economic benefits on a much larger scale. When considering the large quantities of organic matter generated in developing countries, governments can save money by reducing the amount of waste requiring collection, transport, and disposal. (Hoornweg, et Thomas, Otten 1999)

In Albania, composting represents an economical and environmental waste treatment method which can divert up to 50-60% of the urban waste stream from land-filling.

As facts show, there are no local or private composting facilities established so far in Albania. Local authorities have had no interest in composting, for as long as they have had a cheaper alternative to deal with their waste - free drop-off on their local dumpsites or into irrigation channels, rivers banks, etc. Further restrictions on waste disposal should stimulate local interest in composting mainly in rural and sub-urban areas.

Informal composting initiatives have been reported however, by a number of residents living in remote communes, who use organic waste for animal food, or other purposes.

In the meantime, the demand for organic fertilizer is increasingly growing, as in the case of the agricultural/arboricultural sector. For as long as the organic fraction is separately collected, it is likely that most of this material will be brought to composting facilities in order to produce products suitable for use as soil improving agent.

A number of methodologies have been developed internationally, yet home composting and centralized composting (on a community, city or regional level), will constitute two of the most potential and feasible methods in the future for their simplicity and low costs involved.

Recommendation 29: Regional Approach for the construction of composting plant

A city or regional composting plant is only recommended on a sub-regional/regional level, namely municipalities and joint partnerships of several communes.

In the case of a single commune, an alternative can be to encourage farmers to develop local communal composting at home or on a neighborhood level.

Home composting

In-house composting or home composting represents one of the most preferable composting methods especially on a rural and suburban level, because of the space it requires, and dedicated commitment.

Home composting is less expensive and more efficient than transferring organic wastes to a landfill, or even a centralized composting facility. It is environmentally sound, can be done almost anywhere, and enables householders to substantially reduce their waste. Home composting is neither a difficult nor a time consuming process.

The windrow composting is simple and has a very low cost compared to other treatment methods, and can be used by farmers, cities, and waste processing companies.
The cost of windrow composting can range between 10–30 Euro[14] per input tone including capital, operation and maintenance expenses.

The speed at which composting occurs depends on the types of materials you add to the pile, and the amount of time you are willing to dedicate to composting. Based on the methodology, there are two ways to perform home composting:

Passive composting bin	Active composting bin:
• It is one of the easiest ways to compost since no labor is required other than placing wastes in a bin and harvesting the compost from the bottom of the pile about 8 to 12 months later.	• The pile is periodically turned or moved into the next bin, which supplies oxygen to the organisms allowing them to break down the wastes quickly. Weekly aeration can result in finished compost in less than two months.

The initial investment for setting up a 1- bin-composting place costs nearly 40-60 Euros.[33]

[33] IBRD/World Bank, 2000, Strategic Planning Guide for Municipal Solid Waste Management

Potential solution for rural community- Home composting in the Commune of Shenkoll[34]

Target group: 20 families

Pilot area: Rural neighborhood;

Service provider: Commune and inhabitants

Infrastructure: Wooden composting containers (1.5mx1,5mx1.5m)
Approximate Cost: 800-1000 Euros[35]
First steps: Guidelines and awareness for selected pilot families.

Community or local composting

Community or local (centralized) composting represents a local or regional alternative to composting. Community composting, which is based on the 'windrow' method, is both the simplest and cheapest composting method, which might be appropriate in Albanian local context.

It is a slow, large-scale method used to produce compost. It can be used to process yard waste, food, paper, and sewage sludge. It is difficult to obtain a generally applicable capital and operating cost for open windrow composting, since the composting process and the developed compost markets are usually site specific.

The windrow composting is simple and has a very low cost compared to other treatment methods, and can be used by farmers, cities, and waste processing companies.
The cost of windrow composting can range between 10–30 Euro[36] per input tone including capital, operation and maintenance expenses.

Producing a good quality composting material, which can then be marketed at a good price, can minimize the cost of composting. This would make composting a more competitive alternative to land-filling (cheaper than the cost of transport and disposal at e.g. landfill of Bushat).

Potential solution for a community composting- Evaluation under the LSWMP of the Municipality of Puka (Co-PLAN, 2011)

The windrow composting on a community or local level could be a favorable option to deal with urban waste for remote urban areas like the city of Puka, the city of Fushe-Arrez, and all communes nearby.	The option of disposal at the landfill of Bushat will require extensive expenses for their local budget from 2000-2400 ALL/ton (transport and disposal fee). The composting alternative[37] is significantly cheaper than the land-fill alternative, for as long as its cost ranges from 1400-1600 ALL/ton, without taking into account the economic benefits from selling the compost.

[34] Case study developed during coaching sessions, under dldp-2 program
[35] Roughly estimation of the investments cost for the case study of the Commune of Shenkoll
[36] IBRD/ WORLD BANK(1999), Composting and It's Applicability in Developing Countries
[37] A Plant capacity up to 5000 tones/year

Figure 10: Various auxiliary equipments are normally used, e.g. grinders, rotating screens, mixers, windrow turners and front-end loaders

The planning and designing a community or local windrow composting should consider the following elements:

Location	Should be closer to residential areas to lower transportation costs
Specific conditions[38]	Can normally be situated under open air but sometimes can be covered for climate conditions or prevent nuisance from odor, moisture and temperature control, etc
Time required	The compost requires a period of 6 up to 8 months
Acceptance rate	Normally incoming material consists of approximately 90% of municipal waste stream
Method productivity	After composting, the mature compost constitutes only about 40% of the original mass due to the water evaporation. Of that, approximately 5-10% will be disposed in landfills (e.g. stones and imperfectly sorted materials).

3.3.3 Waste Disposal and Landfills

a) Current National Policy Approach on Landfills

Under the waste hierarchy[39], the first step is the transition from the waste deposit in illegal or uncontrolled collecting site, into a sanitary landfill that meets all required standards. This will require the construction of new landfills to ensure safe disposal of urban waste; in the meantime the environmental closure of local dumpsites is also required.

[38] See footnote 31

[39] Hierarchy of priorities for waste treatment

In line with the national policy[40], the following measures are strongly recommended for local authorities to be included at *Waste Area* plans[41] and local plans in order to ensure safe disposal of solid waste.

Recommendation 30: Specific measures and actions proposed on waste disposal

- Set-up a regional or inter-LGU association in charge of: site choice, project, realization, finance and management of a regional landfill;
- Organize a regional or inter-LGU solution for the transportation to the regional landfill.

b) Rehabilitation of Actual Dumpsites

Local authorities that have under their responsibility a local dumpsite, should pursue the adoption of existing legal requirements for *Rehabilitation of existing waste disposal sites*, where the existing landfills will be subjected to special management to ensure the following:

- A halt to any storage of waste in the site;
- Coverage with soil (inert waste from the construction activities than earth material) and ramming of the ground;
- Opening up of separate channels of rain, ground waters and for waste extract collection into isolated basins;
- Protection from fire;
- Entrance prohibition for unauthorized persons, and animals;
- Coverage with soil, and planting of the sections of the site no longer used as a dumpsite.

Recommendation 31: The closure of the local dumpsites

A local solution does not provide a medium or long-term solution as long as dumpsites' life expectancy is limited, and they will not fulfill technical requirements for a sanitary landfill. Local authorities should however, conduct feasibility studies for the environmental closure of the dumpsite in line with legal requirements in order to secure environmental protection of the sensitive areas and of human health.

c) Closing Actual Dumpsite and Illegal Dumping

One of the midterm objectives is to close all local dumpsites and to establish regional landfills and waste sorting facilities. The aim is for the entire waste stream to be managed professionally with minimal environmental impact.

[40] NWS and NWMP
[41] Regional plans: term defined in the NWS and NWMP

The closing of the dumpsites is a prerequisite for the success of the regional treatment plants. It is clear that the regional installation will not function if the possibility of using local dumpsites still exists. Therefore, the realization of regional treatment solutions will require the rehabilitation and closure of local disposal sites.

Actually, local authorities are facing increasing pressure and penalties from governmental agencies (e.g. Regional Environmental Agencies) for the poor conditions of these sites due to several insufficiencies and bad management over the years. On the other hand, they have insufficient funds to afford the gate fee per ton (e.g. landfill of Bushat).
Dumpsite closure and regional alternatives will require political support. Therefore, LGUs will have to allocate sufficient funds for the use of the regional treatment plants, and the organization of the transportation to these places.

Recommendation 32: The use of existing dumpsites for inert waste disposal

Some of the actual dumpsites, depending on the environmental context, can be transformed for receiving inert waste (earth and stones from construction activities). This could have the following interests:

- Offer a local, official and specific solution for the inert waste generated by the urban construction activities;
- Separate the heavy inert waste component from the urban waste stream (collection, transport and landfill);
- Use the inert waste and soils for the covering and rehabilitation of the existing dumpsites.

In order for the dumpsites to be transformed (to inert waste activities), the establishment of new rules and control measures are required. The rules must define: the obligation for the producer of inert waste to go to the disposal site, the price of this service, and the fines applying for any inappropriate use and illegal disposal of inert waste.

Based on the international experience in the region[42], it is estimated that the investments required for environmental closure and restoration measures of a local dumpsites vary from 34,000-78,000 Euro/ha to 260,000-360,000Euro/ha depending on the risk degree.

The closure of local dumpsites, and high cost of disposal at the regional landfill, will require more efforts to prevent illegal dumping. Uncontrolled dumping is a symptom of institutional weakness and if no changes happen soon, major risks for deterioration are to be expected.

Recommendation 33: The use of local rules and penalties

The establishment of clear and wide-ranging local regulation and penalties, and strengthening of the enforcement structures and procedures, remains for the time being the main solution.

[42] Karagiannidis, A. Antonopoulos, I, Tsatsarelis, T. (2000) “Statistical analysis and risk assessment of open dumps in the Hellenic coastal prefecture of Iaconia”

d) Waste Fire: a Dangerous Way

A common used technique to eliminate the urban and garden wastes is to incinerate those in the open air. It reduces volume and weight, producing smoke and gas. The smoke, apart from the bad odor, releases a variety of highly toxic pollutants, such as dioxins, which are extremely carcinogenic even in small proportion. Such practice, burning waste in open air should be discouraged and prevented from happening.

e) Sanitary Landfill Designation and Management

Selection of Construction site

It is important to remain realistic when determining landfill requirements in compliance with the Albanian context. Existing legal framework empowers local authorities to design the landfill site for the plant, even in the event the territory is located outside their administrative lines.

This will require the cooperation and approval of local authorities that administer the land, or even the authority's approval on both regional and national levels (for e.g. case of landfill of Bushat). Site selection is perhaps the most challenging obstacle to overcome in the development of a sanitary landfill. Opposition by local citizens excludes many potential sites.

Factors to be considered in evaluating potential sanitary landfill sites include:

- Available land area
- Haulage distance
- Soil conditions and topography
- Climate conditions
- Local presence of adequate and sufficient soil material for the technical needs of the landfill, like impervious layers, drainages and final cover
- Surface water hydrology
- Geological and hydro-geological conditions
- Local environnemental conditions, (e.g. noise, dust, odour, aesthetic)
- Public opposition
- Zoning requirements
- Historic buildings, wetlands, and protected lands, etc

There are some other factors to take into consideration about landfill location, e.g. proximity to roads or railway lines, land use or property issues, and regional development plans.

Moreover, as costs and ecology of landfills are strongly affected by economy of scale, regional landfills appear appropriate and advantageous if compared to local solutions.

Regional approach

In the context of a final decision on waste disposal, national policy appears keener on the construction of a regional landfill, rather than encouraging local solutions to manage integrated urban waste for the 20 years to come.

Landfills and economy of scale Assessment[43]

The capital costs and running costs of the landfill are related directly to the number of population for which are planned the amount of waste produced. Analyzing the chart below, the waste processing cost of a landfill that serves to the population of about 90.000 inhabitants is about 2-times higher than that of a planned landfill of 230.000 inhabitants.

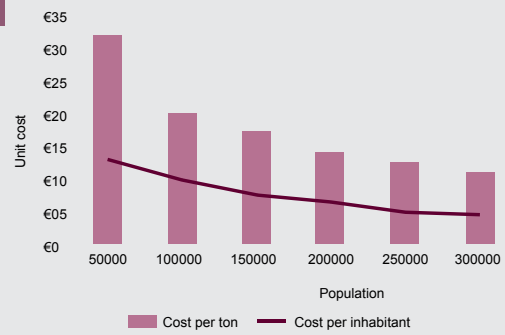


Figure 11: The variation of landfill cost from population

Local authorities should ensure and organize effective transportation to these landfills including the use of transfer stations. Final selection of disposal site is usually based on the results of a preliminary site survey, the results of engineering design and cost studies and an environmental impact assessment.

Technical standards for landfills

The sanitary Landfill will be constructed on the basis of the Albanian legal framework and technical standards for a modern landfill, provided by the EU Directive on landfills (Council Directive 1999/31/EC).

Very general technical elements of the landfill are the following:

- The landfill protective layer (geo membrane, mineral coating);
- Drainage layer, collection and treatment of leachate;
- Capture, burning and/or use of biogas;
- Control/ monitoring of the amount and quality of waste brought to landfill (weights, type, statistics);
- Pressing and compacting of waste (use of heavy technological machinery);
- Covering the waste;
- Rainwater management and stability of the whole landfill;
- Management of the earth material career.

[43] Co-Plan (2008) Përpunimi dhe Sistemimi i Mbetjeve të Ngurta Urbane - A Mundet Shqipëria të Përballojë Kostot e Menaxhimit Mjedisor të Mbetjeve të Ngurta Urbane

Indicators for assessing waste disposal, its related key environmental, heath and safety issues:

A. SIZE AND REMAINING LIFE SPAN OF SITE;
B. AMOUNTS OF WASTE DELIVERED DAILY;
C. SITE MANAGEMENT:

- Professional site manager with overall responsibility
- Trained and qualified operational staff
- Health and safety of workers
- Control and measurement of incoming waste
- Inspection and clearance
- Clear direction to the tipping face?
- Good access to the tipping face
- Supervised placement at the tipping face
- Working areas of operation in small, well-defined cells
- Compaction of waste
- Daily cover
- Communications at the site

3.4 Waste Management Scenarios

a) Summarizing of Technical Options into Scenarios

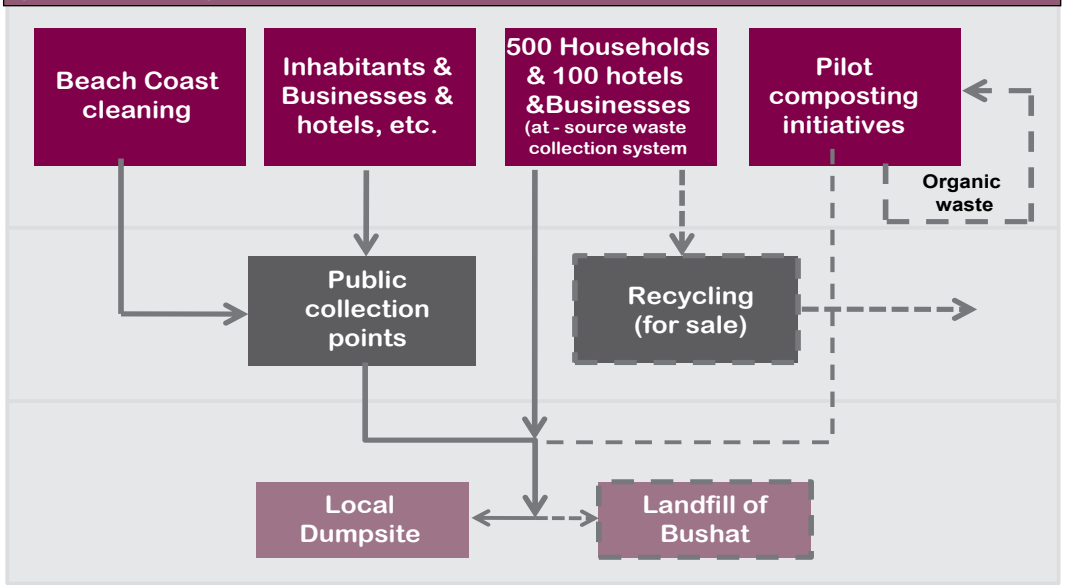
All the elements in a waste management chain (starting from waste collection and ending up to the final disposal of waste) are inter-related or come as a consequence of any of them. For instance, the choice of containers to receive the waste discharged from households is in relation with the choice of collection vehicle.

A choice of centralized treatment and disposal facilities to obtain *economy-of-scale* might imply the need for transfer stations. Introduction of segregation of waste *at-source* will require separate collection and transport and the sale of products as well.

b) Identification and Evaluation of Scenarios

In the framework of screening and evaluating of the potential options for each element of the waste management, while planning, we have to analyse several alternatives in terms of economic, feasibility, environmental and social acceptability aspects. Further, the aim is to view all the evaluated options at every stage of waste management chain inter-related and gathered in overall systems or so-called scenarios. The outputs and results of these scenarios are evaluated in terms of achieving local objectives in an effective and efficient way, both from an environmental and social perspective.

Illustration of the WM Scenario-2 of LSWMP of Commune of Velipoja, (Co-PLAN, 2011)



For each scenario the full operation costs and investments required are estimated, which will serve to compare their economic aspects in terms of overall assessment as well for planning cost-recovery policy and defining investments in the future.

The evaluation of scenarios will consist of the evaluation of options (methodologies, schemes, etc.) that are taken into consideration for every scenario, should it enable us to reach local objectives, and of the underlining advantages and disadvantages regarding feasibility, economic, environmental and social parameters.

The evaluation parameters of the scenario must be defined by the local authority, and can be based on the following criteria:

- Accordance to the national or local regulation;
- Hierarchy of priorities expressed by the population (streets clean, beach clean, image of the city, etc.);
- Hierarchy of priorities expressed by the authority: private solution, public solution, inter-LGU or local solution, long term vision, effect on economic development (Tourism, industry, commercial areas, markets), etc.;
- Annual cost, total cost per inhabitant per year, investment costs, etc.

3.5 Street Cleaning

a) Planning

Local authorities often provide a range of public cleaning services in association with waste collection. Street cleaning is another important public service, which is characterized by intensive labour force involvement, high expenses and crucial importance for the city cleanness. Within the cleaning services the following are included: mechanical and manual streets seeping, streets washing, cleanness maintenance of roads (pick up litters and rubbish) emptying of sidewalk-bins (dustbins), etc.

Street cleaning has strong relations with the waste collection system, as long as the waste produced by street cleaning must be integrated in waste collection. The coordination between waste collection and street cleaning must be clearly defined, such as: who is in charge of cleaning the waste collection points and when, or coordination of working schedules (e.g. Street cleaning should be done before we waste collection).

The following scheme introduces the main steps toward planning of an effective street cleaning services:

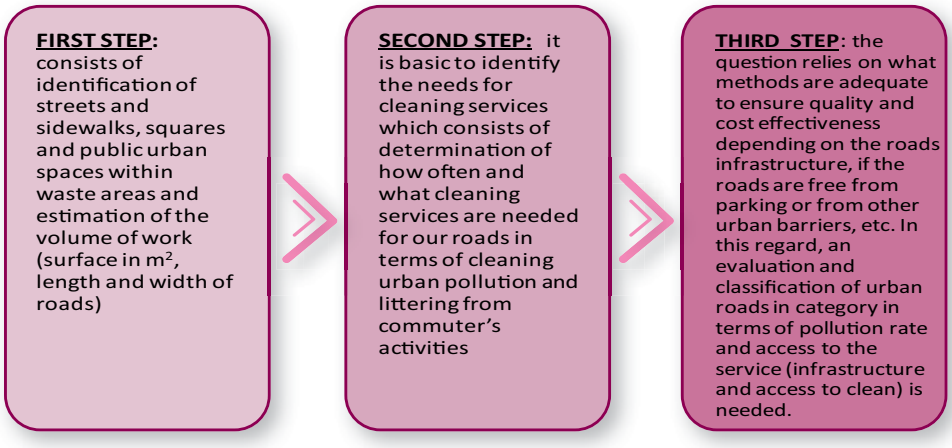


Figure 12: Main steps toward planning of effective cleaning services

Frequency requirements and classification systems should be determined by each municipality based on time and motion studies and site visits. Besides the frequency, the time of the service should be carefully defined to avoid traffic, parked vehicles and pedestrians, and to take in account the special activities (markets, pedestrian zones, etc.) and the waste collection. Night or early morning hours, particularly in non-residential areas, seem to be the most appropriate times

Frequency of streets cleaning is defined by level of littering or urban pollution, which are directly related to urban occupancy of roads and city commuter's behaviours regarding littering and pollution.

The following figure gives an example of how the city can classify streets on categories and determine required cleaning services:

FIRST CATEGORY:

(includes main roads: full of commercial units and dense pedestrian circulation); Daily sweeping service is required; (mechanical sweeping is favorable if roads are free of parking or harmonized), daily cleanness maintenance is required especially during peak hours; sidewalk bins' installment and daily cleaning of them, daily cleaning maintenance and washing service in summer season.

SECOND CATEGORY

(includes main roads with low commercial activity and low pedestrian circulation) streets sweeping about 3 times a week (mechanical is preferred), side bins placed rarely, washing service in summer time 3 times a week.

THIRD CATEGORY

(secondary roads and neighborhood roads within city quarters in good conditions) manual sweep 1-2 times a week;

FOURTH CATEGORY:

(peripheral roads and inner roads within city quarters but in poor infrastructure conditions: damaged, unpaved etc; cleaning service just once a week or in two weeks (sweeping or just littering collection).

Figure 13: Classification of streets into categories of cleaning services

b) Mechanical Versus Manual Sweeping Operation

For street sweeping and cleaning services both manual and mechanical methods are available.

Recommendation 34: The use of manual and mechanical methods

- Manual method presents the advantage of social employment and is more efficient in bad or unpaved roads, or in roads with parking.
- Mechanical method is very efficient and allows much better taking the dust out of the city and having cleaner streets. It is much more efficient on good roads, but also expensive.
- Mechanical and manual can be combined, per example cleaning manually the side-walk and mechanically the main roads and pedestrian zones

For the moment, the manual method seems to be more appropriate for the Albanian context. A strong argument against mechanical sweeping relies on the inappropriateness of road infrastructure of most of our cities, damaged roads and mostly blocked by unregulated parking lots. Secondly, the discussion about costs, which requires high capital and maintenance expenses sometimes not affordable for local budget on waste services. The cost of replacement of the brushes must be taken into account.

Concerning capital expenses, the cost of purchasing a technological sweeping machine alone may range from 40,000 Euro for a second-hand vehicle to 120,000 Euro for a new one.

Concerning operation costs, we can say that the mechanical cost varies from 0.4-0.6 ALL/m^2, while manual sweeping ranges from 0.2-0.4ALL/m^2.

If urban constraints/barriers are minimized, then we can analyse the advantages and disadvantages, as well as the associated usage costs as opposed to using manual sweepers. It has been proved that mechanical sweeping ensures a good quality service and can be even less expensive to run compared to manual service.

c) Required Number of Personnel

An important element of street cleaning planning is to determine the number of personnel required for a given daily volume of cleaning services. For this reason, it is very important to establish working rate for each workers: how much street meter or square meter each has to clean every day.

Working rate varies from 8000-12,000 m^2/person/day (8-hours shift) for first and second road categories, 16,000-20,000 m^2/person/day for the third and fourth categories and around 20,000-25,000 m^2/person/day for daily maintenance of cleanness**.**

d) How to Control and Improve Cleaning Performance

The local authorities' intention lies in the continuous improvement of the quality of the provided services as well as the increasing of the service coverage area. In spite of several urban barriers, as mentioned above and current financial constraints, local authorities try to provide best services in accordance with the local context.

Operational planning and defined task management are essential to the successful operation of this service, and to the good supervision, and effective operation.
It is of high importance to have a real and effective control of the quality, quantity and working time of the personal in charge of streets cleaning, based on clear working rate and orders.

International experience shows that it is generally worth to organize a systematic responsibility of controlling both the efficiency and quality of street cleaning, waste collection, and inert waste management. A specific person can be in charge of these tasks, equipped with a bicycle or a motorbike and a phone, so that he can inform permanently the management of the service of the situation in the streets. Moreover, in order to increase the efficiency and effectiveness of the cleaning service, other efforts are needed, namely: efforts to improve productivity at work, to modernise and replace the existing cleaning infrastructure.

The improvement of working conditions and safety interlaced with economical stimulants as e.g. better salaries, bonuses for extra working hours is a subject to think of.

Comprehensive awareness campaigns, establishment and enforcement of local rules are important instruments to define and explain the role of each in minimizing littering and urban pollution of open spaces resulting in lowered costs for the city. The following measures are recommended to be developed at local level:

- Prevention of littering and street cleanliness should have a main importance on awareness campaigns and education programs;
- Establish effective contracts and arrangements with commercial units clarify responsibilities and obligations;

- A local regulation on waste management will determine rules and penalties to avoid urban pollution from littering and will establish a task force or municipal waste inspectors to enforce these rules.

3.6 Inert and Construction & Demolition waste

a) Importance

The inert waste fraction of the Construction and Demolition (C&D) waste comprise of stones, soil, concrete, tile are left from the activities of construction, re-construction, repair and demolition of buildings, houses and other structures. Most of the local authorities don't organize public service of inert waste, resulting of collection of inert and bulky waste thrown informally close to urban waste collection points or in some illegal dumps within or out of the city area.

The local authorities claim that there is a large quantity of inert and bulky materials generated and thrown informally in open spaces, which causes a serious problem for the urban environment and additional costs for waste management. When put in the waste containers or trucks, the inert waste can cause damages due to their heavy and abrasive characteristics.

The presence of inert waste in the urban waste stream will increase strongly the cost of waste management, for transportation for its treatment (additional weight). These are the reasons why it is so important to organize separately the collection of inert waste.

Construction and demolition waste (CDW) is one of the heaviest and most voluminous waste streams generated in the EU. It accounts for approximately 25% - 30% of all waste generated in the EU[44].

According to the National Waste Strategy, the inert waste component consists of 7.2% of the municipal waste stream in Albania, while there are additional inert and CDW produced and collected separately from the municipal waste stream. For instance, according to the municipal sources[45] the amount of inert waste disposed separately in the landfill of Sharra in 2010 consisted of 21% of the total amount of waste disposed there.

There is a potential for the recycling and re-use of C&DW, since some of its components have certain resource value. In particular, there is a re-use market for aggregates derived from C&D waste in roads, drainage and other construction projects.

Nevertheless, if not separated at source or not brought separately, can contain small amounts of hazardous wastes, the mixture of which can pose particular risks to the environment and can hamper recycling.

[44] National Waste Strategy,
[45] Municipality of Tirana

b) Legal Framework and Responsibilities

Referring to the current legal framework on management of inert waste, the main rules are given by the regulation (No.1 dt.30.3.2007)[46], *On the treatment of construction/inert waste from its creations, transportation to neutralization*;

The scope of this regulation is to discipline the process of waste management in the field of construction by establishing concrete rules and requisites for all entities operating in the area of construction and treatment of waste generated by the construction activity (art. 1). This regulation applies to (a) the adoption and implementation of construction works, reconstruction or demolition of buildings; (b) the adoption and establishment of plants and areas for temporary storage of construction waste; (c) the handling and transportation of construction waste; (d) the functioning of plants and waste disposal areas for construction (art. 2).

Producer responsibility

Based on the Albanian legislation, the transportation of C&D waste directly to municipal sites assigned for this purpose is a responsibility of the producer.

Moreover, according to abovementioned regulation, any physical or legal person whose activity produces, possesses, transports and manages construction waste or performs preliminary processing, mixture or other processes that alters the nature or composition of these wastes, is obliged to keep, deposit, transport and deliver them for allocation in specified plants in accordance with the requirement of this regulation (art. 4-5). Each physical or legal person, prior to obtaining the construction or demolition permit, must deposit with the local government authority a financial guarantee amounting at least to 5% of the value of the building or other facility. Such deposit shall be returned back to the owner upon fulfillment of the criteria of this regulation by the developer (art. 10, 11).

Design specific sites for inert waste

The role of the local authorities in respect with the law is seen in that they are responsible authorities to designate the appropriate dumpsite for the construction waste as well as for receiving the guarantee payment made by the constructors when obtaining construction or demolition permit.

Recommendation 35: The determination of the sites for disposal of inert waste

Each commune and municipality must determine in their local plans and communicate specific sites for processing and depositing of the construction waste (art 8)

The plants for processing, storage or recycling of construction waste, among others, shall meet some essential conditions such as: to be equipped with an adequate system for collecting and drainage of surface water for preventing pollution of surface and underground waters; to determine an area where the un-selected remains will be deposited etc. (art. 9).

And finally, the local authorities can use their old dumpsite for disposal of inert waste or the use of inert waste to cover and rehabilitate the dumpsite.

[46] Issued by Ministry of Environment and Ministry of Public Works & Regulation

Establish rules for inert waste management at local level

Each local authority should implement all national rules and obligations at a local level through establishing local regulation on management of inert waste or municipal solid waste. This document will facilitate the implementation of national requirements on local level.

Recommendation 36: Financing the management of inert waste

Local authorities should establish a tax or tariff on the inert waste (or on the constructions or demolition producing waste) in order to finance the work of control, the operation on the elimination site, as well as the operations of elimination of *black points* of inert waste inside the city.

Additionally, local authorities should define and apply fines for owner or companies having inadequate activities related to inert waste elimination.

c) Technical Solution

It is important that the local authorities ensure a solution for separate collection of inert waste, safe storage and environmental treatment of inert waste aiming for its reuse, recycling, or any other methods. Even if the collection and transportation of inert waste is a producer responsibility, and is primarily the task of the construction companies, the city or commune should provide – often by means of payment - appropriate service and establish infrastructure for collection of inert waste originated from community (families) and safe storage toward their final treatment.

For this purpose it is recommended that the local authority should offer a solution in organizing their collection and their reception – against payment - based on the national rules and regulations and should charge a fair and direct fee for their management costs.

Basic collection schemes:

- ***Bring scheme*** entails people bringing their waste to collection stations, and *call schemes* which rely on citizens contacting the responsible authorities or companies when they have inert waste or bulky waste to give away;
- ***Drop-off scheme****:* where local authorities or the waste companies contracted by the vendors provide drop-off places (collection points within city boundaries) to be used by community which are regularly emptied out by company itself.

Both schemes are effective and feasible waste collection alternatives at the local level. Local authorities should primarily aim for the first scheme, which is likely to prove much cheaper and easier for the service provider to implement. The latter will need active public collaboration to bring inert waste to the local sites. Moreover, the application of first scheme will enable the local authorities to link the cost of inert waste collection and its treatments to direct charges for *calls* or *gate fee*.

However, referring to the existing practices of inert waste collection, current awareness level of public and poor enforcement situation of local rules (if exist), would make it harder for local authorities and service provider to apply the *bring scheme* right-away. Therefore, *drop-off*

schemes may result favorable in the beginning until authorities are able to control urban pollution and raise environmental consciousness of the public.

It is to be mentioned that the normal urban waste equipment (containers and trucks) are not fit for the evacuation of the inert waste. Their characteristics need specific equipment coming from the construction industry. Municipalities have to decide if they want to buy this equipment or to organize the service through private companies. This last solution is normally more efficient.


Figure 14 Inert collection and local collection points

d) Control, Monitoring and Enforcement Measure:

The local authority obligations rely on controlling urban pollution from these materials; assign specific sites for their disposal. At the outset, local authorities should control abusive disposal of these materials in public space or closed to urban collection points. The latter can be achieved by defining clear rules and fines, communicate with community, and undertaking effective enforcement measures (engaging municipal police or urban inspectors and establish effective procedures for fines collection).

e) Encouragement of Recycling Industry:

Most materials can be used many times before they are disposed of, or recycled. Some examples of C&D materials, which can be reused or recycled, are shown in following table:

Waste worth-segregating for re-use and recycling[47]		
C&D waste	**Treatment**	**Uses and destination for the recovered materials**
Concrete	Recycle	Aggregate in roads, fill or new concrete
Blacktop	Recycle	Bound layer of roads/ bulk fill; paving of compounds; trial paths
Excavation Spoil: Topsoil	reuse	Landscaping
Timber	Reuse/ recycle	Shuttering/ hoarding; chipboard
Metals	Reuse/ recycle	Smelt
Tiles, blocks, bricks, clay, architectural features	reuse	
Packaging& plastics	Reuse/recycle	Pallets
Oil, paints& chemicals	Reuse	

[47] FAS and NDP,(2002), “Construction and demolition waste management- Handbook”,

The involvement of the private sector should be seen as a priority to set the system or to improve it. Involvement of the private sector, through concession or public private partnership shall be encouraged as a mechanism for the provision of an economically optimal solution that shall also be acceptable from environmental point of view. Some alternatives to involve private sector includes rent or concession of local drop-off centers, or legal confers the right to collect valuable inert waste directly at the source of generation.

Typical instruments that can be used to stimulate markets:

- Restrictions or bans on certain materials for landfill (gate fee, taxes, local rules, etc);
- Environmental or planning controls on landfill of C&DW;
- Subsidies for recycling processes and businesses;
- Positive waste planning measures – requirements to consider;
- C&DW recycling capacity under regional waste management plans;
- Education & Training;
- The use of recycled aggregates in public projects, i.e. local government procurement policy;
- The development of recycled products that can substitute for natural raw materials to the greatest possible extent;
- Local planning authorities to require developers to submit an integrated demolition and C&DW management plan as part of their planning application, which could be judged against its ability to deliver a reasonable level of recovery, either on-site or off-site.

3.7 Maintenance

a) Importance of Maintenance of Collection Vehicles

Waste collection vehicles are subjected to more '*hardship*' than other vehicles are, because of the *Stop and Go* activities and of the abrasion effect of waste. Most semi-automated and fully automated waste collection vehicles have complex hydraulic systems that require more maintenance than manual collection equipment. Specific schedules of preventative maintenance and proper garaging facilities to undertake both routine maintenance and repair work can contribute substantially to increasing long term vehicle productivity. For hygienic reasons as well as for the durability of the equipment, the collection vehicles must be cleaned washed every day. The possibility of the municipality undertaking small repairs and contracting large works to a private contractor should also be evaluated.

International experience shows that for solid waste management services in populations in excess of 300,000 inhabitants, it might prove economical to develop a specialized workshop facility for the municipality (possibly contracting out the facility to the private sector).

Garages and service centers carry out a number of operations and processes that have the potential to damage the environment. These include cleaning of vehicles, the storage, use and disposal of polluting liquids such as oils, paints, solvents, antifreeze and other coolant additives, brake fluids and solid waste such as oil filters, exhaust systems, batteries and tires. Care should be taken in handling of waste materials such as antifreeze, batteries and battery acid, solvents and oil to avoid contamination of surface water drains.

b) Maintenance Procedure

Every effort should be made to standardize components of the fleet for maximum parts interchange without necessarily standardizing the entire fleet.

International experience shows that maintenance usually amounts to between 10% to 20% of the total annual cost of owning and operating collection vehicles.[48]

Recommendation 37: Appropriate operation and maintenance measures for trucks

- ***Set clear responsibility to drivers*** (not more than one or two persons) who should be encouraged to be responsible and look after his vehicle; the driver should also ensure a daily report of the operation of the vehicle: time, tour, km, consumption, events, etc;
- ***Ensuring safe operation*** through guaranteeing that operator's certificate and vehicles test certificates are up to date; to review vehicle standardization, etc;
- ***Ensure routine and preventive maintenance regimes****:* which can improve safety and reduce business losses. Regular, routine, scheduled cleaning, lubrication, examination and maintenance schedules are important;
- ***Ensure maintenance services on cleaning contracts:*** especially when vehicles and equipment are owned by the municipality or commune;
- ***Keep the maintenance and consumption record registers****: e*ach vehicle should have an individual daily and maintenance record (tour, record faults, consumption, time, km of operation, maintenance, repair, accident, event, etc;
- ***Ensure proper spare parts on time****: a*dequate stores control, stocking of spares (engines, transmissions, axles, etc.) or effective contracts: are essential measures for reducing down time. Keeping adequate spares allows defective parts to be replaced quickly, and is a major way of reducing downtime.

c) Why it is Maintenance of Containers Important?

The condition of the containers is a very important factor impacting the effectiveness, costs and efficiency of the entire waste collection service. When the emptying cycle does not work properly, because a container or the wheels are warped, the operation is delayed or blocked, requiring more personnel and vehicles. In addition it may inflict other costly consequences such as e.g., repair of vehicle or repair of container itself.

As in cases of burns of containers, where deformation of containers or the damage of the covers, wheels or pedals, may cause inappropriateness from its full technical operation, hygienic or aesthetic conditions.

d) Maintenance and Repair Measures

Routine planned examinations of container stock in service should be used to identify containers that are in need of repair or replacement. Repairs and maintenance of containers should make use of parts and materials specified in the manufacturer's instructions and are in accordance with the original specification. All the containers used shall be kept clean, in a good technical condition and be painted in the same color. The technical and financial responsibility for the repair of the containers must be well defined and integrated in the budget in order to create the conditions of the sustainability of the entire system.

Arrangements should be made for prompt reporting and replacement of containers that have been identified as unacceptably damaged or faulty. Usually, these arrangements are part of the main service contracts but there are cases when specialized service is required.

[48] IBRD/ WORLD BANK(1999), Composting and It's Applicability in Developing Countries

4 FINANCIAL PLANNING

The financial management of local administration is an important part of waste management planning on a local level. This section of the manual provides useful guidelines and recommendations concerning the financial management of local waste issues, such as cost estimation and its reflection into the local budget, and ways to establish effective local policy on cost recovery.

4.1 Current and Future Local Financing of WM

Every year, all municipalities and communes in Albania, foresee local funds to cover the waste services under their administration, which usually consists of 5 to 20%[49]of their total annual budget. The following[50]chart presents (in percentage) the ratio of the budget allocated for cleaning compared to the total municipal budget. Although most of municipalities and communes in the region of Shkodra and Lezha, similarly to nation-wide held views state that waste management is an important local priority, they admit that the budget they allocate for waste services is insufficient.

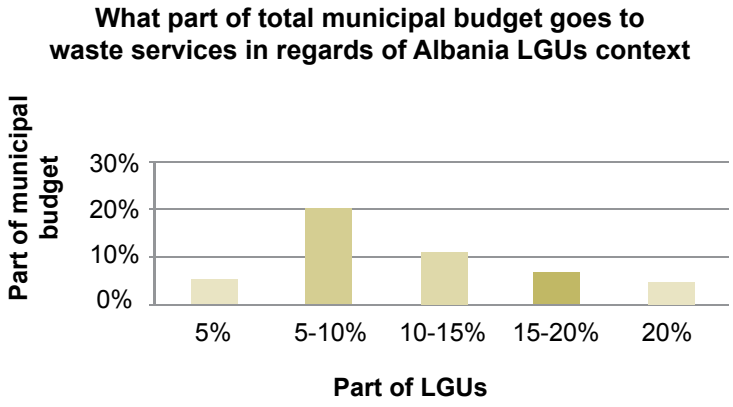


Figure 15: Part of the municipal budgets which goes for waste services in Albanian

In most developing countries including Albania, about 80-95% of the solid waste management funds are attributed to collection and public cleansing. On the other hand, in developed countries, about 50-70% of the solid waste management funds are attributable to waste processing and treatment, including environmental costs. This comes as a result of local authorities in Albania failing to allocate sufficient funds to waste treatment processes as they still make use of existing local dumpsite lacking any standards.
Most of the financial system is based on a subsidized approach as LGUs have failed until now to link the cost of waste management with revenue system and *producer responsibility* concept.

The experiences in Albania and abroad show that disposal costs will increase as local authorities are required to shift their disposal method, and bring their waste to a regional sanitary landfill. This will require that local authorities allocate additional funds to cover the cost of transportation and waste disposal at regional landfill.
In addition, they will also need to modernize their collection system towards a segregation collection system, which will increase their waste management cost. Considering the increased costs, local authorities will have to find ways to resource their budget to ensure the waste management functioning sustainability. This issue will be explored later in following section of this manual - *strategy on cost recovery*.

[49] Co-Plan, 2010, 'Politika e Mbulimit te Kostos ne Sherbimin e Manaxhimit te Mbetjeve te Ngurta Urbane'

[50] Co-Plan, 2010, 'Politika e Mbulimit te Kostos ne Sherbimin e Manaxhimit te Mbetjeve te Ngurta Urbane'

4.2 Overall Waste Management Costs Analysis

In order to analyze the overall waste management cost, one needs to evaluate the actual costs resulting from the waste service needs, investments required, and the local objectives on waste management.
These will serve as foundation for local authorities to design effective and adequate waste budgets. Also, it will help them in designing appropriate effective strategies on cost-recovery, and set the right tariffs.
Estimation of full waste management costs procedure consists of several steps as follows:

- Preparatory phase
- Determine investments
- Estimate waste management costs
- Revision/monitoring

4.2.1 Preparatory Phase

The preparatory phase includes the preliminary steps, and consists of: gathering useful information about waste areas, consumers, existing and new waste activities/services; understanding the waste management costs and their components; and defining the appropriate methodology on cost calculation.

a) Estimation of Basis Data

Understanding waste areas

First and foremost, local authorities need general information about their waste area profile. Most of the information has been identified and analyzed during the baseline phase, when useful data such as *waste area* characteristics, consumers' profile, and waste generation was gathered.

This information will help to; make accurate cost calculations, estimate likely total volumes of waste generated, as well as its define a perspective to assess expected income from waste tariffs.

Most useful data includes:

- Population, past growth rate, family size, administrative location of inhabitants;
- Business units (number, and classification in terms of nature, size and other characteristic)
- Industry, institutions and other type of consumers, waste generation and its perspective (for urban and inert waste)
- Size and nature of public spaces to be cleaned;
- Distances to local and regional waste facilities;

Understand existing and new operations

Prior to starting the application of the methodology for costs estimation, it is essential to understand all existing operations and services including volume of work, frequency, etc, that are part of the system; as well as new operations and services (e.g., introduce waste segregation system) or extension of them (in terms of volume of work or extension to new areas).

Moreover, it is important to clarify the current waste infrastructure (waste trucks, containers, dust bins, etc), their condition and usability, and the need for new vehicles and equipments (e.g. more waste vehicles, collection points, or containers).

Typical operations and services performed now in Albania, by local authorities, include:

- Waste collection and transportation
- Streets cleaning
- Waste disposal at local dumpsite
- Collection and transportation of inert and voluminous materials, etc.

And new operations which are expected to become part of the entire waste management system, such as:

- Transportation to greater distance to landfill or other treatment facility;
- Waste disposal at regional sanitary landfills;
- Waste segregation, differentiated collection and temporary storage;
- Waste processing (prepare for further treatment);
- Composting and recycling, etc.

b) Understanding Annual Waste Management Costs

The waste management cost consists of the funds needed each year to operate and maintain waste services. The costs can be specified and divided in terms of different waste management operations or services, part of the overall waste management system and in terms of cost components.

The regional and local plan should contain actual information on costs of collection, transportation, separation, treatment and final disposal of waste.

Main key figures (unit cost) to be included are:

- Cost in connection with collection of one ton of waste,
- Costs of transportation of one ton of waste for one km (if disposal site is located at a certain distance from the city),
- Cost of cleaning of a square meter road and
- Price of treatment of one ton of waste at the various treatment plants (local dumpsite, regional landfill, or composting).

The estimation of unit costs of a different operation method, will also help local authorities to evaluate and select the most economic and then the most beneficial option for a certain waste management stage.

c) Defining the Methodology (Full cost accounting vs. Cash Flow Basis)

Most municipal accounts/budgets in Albania have traditionally been prepared on a *cash-flow* (CF) basis, where the capital expenditures for waste collection vehicles are recorded and accounted for entirely in the year of purchase.
Meanwhile, there is another accounting method called *full cost accounting* (FCA), which spreads the expenditures over the lifetime of the item. According to FCA method, the local authority allocates certain funds, on an annual basis, to enable the replacement of the truck after 7-10 years; or to buy a waste truck by taking a loan and paying back in rates, including interest, on a yearly basis.

For this reason, *cash flow* accounting can provide an approximate state of the actual costs of services and highlight the fact that, in most cases, local authorities are enabled to ensure physical investments when they have a need for them.

Recommendation 38: The use of FCA for calculating WM costs

The use of FCA approach is recommended for calculating annual management costs, which would take into account capital annual costs of different investments, based on the estimated life time of the product, vehicle or a facility.

But even the FCA method, similarly to the CF, has its limitations for as long as it fails to take into account environmental, health, and social costs. These cost components cannot be measured easily or valued readily in the marketplace. Consideration of the full spectrum of costs is often called *true cost accounting* or *environmental accounting*, which is beyond the scope of FCA, but which may be needed in some circumstance where there are significant external costs or benefits of waste management operations.

4.2.2 Determine the Investments

a) Determining Useful Investments

During the technical planning process, local authorities have determined the necessary investments taking into consideration the urgent necessity to improve existing infrastructure on cleaning and waste management services (renewing or adding new vehicles and containers), as well as to fulfill the needs for improvement in terms of new services, extension or improvement of existing operations or services.
Preparing a plan of investments is a complicated process, which involves not only the needs (be it immediate or not), but also the financial resources available, political and social priorities and political agreement on these investments. Moreover, local authorities should check and prioritize the following issues concerning gender and any other marginalized groups:

- Maximize impact on educational institutions and marginalized groups: they should plan and facilitate cleaning services and waste collection routes near schools, kindergartens and other social buildings in the community. These buildings should be equipped with waste containers if possible;
- Consultation with women, who should be involved and consulted when planning for investments, waste collection routes and other services;
- Remote communities should have special focus and more attention regarding new investments and for finding adequate alternatives for basic waste collection service.

Furthermore, while developing a new waste management plan, local authorities have to foresee the distribution of required investments over the years (up to 5 years) to the extent of the plan itself. Therefore, the investments plan includes the short and medium-term requirements for new vehicles, equipments and facilities. Usually, the investments consist of purchasing technological vehicles, new containers and containers including equipments and appliances for implementing pilot waste minimization schemes. The rationale and specification for these investments is analyzed in detail in the technical planning section of this manual.

Plan of investments, for a 5-year period ,LSWM Plan of Commune of Velipoja (Co-PLAN, 2011)		
Year or period to invest	**Type of investments**	**Capital funds (000 ALL)**
2012- 2015	Renew 60 existing containers (1.1m^3);	500/year
2012-2013	Buy 80 new colored bins (0.24 m^3)	280/year
2012- 2013	Buy 190 new containers	2,850/year
2012- 2013	Buy a new truck (10 ton)	2,000/year
2012	Composting bins for pilot area	115
2013-….	Renew truck (in 10 years) & containers (in 5 years)	To be defined
2012-2013	Rehabilitation and close of the dumpsite	50,000-100,000 (EUR)
2013-2015	Full recycling infrastructure (colored containers)	To be defined

b) How Much (Typical Prices)?

The next step includes the quantification of investments in monetary values, which will help to plan the needed financial funds. Therefore, the authorities ought to check the market prices for waste equipments and vehicles for new or second hand products, as well as the capital cost of constructing the plants, facilities, etc.

Yet another important issue lies with the evaluation of useful (remaining) working period for each vehicle; which could also help to dispense the capital cost over the years. Sometimes, for the major investments (plant or facilities), the information about capital cost is given as an annualized capital cost which represents the annual expenses for buying including loan interests, etc, distributed over its entire operation period. The following table summarizes the average prices (2011) for most frequent investments on local waste management:

Items	**The approximate prices (ALL)**
Containers (1.1m^3)	26,000-40,000
Plastic containers (0.1m3-0.24 m^3)	10,000-15,000
Sidewalk container (30 liters)	7,000-10,000
Used technologic truck (10 years of use)	4,000,000-6,000,000
New waste technologic truck	14,000,000-17,000,000
Used open truck	2,000,000-3,000,000
Recycling center [51]	3,000,000-4,000,000
Garbage Compactor – paper, Plastic press	500,000-600,000

[51] Small and simple recycling center, similar to Recycling Center of Commune of Dajc, Lezhe, or Recycling Center of Municipality of Fier

c) Evaluation of the Local Investments

In the process of identifying the best solution for the needed investments, local authorities have to analyze several uncertainties or questions that arise, for e.g.: A *is it better to buy or rent a waste vehicle* dilemma? or *when to make these investments*?; or *to privatize or not the service*?[52] Are there possibilities for inter-LGUs cooperation in sharing investments? The answers to these questions may alter the list of investments plan or postpone them altogether.

Level of utilization

Usually, the *to buy or to rent* dilemma is clarified by the technical planning of required waste vehicles, which apart from the rationale, clearly indicates their utilization level.

For particular cases, when the use of vehicle lies below a given utilization level (e.g., let say under 60% of its capacity, or for a temporary period of the year), it might be economically favorable to rent it instead of buying it or to privatize the service.

Recommendation 39: When it is better to rent a truck[53]

Generally, when one uses the waste truck for a limited period of time (for e.g., for 3 months a year like commune of Velipoja, or 1-2 hours a day), it is advisable to rent a truck instead of buying one. The need analysis should include the level of utilization and the economic offers to rent it.

Specific conditions

Nevertheless, the needs for investments should be analyzed case by case, where additional factors are taken in consideration, namely: geographical location of waste areas (e.g., for remote areas there are no feasible opportunities to rent waste trucks at a favorable price), opportunities of the local market and the involvement of private sector.

Local Affordability

While planning new investments for implementation of the local waste management plan, local authorities should take into account the local financial capacity to carry out investments on time.

The analysis of investments history and the financial capacity (including the assessment of external sources) is required to check the affordability of local authorities to carry out investments.

[52] Private vs. public debate is been discussed in detail later in this document
[53] For more details see Annex 2 Evaluation model: efficiency of waste collection and transportation versus population size

Recommendation 40: Evaluation of the financing affordability for investments
In all cases it is important to avoid committing funds to investments until it is established that the annual costs for operating the new plants can be funded.

4.2.3 Estimate Waste Management Costs

The composition of the cost of each operation is subdivided into essential cost components:

- Operative cost, (including vehicle and other equipment maintenance costs, labor cost, etc)
- Capital cost
- Administrative cost
- Other costs

a) Operative Cost

The operating costs category consists of the costs required to run and maintain the operations or services within a sustainable waste management system. For instance, the operating costs associated with the waste collection service are likely to include: direct operating costs of vehicles like fuel, vehicles and containers repairs and maintenance costs, and labor costs (including driver and crew, as well as administration and control).

The operation cost consists of:

- Cost of the materials including maintenance costs;
- Cost of labor.

Cost of the materials

The cost of the materials includes the estimation of the use of materials to run and maintain the vehicles, appliances, machineries, etc; and the expenditures related to their use.

The materials expenditure includes:

- The cost of consumables for collection and transportation (fuel, lubricants, etc)
- The cost of consumables of other materials such as containers, disinfectants, water, etc);
- Vehicles and equipment maintenance cost (including the cost of tires, spare parts as well as the cost of repairs and maintenance service.);
- Containers and equipment maintenance cost (including the cost of repainting, spare parts as well as the cost of repairs and maintenance service.

The following table summarizes the activities and measurements proposed, and the useful information required concerning the cost of materials.

Steps, measurements	Required information , reference, tips, etc;
Register all major equipments and vehicles that are in use and/or under local property or belongs to service provider;	**A.** Date purchased and therefore age of the items; model, verify the real capacity of the truck; purchasing cost if it as a new product; and estimated lifetime of the items;
Check existing working schedule or planned working period for each existing vehicles;	**B.** The working time for each vehicle, hours of collection , transportation and disposal per year, average of kilometers travelled per month or year per each process (e.g., per collection and per transportation, etc); **C.** Or working hours for mechanical vehicles;
Check or measure fuel consumption rate for existing vehicles; And if there is no possibility for accurate measurement, refer to fuel consumption rate, (for oil and lubricants at the right column);	**D.** Fuel consumption per working hours (e.g. 1 round trip), for km or 100 km of transportation; **E.** Lubricants consumption based on vehicle standards; **F.** Consumption rate for each type of vehicle: (around 7-9liters/hour for technologic vehicle of 6-10ton) **G.** For lubricants: 5% of consumed oil cost;
Check all vehicle's repair and maintenance history Check all payment regarding insurance, taxes of vehicles;	**H.** Number of repairs and maintenance services, details (hours under services, spare parts used; **I.** Monthly or annually repairs and maintenance costs of the items; **J.** Vehicle insurance, registration and other taxes;
Refer to repair and maintenance cost standards (if you plan for new vehicles and there are no similarities with existing vehicles);	**K.** Maintenance and repair costs: 7% of the annual cost of fuel (oil and lubricants);
Register number of existing equipments and appliances and their conditions;	**L.** Number and conditions of containers (how many containers are partly damaged or out of services) Cleaning tools: hand carts, etc; **M.** Lifetime of the items (consumption rate or time for replacement; for containers average usability from 4-6 years and for hand charts every 2-years)
Check repair and maintenance costs history for containers and other equipments, otherwise use references;	**N.** For reference: annual maintenance and repair cost for container is 7% of its purchase cost ; (containers price varies from 28,000ALL–45,000 ALL) **O.** Hand chart prices varies from 5000-7000ALL/ item;
Check the use of disinfectants, amount of water consumed for streets washing, etc; *And check prices of these materials in the market*;	**P.** Consumption rate / price for disinfectants are respectively: 10ALL/kg and 0.7kg/collection point; **Q.** Consumption rate for water: 0.8liters/m2;

Calculation of the cost of materials, case of SWMPlan of Municipality of Koplik (Co-PLAN, 2011)							
Materials		Material consumted	Working hours	Consumtion rate	Amount spent	Unit cost	Sum
Waste collection and transportation	No		hr./year	Lit./hr.	liters	ALL/unit	ALL
Technological truck (6 ton)	1	Fuel	1022	8	8176	160	1,308,160
		Lubricants				5%	65,408
		Maintenance (7% of annual cost of fuel)				7%	91,571
		Taxes and insurances				85,000	85,000
	No					ALL/unit	Leke
Containers 1.1 m3	80	Maintenace (7% of purchase cost)				2100	168,000
	No.			kg/ unit	Kg	ALL/unit	
Collection points	40	Lime, desifectants		0.5	7,300	5	36,500
Washing and sweeping of the streets		Material consumted	Working hours	Consumtion rate	Amount spent	Unit cost	ALL
	No		hr./year	Lit./hr.	liters	ALL/unit	Leke
Streets washing truck	1	Fuel	225	8	1800	160	288,000
		Lubricants				5%	14,400
		Maintenance (7% of annual cost of fuel)				7%	20,160
		Taxes and insurances				85,000	85,000
	m2/vit			lit./m2	liters	ALL/unit	ALL
Water used for washing	1,800,000						
		Water		0.8	1,440,000	0.09	129,600
	No.					ALL/unit	Leke
Sidewalk bins 30 lt.	25	Maintenace (7% of purchase cost)				350	8,750
Collection of inert waste	No.	Material consumted	hr./year	Lit./hr.	liters	ALL/unit	ALL
Truck with mounted crane	1	Fuel	208	7	1456	160	232,960
		Lubricants				5%	11,648
		Maintenance (7% of annual cost of fuel)				7%	16,307
		Taxes and insurances				85,000	85,000
	No.					ALL/unit	ALL
Containers 5.5 m3	7	Maintenace (7% of purchase cost)				10,500	73,500

Calculate labor cost

The calculation of labor cost constitutes the direct and indirect cost of personnel (drivers, crew: operators and helpers) directly involved in waste operation and services. The components of labor expenses for basic operations and services include the following elements:

- Basic wages, social and other insurances;
- Specific cost for personnel (overtime, compensation for specific jobs);
- Other personnel costs, such as clothes, working and safety equipments.

The following table summarizes the activities and measurements proposed and the useful information required for labor cost.

Actions, measurements	Required information, reference and tips
Check all labor force working in each operation and service and classified their working terms; Details of all personnel should be collected;	**A.** Total number of workers working full time, temporary or seasonal work; **B.** Hours of work per week, month and year; **C.** Official full time period: 174 working hours per month;

Evaluate the need for new personnel based on technical planning procedure;	**D.** Number of personnel, their working class and working hours needed;
Check current wage structures and social insurance rate, considering legal requirements and relevant decision of City Council;	**E.** Wages scales and social insurance (16.7%) contributes for each personnel members; **F.** Legal requirements and local by-laws **G.** Other mandatory or voluntary insurance;
Check current and plan future expenses for specific compensation; Check the Labor Code for specific treatment/ compensation for certain professions	**H.** Legal requirement for working overtime, overnights or for hard work;

Note that, in the waste collection process, labor (personnel) costs are high and directly dependant on the technical efficiency of the system. If the technical system is well designed, the personnel costs will be reduced to a minimum. If not, for example if they are not enough containers, or if the number of waste collection points is too high, if the conditions (wheels) of the containers are not good, or if the trucks are not appropriate, international statistics show that the time and the personal cost can be multiplied by a factor from 2 to 7 for the same quantity of waste or inhabitants.

Calculation of labor costs, LSWM Plan of Municipality of Koplik (Co-PLAN, 2011)

Labor force		Monthly basic salary	% of time allocated to the service**	Months	Annual payment	Overtime, compensation	Total payment	Social insurance	Other insurances	Clothes	Working and safety equipments
		ALL	%	no	ALL	ALL	ALL	ALL	ALL	ALL	ALL
Waste collection and transportation		a	b	c	d = a x b x c	e	e+d			f	g
Driver*		28,500	70%	12	239,400	44,716	284,116	47,447		2000	
Worker		22,800	70%	12	191,520	23,896	215,416	35,974		2000	1000
				Sub-total 1			499,532	83,422		4000	1000
Sweeping and washing of streets		a	b	c	d = a x b x c	e	e+d			f	g
Driver		28,500	15%	12	51,300		51,300	8,567			
Worker		22,800	100%	12	273,600		273,600	45,691		2000	3000
				Sub-total 2			324,900	54,258		2000	3000
Collection of inert waste		a	b	c	d = a x b x c	e	e+d			f	g
Driver		28,500	15%	12	51,300		51,300	8567			
Worker		22,800	15%	12	27,255		27,255	4552			

* Total cost of each category of personnel is multiply with the number of personnel engaged
** % of time the driver is engaged at waste collection, 15% washing the streets, and 15% collection of inert waste

Summarize of operation cost

All operation cost elements are summarized for a given waste service or waste operation, and for the entire local operation of the waste management system.

The operation unit costs (perm3, ton, or m2) of each service are calculated by dividing respective costs by work volume. The following table illustrates the review of operational costs and unit costs concerning waste management operations of a local waste management plan.

Calculation of the operation costs, LSWM Plan of Municipality of Koplik (Co-PLAN, 2011)

Waste activities	Waste collection and transportation	Collection of inert waste	Sweeping and washing of streets	Total cost
LABOR COST				
Number of permanent drivers	1			
Number of permanent workers	2		3	
Total expenditures for permanent drivers* (ALL)	331,563			
Total expenditures for permanent workers* (ALL)	251,390		319,291	
Total of expenditures for permanent workers (ALL)	834,344	0	957,874	1,792,218
Number of temporary drivers		1	1	
Number of temporary workers		2		
Total expenditures for temporary drivers (ALL)		59,867	59,867	
Total expenditures for temporary workers (ALL)		31,807		
Total of expenditures for temporary workers (ALL)	0	123,480	59,867	183,347
Clothes	6,000		6,000	
Working and safety equipments	2,000		9,000	
Other labor cost (other insurance, clothes, equipments, etc)	8,000	0	15,000	23,000
Total labor cost(ALL)	842,344	123,480	1,032,741	1,998,565
COST OF MATERIALS AND VEHICLES				
Fuel (ALL)	1,308,160	232,960	288,000	1,829,120
Lubricants (ALL)	65,408	11,648	14,400	91,456
Lime, desifactants (ALL)	36,500			36,500
Vehicle maintenance (ALL)	91,571	16,307	20,160	128,038
Containers maintenance (ALL)	168,000	73,500	8,750	250,250
Vehicle taxes and insurances (ALL)	85,000	85,000	85,000	255,000
Cost of materials and vehicles (ALL)	1,754,639	419,415	416,310	2,590,364
OPERATIONAL COSTS (ALL)	**2,596,984**	**542,895**	**1,449,051**	**4,588,929**
Yearly volume of work (ton)	3700	1700		
Cost per tonne	702	319		

b) Capital Cost

The capital cost consists of the purchasing cost of the new vehicles and containers, or investments on new waste processing or treatment facility, and the depreciation (amortization) cost of existing waste infrastructure.

It is important to link each capital cost with respective operation or service provision. For this purpose, based on the *FCA approach*, the annual cost of depreciation of existing equipments and the annual part of the cost allocated for purchasing new vehicles should be included in the annual waste management budget. This financial amount accumulated year after year will serve to replace the existing vehicles and containers without any financial strain on the local budget.

Calculate depreciation costs

Specific data such as age and expected lifetime of the existing vehicles and other equipments, price as a new or as second-hand vehicle will serve as a foundation for the calculation of annual depreciation cost for each vehicle, service and entire waste management scheme or system

The following table illustrates the calculation of annual expenditures for the waste management plan:

Calculate Depreciation costs						
Equipments, vehicles	Number	Purchase cost	Total purchase cost	Life span of vehicles. equipments	Expected useful life	Annual depre-ciation cost
	No.	Leke/item	Leke	yr.	yr.	Leke
Containers 1.1 m^3	80	30,000	2,400,000	6	6	400,000
Technological truck (6ton)	1	4,000,000	4,000,000	10	10	400,000
			6,400,000			800,000

Calculate annual costs for purchasing new vehicles

The same approach is followed for the calculation of capital costs for new investments. The only issue concerning capital cost for new vehicle lies with how rapid these investments ought to be made, for example the waste vehicle or waste containers.

The intention is to link the time period needed to make investments with the specific objectives or priorities defined in the plan, for e.g., to start a new waste collection service within 2 years, it needs to buy a truck within this period. The following example illustrates the process of calculating the cost to finance new vehicles.

Calculation of the cost for buying new vehicles and equipments, LSWM Plan of Koplik (Co-PLAN, 2011)					
Equipments, vehicles	Number	Purchase cost	Total purchase cost	Period to be purchased	Annual depre-ciation cost
	No.	Leke/item	Leke	yr.	Leke
Containers 1.1 m^3	30	30,000	900,000	3	300,000
Sidewalk bins 0.03 m^3	25	7,000	175,000	1	175,000
Containers 5.5 m^3	5	150,000	750,000	2	375,000
Truck with mounted crane	1	3,000,000	3,000,000	2	1,500,000
					2,350,000

c) Administrative Costs

The administrative (or overhead) cost usually represents the cost of administrative staff which performs the overall management and supervision of the costs of the all the services or operations (service provider's administrative staff as well as municipal officials directly or indirectly involved in municipal waste management). Sometimes, overhead costs can be apportioned to the various waste management activities for example for the operation of landfills, transfer-station, or composting facilities. In cases when administrative staff is responsible for more than one waste operation or services, the administrative expenses can be divided among these operations based on the working time allocated to each service. The following table shows how to calculate administrative costs for service provider and municipal staff:

	% of time dedicated to any service or to the entire waste management	Full salary according to official payroll
Service provider (SP)		
Administrative staff	From 20%-100%	As specified
SP Supervisor	100%	-//-
Municipal staff (based on local staff directly or indirectly involved)		
Municipal Supervisor	100%	-//-
Note: Anyway, usually one municipal supervisor is largely enough;		

d) Additional Costs

There are additional costs related to waste management, which are usually not directly related to any operation or services, but comprise of expenses on buildings maintenance and utility bills (electricity, water, and local taxes), and income taxes. These costs should be understood and recorded as far as contribute to the total costs of municipal solid waste services.
In the cases of waste facilities management, such as: plants, sites, etc., costs need to be considered and allocated if possible to the relevant operation or service in order to be included in the unit price (for landfills, transfer station, or other facilities).

Interest and capital charges are also considered as additional cost. The costs of borrowing funds for capital purchases are not common in the Albanian context, but can be applied in the future. These costs need to be recorded and allocated as far as possible to the relevant component of the waste management service.

e) The Cost of Some Processing and Treatment Activities

The local waste management plan takes into consideration all waste processing and treatment activities, which have the potential possibility to be implemented at local level. The following table provides some cost illustrative prices/costs for some waste management activities:

Processes	Total annualized cost
Land-filling[54]	6-12 €/ton
Composting (windrow)[55]	10-30 €/ton
Waste Transfer[56]	3-5 €/ton, depending of quantities and distances
Waste separation (O&M)[57]	11 €/ton [58]

54 Based on the commercialized price of disposal at Landfill of Bushat for the year 2011
55 IBRD/World Bank, 1999 (see footnote 31)
56 According to the LSWM Plan of the Municipality of Koplik and LSWM Plan of Municipality of Fier
57 Operational and maintenance costs
58 Processing cost of waste separation in (RWSC) in Municipality of Lezha

4.3 How to Build an Annual Budget?

Chances are that the cost of waste management will exceed the figures you have foreseen (exceeds previous budget or even optimistic expectations about it). It is important that the elements of the financial system are assessed before deciding on the strategies (cost minimization, new disposal approach or even application of a cost-recovery policy).

However it is essential to take into account that if local authorities are uncertain, it is important to do what is necessary and affordable at present, and postpone the rest for the future.
The establishment of the annual budget and the plan of its perspective in a 5-year period take the following basic steps:

b) Summary of the Costs

Prior to establishing an annual budget on waste management, one needs to summarize all the costs analyzed above by linking with WM activities or operations. The entire budget comprises of the annual operation and capital costs, administrative and other costs. As far as the financial cost of the local waste management plan is concerned, the financial review comprises of the annual costs for the entire planning period, for e.g., from 2012-2016.[59]

c) Local Policy on Investments

As practice has shown, the intention of local authorities lies on immediate fulfillment of emergency requirements, within one or two years of the plan implementation. For example, the purchase of waste vehicles and a first number of containers sometimes is considered a basic infrastructure of waste management therefore it needs to be financed within a shorter time. Then, further modernization of waste infrastructure, introduction of waste segregation schemes (preferable starting with pilot schemes) or home composting initiatives may require over a longer time to be achieved (up to 3 three years).

Major investments such as built-infrastructure, e.g. rehabilitation of local dumpsite or constructing recycling/processing facilities, will depend on financial resources that are available (donors, or central governments) and/or level of interest and involvement of recycling business. In this context, the central government encourages the rehabilitation and closure of existing dumpsites through direct financing schemes. Both immediate and continuous investments should be sought from national and local funding sources, external donors and development banks, private sectors, or a combination of them.
There are also other strategic investments like the construction of the local transfer station, which might become an important and emergency need due to changes with waste disposal policy (regional approach) and potential savings that this solution might bring.

4.4 Strategy on Cost Recovery

The bases for financial sustainability of waste services can be achieved through ensuring effective and cost-efficient waste services as well as having a sustainable financial system based on a fair and straightforward cost-recovery policy. The selection of best options and of the waste management scenarios ensures the best cost-effective and economic alternative that satisfied feasibility, environmental and social conditions.

[59] The first three years of the entire planning period are part of the Medium Term Budget (MTB)

On the other hand, the ability of local authorities to establish a sustainable financial system requires available financial resources according to the needs and the establishment of a fair and effective revenue system.

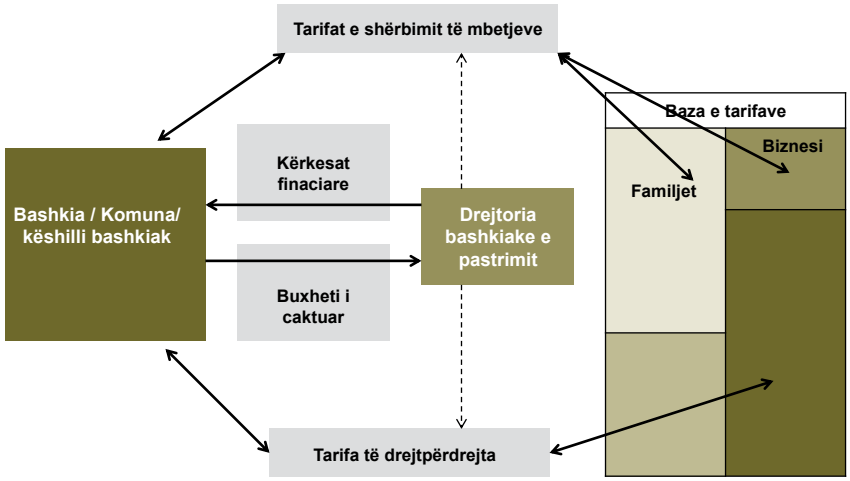


Figure 16 Scheme of Financial Management and Policy Framework of MSWM[60]

The right and the ability of local authorities to establish a fair and effective revenue system (waste service tariffs and direct charges) constitutes the basis for financial sustainability of waste service

The establishment of an effective revenue system includes:

- Establishment of fair and straightforward cost-recovery revenue system
- Establishment of an effective tariff collection scheme.

4.4.1 Establishment of a Fair and Straightforward Cost-recovery Revenue System

Planning of a sustainable waste management financing system requires that the processes of cost allocation, tariff setting and revenue planning fulfill the main principles as follows:

- ***Polluter pays* principle and *Proportionality***: the amount the user pays should be in proportion to the use of the service;
- ***Cost recovery*:** tariffs must reflect the total costs associated with providing the service, including operating and maintenance, capital, replacement and financing costs[61]; This is a precondition for the long-term financial viability and sustainability of the waste management sector in local level;
- ***Vertical equity* and *poverty alleviation*[62]:** poor households should pay proportionally less for services. Poor households could pay tariffs that only cover operating and

[60] WORLD BANK/SDC (1999) Strengthening Financial Sustainability- Planning Guide for MSWM
61 DANCED, (2002) Solid Waste Tariff Setting Guidelines for Local Authorities
[62] See Footnote 46

maintenance costs, or have special lifeline tariffs or be subsidized in such a way as to allow access to basic services;

- ***Financial viability*:** tariffs should allow for the financial sustainability of the service where everybody should pay its contribution and the waste revenues should progressively (year by year) ensure sustainability of financing local waste management activities;

The process of setting waste tariffs and planning revenues has the following steps:

- Summarize all the costs categorized according to waste/service activities, its composition and cost progress over 5-year period;
- Allocate costs to consumers/ set waste tariffs;
- Review the effectiveness of the system toward the main objective (cost-recovery) and make corrective actions.

STEP 1: *Screening of the costs*

All estimated costs are distributed in terms of its composition (operation, capital and administrative component) for each waste/ service activity for a 5-year period.

It is recommended that, all main objectives and any important decisions concerning waste management, and possibly affecting the level cost components, are underlined and kept at the top of the table. The following table illustrates the process of costs screening for the entire planning period:

Screening of the costs for the entire planning period, LSWMP of the Municipality of Puka (Co-PLAN, 2011)

Operation and maintenance (O&M) costs	**2012**	**2013**	**2014**	**2015**	**2016**
Waste collection	1,637,120	1,686,234	1,736,821	1,788,**925**	**1,842,593**
Streets cleaning	1,077,614	1,109,942	1,143,241	1,177,**538**	**1,212,**864
Inert waste	572,091	589,254	606,931	62**5,139**	**643,893**
Waste disposal **	-	-	2,721,316	2,802,**955**	**2,802,955**
Total O&M cost	3,286,825	3,385,430	6,208,309	6,394,**558**	**6,502,30**6
Capital costs	2,012	2,013	2,014	**2,015**	**2,016**
Waste collection	2,635,000	2,714,050	714,000	73**5,420**	**757,483**
Streets cleaning	150,000	154,500	30,000	**30,900**	**31,**827
Inert waste	1,250,000	1,287,500	250,000	25**7,500**	**265,225**
Waste disposal **	-	**-**	**-**	**-**	**-**
Total capital costs	4,035,000	4,156,050	994,000	1,023,820	1,054,535

(**): Starting from 2014, urban waste are going to be treated at a local disposal
(*): At a rate of 3% is foreseen the increase of O&M costs from the inflation

STEP 2: *Define weight (%) of each customer to cover the costs*

Waste management tariffs for customers will be set on a sound financial basis. The accomplishment of the *polluter pays* principle means that the waste producers should pay the full cost of managing their waste. Though, the allocation of costs in accordance with waste production for each consumers and the share of the costs each consumer should cover.

In theory, the consumers will be expected to meet the full cost of waste management for the waste they produce and for the service they benefit. Though tariffs or charges are based on:

- Proxy for amounts of waste generated;

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- Proxy for amounts of waste generated;

STEP 3:
Define subsides

In practice, strict application of the above principle will immediately seek to impose higher fees on households, which consequently will discourage them from paying their contribution. Therefore, the following subsidizing conditions/intervention can be applied:

1. **Sub._1**: Reduce weight (%) of cost allocation to households considering current cost allocation; (keep it at a range of 50-60%);
2. **Sub_2**: Reduce the burden for the poor consumers should pay proportionally less for service; (apply reduced tariff level, e.g., 50-75% of household level)
3. **Sub._3:**Reduce the burden of payment for households, e.g., exclude from paying for capital expenditures which are needed within a short time (1-2 years); These investments can be covered by other local resources or from external sources;
4. **Sub_4:**Reduce the burden for specific consumers, as required by specific legal requirements, e.g. limitations to small business tariff level, or for local political choice (decided from Municipal Council);
5. **Sub_5:** Subside specific consumers (households) due to the large cost increase,
6. **Sub_6:** Subside where local authorities are enabled to achieve desired collection rates for specific consumers (e.g., for households). It is recommended that this subsidy should go toward zero as the local authorities should improve performance of tariffs collection.

Cost allocation among consumers, LSWM Plan of Municipality of Puka (Co-PLAN, 2011)

	Waste generation	Ratio (%) acc. generation	Recommended % (consider Sub. 1)	Recommended % (consider Sub. 5)
	(ton/y)		2012-2013	2014-2016
Inhabitants	1281	72%	55%	52%
Small businesses	353	20%	30%	30%
Large businesses	110	6%	12%	15%
Institutions	31	2%	3%	3%

STEP 4:
Determine the level of tariffs

The entire financing system should be based on local waste revenue system (from waste tariffs) which firstly aims for the coverage of the operation costs, including the expenditure for land-filling at regional plants, the depreciation cost for replacing existing waste infrastructure like waste vehicles and containers, excluding only the categories and levels of subsidies presented above.

In this framework, we can determine the level of tariffs for each type of consumer by dividing the allocation cost with the number of consumers. The following example illustrates this step:

Setting of tariffs for consumers, LSWM Plan of the Municipality of Puka (Co-PLAN, 2011)					
	2012*	2013*	2014**	2015**	2016**
No. of permanent families and its projection in future	1,587	1,541	1,496	1,452	1,410
Part of operating costs to residential families (000-ALL)	1,807,754	1,861,986	3,745,200	3,857,557	3,929,557
Annual Tariff for households (ALL)	1,200	1,200	2,500	2,700	2,800
No. of small business and its projection in future	161	166	171	176	181
Part of the costs to small businesses (000-ALL)	986,048	1,015,629	2,160,693	2,225,513	2,267,052
Annual Tariff for small business (ALL)	6,200	6,200	12,600	12,600	12,600
No. of large business and its projection in future	20	21	21	22	23
Part of total costs to Large business (000-ALL)	878,619	904,978	1,194,923	1,230,771	1,255,081
Annual Tariff for Large business (ALL)	44,000	44,000	56,000	56,000	56,000
No. of insitutions and its projection in future	20	20	20	20	20
Part of total costs to institutions (000-ALL)	219,655	226,244	238,985	246,154	251,016
Annual Tariff for Institutions (ALL)	11,000	11,500	12,000	12,300	12,500

* For the years 2012-2013: The tariffs from families and small business aim only to cover their part of the operation cost
**The tariffs from families and small business should cover all the costs (operational and capital costs)

STEP 5:
Planning of revenues

To enable a realistic forecast of revenue planning from consumers waste tariffs, local authorities should consider other factors that constrain its ability to achieve the objective on revenues.

It is recognized that there are some social factors (mentioned above) like inability to pay (for e.g., the existence of lower income families) or as some consumers are not used to paying waste tariffs, or local authority is unable to collect waste tariffs. Therefore, local authorities are obliged to consider these factors and the history of tariff collection rate while planning annual revenues from waste tariffs. The following table illustrates the planning of revenues:

Plannin g of revenues for household category, LSWM Plan of the Municipality of Puka (Co-PLAN, 2011)					
	2012	2013	2014	2015	2016
100% Allocated costs for households (000 ALL)	1,807,754	1,861,986	3,745,200	3,857,557	3,929,557
% of consumers able to pay	80%	80%	80%	80%	80%
Planned Revenues 1 (000ALL)	1,446,203	1,489,589	2,996,160	3,086,046	3,143,646
% of consumers that will pay	50%	80%	90%	100%	100%
Planned Revenues 2 (000ALL) (000 ALL)	723,102	1,191,671	2,696,544	3,086,046	3,143,646
100% Allocated costs for all businesses (000 ALL)	1,864,667	1,920,607	3,355,616	3,456,284	3,522,133
% of consumers able to pay	100%	100%	100%	100%	100%
Planned Revenues 1 (000ALL)	1,864,667	1,920,607	3,355,616	3,456,284	3,522,133
% of consumers that will pay	80%	90%	100%	100%	100%
Planned Revenues 2 (000ALL) (000 ALL)	1,491,734	1,728,546	3,355,616	3,456,284	3,522,133
100% Allocated costs for institutions (000 ALL)	219,655	226,244	238,985	246,154	251,016
% of consumers able to pay	100%	100%	100%	100%	100%
Planned Revenues 1 (000ALL)	219,655	226,244	238,985	246,154	251,016
% of consumers that will pay	80%	100%	100%	100%	100%
Planned Revenues 2 (000ALL) (000 ALL)	175,724	226,244	238,985	246,154	251,016

Planned revenues 1: represent the waste revenues that consider the poor consumers that are not able to pay;
Planned revenues 2: consider the consumers not willing to pay and/or the ability of the local authorities to collect the planned tariffs;

STEP 6: *Review the effectiveness of the system*

Finally, in order to finalize the process of planning toward the objectives for cost recovery, the revenue planned for each consumer is summarized together and compared with the total operating and capital cost. If the cost-recovery percentages exceed it, the upcoming years appear higher and in progress toward total coverage in 2016. If not, the analysis goes back to re-evaluate tariffs levels or local policy on tariffs subsidizes.

4.4.2 Establishment of an Effective Tariff Collection Scheme

As previously mentioned, the establishment of an effective revenue system requires an effective collection scheme that ensures that waste tariffs are collected at the highest rate. The tariffs collection scheme includes the creation of useful tools as follows:

- Legal framework
- Billing and enforcements
- Information campaign

a) Improving the Local Legal Framework

An important measure to facilitate the improvement of waste revenues relies on the establishing of legal framework that sustain and support the functioning of the entire financial system. The following instruments are recommended in this regard:

Municipal by -laws:

Once the tariffs have been finalized, they should be drafted into council by-laws for implementation. The establishment and implementation of an organized waste tariffs collection system require legal approval (annual fiscal package) from the local council.

Municipal tariff policy

Every municipality has to adopt and implement a tariff policy on the levying of fees for municipal services provided by the municipality itself or by way of service delivery agreements. The local authorities must include a solid waste tariffs policy within this tariff policy or within a local waste tariffs regulation. This should be followed by clear rules for the employed personnel or agents to abide by, as well as by the consumers.

Enforcement of tariff policy:

The above rules should be accompanied with appropriate sanctions for failure to comply with the rules. Agreement should also be reached on how enforcement will be undertaken in cases of failure to pay, taking into account the measures that will be in place for the poor households.

For this purpose local authorities can use adequate mechanisms to force the residents who are not paying for the delivered waste services, such as:

- Direct sanction in case of non-payment, or penalty interest for arrears;
- Correlation of waste tariff payment with any mandatory national or local fees (e.g. water bill, property tax, etc.);
- Excluding from administrative services, etc.

b) Billing and Tariffs Collection

The first step of billing system is to identify all the consumers, and categorize them in terms of their characteristics (type, size, nature, etc) and to establish a functional and up-to-date database, within the administrative borders. This list has to be checked regularly, at least once a year, to ensure that all in-out population or businesses changes are accurately updated.

Most of the Albanian local authorities perform themselves the tariff collection process through their local taxes offices or local fiscal department. Sometimes, they charge waste tariff with other local tariffs (such as water supply or energy tariff[63]) or local taxes (property tax[64]) within the same bill.

The local authority can either collect tariffs itself through its normal procedures, or alternatively it can allocate the responsibility of tariff collection to the external agent public or private entity. At present, there are different collection options for waste management fees from the households in place as follows:

Municipality collects fees by itself

In this system the LGU would introduce a waste management mandatory fee, which would practically become a special LGU tariff for waste management to households. The fee can be collected together with other revenues of the LGU such as the property tax or separately independent of the tax collection.

The basis for a successful implementation of the collection mode, is the establishment of a legal obligation for the citizens to pay the waste fee without any need for separate agreement of contract. With a proper amendment of the legal basis as recommended, the local authorities can exert more pressure on the households in the case of non-payment.

Waste tariff collection via joint charging with other infrastructure

Adding the waste collection tariff onto the electricity or water supply tariff; As for the first option (joint utility charging), this would mean that the billing and revenue collection for waste user charges is conducted together with another infrastructure service. (e.g., like the case of the City of Korça).

Possible public *host* utilities of a combined billing system might be: e.g.: electricity or telephone, the bills sent to the customers include two line items of payments due, one for the infrastructure service provided by the *host* utility company and the other for the waste fee.

To ensure sustainability of the system it is important to employ some important mechanisms, starting with alert tools to make consumers more aware on the responsibility or obligation to pay until the application of enforcement tools such as sanctions, fines etc.

[63] Case of Municipality of Korça
[64] Municipality of Lezha and Municipality of Lushnje

4.4.3 Final Recommendations

- **Ensure financial sustainability in the long term**: Operation, maintenance, depreciation and capital costs will be covered by user charges within 5-years of plan's implementation. This will be necessary in order to ensure that a cycle of low investment and poor waste management services does not re-emerge in the long run;

- **Review tariff strategy**: Every year, local authorities should review cost-recovery strategy and tariff increase based on proposed analysis and will take into account collection performance, costs and targets and can propose changes to fiscal package;

- **Incentives for waste reduction, recycling and composting**: The local authorities should apply lower tariff levels or service at no charge for consumers involved in waste minimization pilot programs. This will aid in changing consumer behavior, and can be used to provide incentives for consumers to reduce the amount of waste generated;

- **Measure affordability level**: Local authorities should ensure to calculate the real consumers' capacity to pay the tariff, in order to subsidize the waste management scheme to cover the gap of incomes from the consumers unable to pay (households with social assistance or with low income); A mitigation plan on how marginalized groups will be assisted with the payment of the taxes and fees of cleaning service should be considered in relation to social exclusion issue.

- **Transparency and communication**: The process of setting tariffs should be transparent and communicated properly to all parties affected. The information about the service and what the actual costs of solid waste management are ought to be explained to inhabitants. Local authorities should follow a strong awareness campaign intended for all consumers especially for inhabitants advertising the waste collection service, rules and responsibilities;

- **The local authority should ensure the quality of service at a lower cost**. This would secure financial sustainability for local authorities to better finance the maintenance and capital needs.

4.4.4 Monitoring, Reporting and Financial Indicators

Financial aspects are essential for the services and for the sustainability. Financial performance is linked to the fulfillment of the objectives on financial issues and measured through specific financial indicators, explored through the following questions:

- How much does the annual budget cover the expenses resulting from needs (respectively operational cost, depreciation or capital costs)?
- How different are the tariffs in comparison with those defined in this plan?
- How much is charged, and what part of it is paid [recovered cost]?
- How much of the budget is covered by payments- cost-recovery (tariffs income)?
- What is the level of coverage of expenses by waste tariffs and specific municipal incomes?
- How much are consumers (inhabitants, business, etc) willing to pay for a good service?

Usually, financial data are gathered on a regular basis by the financial and revenue/taxes departments within LGUs. Every month these departments should provide information and data to the Mayor and every three months (including annual report) they should officially report, in order to provide complete information regarding financial and revenue achievements and problems, referring to the above indicators. Waste management departments and other external stakeholders are involved to perform public surveys on the *willingness to pay* issue.

5 ANNEXES

ANNEX 1: Organizational and Administrative Structures

Administrative Structures and Roles

An effective organization of local waste management calls for effective municipal structures, clear definition of roles, jurisdictions, legal responsibilities and rights of the local governmental bodies, needs for effective organization of service provisions and waste-related operations.

a) National and Regional Structures

Clarification of structures and responsibilities on a national and regional level helps local authorities to identify and raise cooperation with them, in order to address several local issues on WM.

For example, organization of common investigation and enforcement on public sanitation, on generated or abandoned waste, or on specific waste[65]management activities, can help local authorities to avoid environmental pollution from solid waste within their territory.

The tables below[66] summarize the main institutions, their responsibilities, and some examples of where to cooperate with national and regional agencies:

Institutions	Level	Roles and Responsibilities
MoEFAW[67],	National	Responsible for the design of waste management policy, legislation and regulations and the enforcement through subordinate agencies[68];
MPWT[69] (Drejtoria e Mbetjeve Urbane)	National	Formulation and implementation of national policies, norms, regulations, standards, techniques and methods for public services in the field of urban waste or other waste; National responsibility for planning, financing, implementation and monitoring of public investment in the field of waste management, rehabilitation of areas of deposits, raising the landfills, etc.; Contracting authority for the concession of economic activities under its responsibility, including public services field where there is also the management of waste;
Ministry of Health(MoH)	National	Designs and implements regulations for medical and hospital waste (Guideline no.6, dt.30/11/2007).
Environmental Inspectorate (EI)	National	Responsible to ensure the environment protection in central level and to control the implementation of environmental legislation (including waste); regularly inform local authorities about the latest state of environment, laws adopted and projects approved, register pollutants controls (including waste);Cooperate with other authorities in central, regional and local level (such as (REA, State Sanitary Inspectorate – SSI, Construction Police, Municipal Police, etc.) for the performance of the latter;
Qark (District)	Regional	Shall adopt a waste management plan consistent with the National Waste Management Plan -Approves the rules on controlling the management of specific local waste streams, -Shall report annually to the Ministry on implementation of the National and the Regional and Local Waste Management Plan within their territorial jurisdiction, -Shall publish a draft of the Plan and make it available to the public on the website of the local government or regional council as the case may be. -Shall approve the relevant Plan but the local government shall take into consideration the results of any Strategic Environment Assessment (SEA), prior to its approval -Approves the Local Waste Management Plan;

[65] E.g., Hazardous and hospital waste on which local authority has no direct responsibility on their management
[66] Based on the current legal and institutional framework in Albania
[67] Ministry of Environment, Forests and Administration of Waters
[68] Environmental Inspectorate (EI) and Regional Environmental Agencies
[69] Ministry of Public Works and Transport

Regional Environmental Agencies (REA)	Regional	Monitor and ensure environmental protection, and waste management procedures at regional level; Cooperate with local authorities in developing action plans, projects or awareness campaigns locally; Approve in cooperation with local authorities of waste collection sites, local environmental permits for waste facilities or other local activities;
State Sanitary Inspectorate (SSI)		Monitor and take action to ensure the necessary conditions for the sanitation of the various activities; Has a duty to impose fines for failures related to non-cleaning of urban areas or when the collection and storage are not suitable and become dangerous for the population; Determination of waste disposal site;
Hospitals and sanitary services	Regional, Local	Responsible for administration of hospital waste and schemes for the designs of their waste management;
MoECE[70]	National	Responsible for drafting the regulations for: industrial waste (this regulation is not designed yet), mining waste (this regulation is not designed yet), rehabilitation of landfills, etc.
MoAFCP[71]	National	Responsible for drafting the regulations for agricultural and animal waste (not drafted yet)
Ministry of Finance	National	Responsible for drafting legislation for introduction of environmental taxes at national level;

In this framework, local authorities can cooperate with regional and national agencies (REA, EI, or SSI):

- To organize common monitoring and controlling of waste management processes(from collection to final disposal),inspection of the *holder of waste*, etc, to force implementation of environmental and technical standards, rules, etc and impose sanctions in case of violations;
- To issue environmental permits for natural and legal persons related with their activities in relation to waste management processes;
- Carry out joint initiatives on public awareness campaigns.

Furthermore, local authorities can request to the responsible authorities the enforcement of legislation for the management or avoidance of some specific waste streams such as hospital or hazardous waste, for which a local authority has no direct responsibility, etc.

b) New Advisory Groups

The latest development of national waste policy has defined the establishment and organization of some additional structures at national level: *Inter-ministerial Committee on Waste (IMCW)* and *National Counseling Group for Waste (NCGW)* and at regional level like *Waste Zones Groups (WZG)*.

These new organizations will present technical competences to advise national, regional and local authorities on various aspects of waste management. For example, WZG will be responsible, at regional level, for advising of regional and local authorities on waste management issues and also for guaranteeing that regional and local plans offer sustainability and are effective, efficient and well-coordinated between them, as well as conform to national policies.

[70] Ministry of Economy, Commerce and Energy
[71] Ministry of Agricultural, Food and Consumer Protection

The involvement of WZG experts will help local authority with the local waste management planning process.

c) Local Structures and Responsibilities

The rights and obligations of local government authorities on waste management are defined in Albanian legislation. As defined in this manual, local authorities have the right and responsibility to plan (*planning* function), regulate (*regulator* function), and provide financing for waste services (*financing and revenue* function), as well as they have to ensure that needed services and operations are organized in accordance with national standards, public and environmental requirements (*client* function). There are also the *operator* and *control* functions, which ensure that waste services and operations are performed with quality and quantity specified by contracts and local rules. The following chart summarizes the main functions, actors and issues on local administration of waste management.

'Planning' function- Political Authority

Main actors involved: Mayor and Municipal Council), and Direct responsible level, administrative and support level;

Main issues: Determining needs and priorities, and necessary actions to be taken to develop waste management practices in cooperation with stakeholders;

'Client' – function

Main Actors: Mayor, Municipal Council, Direct responsible level (Public service sector), Public relations sector;

Main issues: To ensure that the services are provided, and that it meets the required standards of reliability, efficiency, customer relations and environmental protection.;

'Financing & Revenue' function: local authority to ensure financing of WM

Main actors involved: Mayor and Municipal Council), and Direct responsible level, administrative and support level;

Main Issues: Ensure adequate financial resources, setting and collection of tariffs;

'Control' function

Main Actors: Mayor, supervisor, Finance and legal sectors, Public relations sector, etc;

Main issues: To control the implementation of operator function, service provision, contracts, etc;

'Regulator' function: regional and local authority to set and enforce rules;

Main actors involved: Regional agencies, Local monitoring structures, Decision making level;

Main issues: To assure that the legal, regulatory, environmental standards are met. They would typically be responsible for establishing regulation on local waste management, for authorizing and issuing permits to waste treatment/disposal facilities, etc;

'Operator' function- Providing services

Main Actors: Service Provider (public or private company);

Main issues: responsibility for providing services; the 'operation' function consists of the MSWM services delivery. That means the responsibility for the day to day delivery of MSWM services;

In order to fulfill these functions, the LGUs are divided into decision-making structures, management and administrative structures, financing and investment structures, regulatory structures, service and control structures. In this regard, clarification of structures and their responsibilities are analyzed in the LSWMP by mapping an institutional chart in terms of who is responsible for what in the solid waste management system.

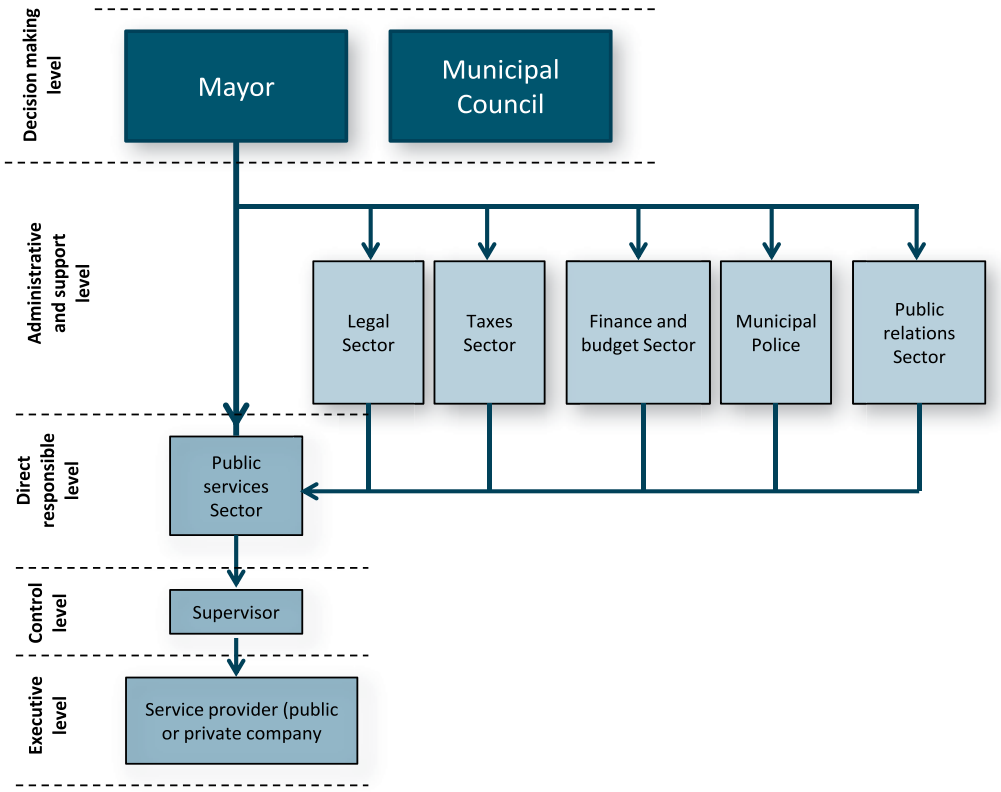


Figure 17: Institutional chart for a local government Unit in Albania

Examples of Inter-LGUs in Albania

A regional landfill has been constructed in the Commune of Bushat, which is supposed to serve for disposal of waste from the local governments in the region of Shkodra and Lezha, or the case of South-East waste management cooperation (city of Korca, city of Pogradec and surrounding communes), or the joint collection scheme established for the communes of the region of Zadrima (Shkoder and Lezha).

South-east Region cooperation

Under the framework of a KfW project Municipality of Korca, and Municipality of Pogradec and other 26 small municipalities and communes of the region, established a regional waste management company, (*Korca Region Waste Management* – (KRWM) SH.A.).

The object of the activity is the joint organization of collection, transportation and disposal of waste at a regional landfill. The aim of the project is to enable local authorities cooperate with each other to facilitate waste management services for all LGUs in region, within required standards at lower cost.

It is foreseen that KRWM will contract out some of its responsibilities to private companies and will facilitate the construction of the regional landfill, organize monitoring and controlling of the contracted services, etc.

Landfill of Bushat

Landfill of Bushat

In light of the Central Government's investment for construction of the landfill of Bushat and in compliance with Decision no. 41, dated 23.12.2005 of Commune Council, the Commune of Bushat initiated (on 28.08.2008) the establishment of an inter-communal company (*Ndermarrja Ndërkomunale Bushat SH.A.*). This company is responsible for managing the disposal of urban solid waste for Shkodra and Lezha regions, through a landfill built in the territory and jurisdiction of Bushat Commune.

Furthermore, the municipalities and communes of Shkodra and Lezha regions have agreed in principle on depositing their solid waste according to a contract with the Inter-Communal Company Bushat SH.A. In this regard a memorandum of understanding has been recently signed by the respective representatives of the Ministry of Public Works, Ministry of Environment, the Bushat Commune, Shkodra Municipality, Lezha Municipality etc. A *Supervisory Board* of the inter-communal company with participation of main LGUs has been created. They have agreed to negotiate, under an inter-unit agreement, the conditions of service and the financial terms related to the disposing of the solid waste at the landfill. At present, the landfill management is contracted out to a private company under a concession contract.

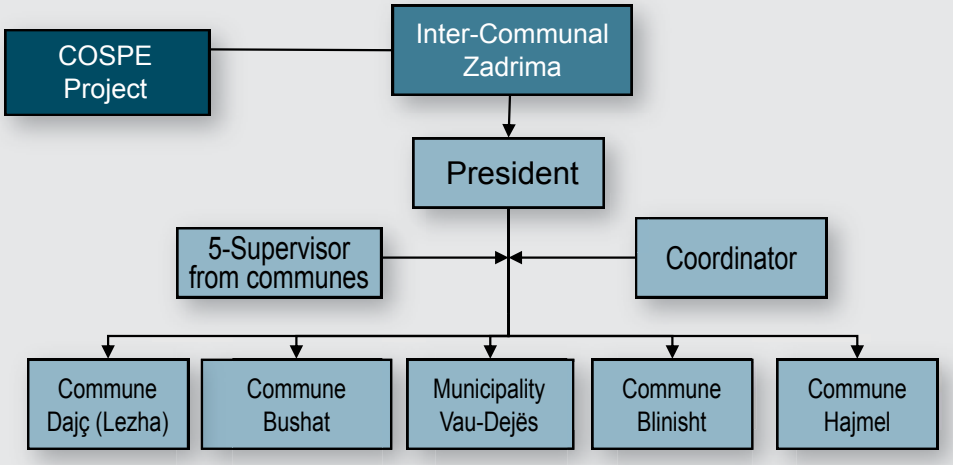
Inter-LGUs Zadrima

(as explored in the case study) [72]

An inter-communal cooperation was initiated in the region of Shkodra and Lezha) with the participation of the communes of Bushat, Blinisht, Hajmel, Dajç and Municipality of VauiDejes with the support of COSPE project, financed by Italian Government. The agreement was signed in 2006 and finalized with the establishment of an association of Inter-communal Zadrima. The scheme of co-operation is illustrated below.

Main outputs of the cooperation: The waste management scheme enabled the local authorities to organize for the first time the basic waste collection services for rural areas (includes 21 villages) and to initiate a recycling program. The investments were made possible by the support of the project itself and then by the dldp-2 financial grant, while communes pay for the operation costs (through a new system of tariffs);

Currently, the main problems are related to the high cost of services, difficulties in collecting the households' tariffs and irregular payments from the local authorities. The further enlargement of the scheme will be very important for the reduction of the cost and sustainability of financing it.



[72] During Coaching session, dldp-2 program

ANNEX 2: Monitoring and Evaluation Protocol

Monitoring and Evaluation Considerations

a) The Importance of Controlling and Monitoring

In the framework of c*lient* function, local authorities should ensure that the services are provided within required standards, meet public expectations and are in accordance with environmental principles.
The application of *control* function will require the control of the quality and volume of the services, contracts or other agreements, and will guarantee the fulfillment of the standards and of the terms and conditions of the contract with the operator.

On the other hand, the monitoring of the services and other waste management activities will enable the local authorities to know the expenditures and incomes (fee payment), human resources and equipment usability, to adapt and improve the system to the real needs and to gain continuous progress (in terms of quality and efficiency), and to plan required facilities and equipment for organizing of future services and waste activities.

b) The Control of the Cleaning Services and Waste Operations

Organization and the structures:

Mostly, local authorities in Albania assign waste inspectors within their 'Public Service Department', to manage the control of the implementation of the waste services contracts. The terms of references of the cleaning contract inspectors are determined in accordance of the terms and conditions of the contracts.

The inspector(s) must be completely independent from the contracted companies, and they should be in regular contact and exchange with the municipal service department in order that they are fully aware about the situation and possible problems, to take possible measures in due time.

Number of personnel depends on the size of the service area in order that the supervisor is able to monitor all the waste services on the ground (e.g., one supervisor for a waste area up to 100,000 inhabitants).

Depending on the size of service coverage number of services and activities, local authorities may organize the controlling team, as follows

Municipality

- *Waste inspector/supervisor as representative of the Public Service Department*

Heads of quarter/villages/ communities

- *Representatives of the population with best knowledge of their areas*
- *Reporting directly to the supervisors or to the Public Service Department*
- *Feedbacks and complaints from the community, NGOs, etc*

Supervisors (independent)

- *Contracted by the Municipality or Commune*
- *Coordinators: linking Municipality – Service providers - Population*
- *Reporting directly to the Public Service Department*

Inspector of the disposal site

- *Representing the Municipality*
- *Referring to the supervisors/ Public Service Department*

Companies

- *Contracted by the Municipality*
- *Referring to the supervisors*

Control indicators, penalties, etc.

The control of waste services and operations focuses on the control of the quantity and quality of their performance including prices, in accordance with contract/ provision specifications.

Each contract should contain specifications about the quantity of the services, quality requirements based on service methodology and standards. Moreover, specific terms and conditions are defined for compliance with maintenance requirements, organization and human resources involved, etc. (for more details see table below and the Annex 4). A set of penalties should be defined at each contract to ensure the compliance with most important contract requirements).The following box proposes the contract considerations for ensuring that the services are issued within required quality and quantity, the most common controlling issues and penalties for not compliance.

Contract considerations	Controlling indicators	Penalties for not compliance
Quantity considerations	**Volume of work:** number of containers emptied out per day or meters square of road swept out per day, etc), No. of open points, Collection frequency per week, etc;	For damaged bins for more than 5 days after notification Non collected bins Streets not swept Disposal on a wrong place Lack of service etc;
Quality considerations (specified at the contract)	Level of cleanliness of collection points/containers; Level of cleanliness of primary, secondary, tertiary roads cleaned; No. of overflowing containers or public collection points(PCP) even if are served regularly, Quality of waste containers;	
Resources and maintenance considerations	Physical resources (list of equipment); Maintenance of the trucks and containers, number of containers, maintenance of the containers;	Non compliance with physical resou-rces
Organization considerations	Number of human resources (number of employees per each service), schedule, timeline, necessity to inform and report; Professional capacities;	Lack of or inade-quate reporting; not compliance with human resources required, timeline, etc;

For disposal or landfill contracts, inspectors of the LGU(s) that owns the site, or persons authorized on its behalf, are entitled to control and supervise the manner of implementation of technical and hygiene requirements of waste disposal in accordance with the terms and conditions enshrined in the contract agreement.

Under certain circumstances on waste collection services provision, the personnel of the waste management or public service department provide recommendations or may decide on the:

- Choice of the placement of PCP
- On adding/removing/moving bins/ PCP, or displace them
- Propose all possibilities of improvement of services, waste recuperation, etc.

a) The Monitor of the Cleaning Services and Other Waste Activities

Monitoring, gathering data, keeping records and reacting quickly to instruct on improvement measures is the only way for the local authorities improve the services, to adopt, and optimize the system. Without useful data they cannot analyse and provide performance criteria to the service provision. A municipal waste register should be kept and updated by local authorities (direct responsible level).

Gather data and keeping records

Local authority through its municipal departments should monitor waste generation, keep records (on types, quantities of waste they generate, e.g., hold, transport, dispose, or recycle). Gathering the necessary data should be done in a joint effort involving the head of quarters, inspectors, and municipal staff, by service providers and by the site inspectors.

Gathering useful information and keeping records

- A weighting scale must be installed at the dumpsite entrance and a 3-shift reception service will register every truck discharge there;
- When the service is provided by a private company, enforce them through contract to provide detailed monthly statistics to the authorities;
- Monitoring and reporting tools (like forms, excel sheets, audits, etc) should be required to public service providers, financing offices, public relation offices, etc.

Data to be provided by the waste companies to supervisors, Municipality of Shkodra (CSD, 2008):

- *Daily number of loaded bins on each route*
- *Real hours of collection: daily time of departure of the trucks, time of unloading on the landfill, time of coming back to the garage*
- *Daily km of each truck*
- *Daily number and itinerary of trucks routes*
- *List of daily swept and washed streets, daily hours of mechanical sweeping and washing*
- *Monthly inventory of bins, street by street, with ID number and state*
- *Displacement, maintenance or missing of bins, washed bins: list of concerned bins (street, ID number), specific repair, date*
- *Feed back on demands of the Heads of Quarter or supervisor about lacks of quality or quantity.*

Main tasks of the inspector in the disposal site, Municipality of Shkodra (CSD, 2008):

Controls and collects information of quantities of services

- *Reports for each truck : truck ID, hour, owner, type of waste (if special)*
- *Reports of hours of machineReports of any special events on the site: fire, accident, etc.*

Control quality of waste

Inform supervisor if waste dispose is non-conformal with the reception rules;

Provide weekly report to the supervisor

It is crucial, that the supervisor is regularly controlling the correctness of the data provided by the company, this needs to be specified in his/her TOR and in case of non-compliance, measures need to be taken by the public service department towards the supervisor.

Monitoring of the local performance on WM and environmental standards

Local authorities should start to monitor and keep records about inappropriate waste collection, illegal, dumping or urban pollution which generates from inappropriate waste exposure. Therefore, local environmental inspectors should check or identify the environmental urban threats and problems caused by waste generation and from the lack of services and lack of adequate treatment: e.g., informal disposal, burning of waste, etc.

Then, local authorities should ensure that all these environmental problems are recorded accurately, reported, and timely addressed (avoided or minimized)

Monitoring of the costs of the services

Collection, transport and transfer facilities should develop and maintain an effective system for cost and performance reporting. Collected data should be used to forecast workloads, truck costs, trace the origin of problematic waste materials, evaluate crew performance and control/avoid robbery of fuel or work time.

Each waste collection crew should complete a daily report containing the information below:

- Total quantity hauled (maintenance of the truck), Number of loads hauled,
- Time of going out of the depot, of beginning collection, of arrival and going out of the landfill, time of going back to the depot,
- Total time of transport, total distance of the day,
- Amounts (tons) delivered to each disposal, transfer, or processing facility.
- Waiting time at sites.
- Quantity of fuel charged, fuel consumption,
- Maintenance of the truck, vehicle or operational problems or operation needing attention, etc;

This data is used: to optimize the service and to verify if the service has improved or not when it is finished, if consumption of fuel is stable etc. They are also used to compare the efficiency of one crew to another or one LGU to another to find better solution.

If the organization of services is public, this information as a testimonial for the efficiency and the quantity and quality of the work performed by the employee. If the service is private this allows the efficiency control, to identify distortion in contractual relationships, quality and quantity, control the bills and define fines.

Monitoring Indicators

Each local government should develop a set of monitoring indicators, in order to measure and evaluate the performance of the services and waste operations. The following box recommends the monitoring indicators derided by the purpose of the monitoring.

Recommendation 41: Monitoring indicators and responsibilities		
Purpose	**Indicators**	**Who should monitor and report**
Check the quality and quantity of services linked with the fulfillment of the quality and quantity standards	**Coverage and Level of standardization:** % of local area covered with services (by population, households, area etc.); number of containers and collection points/ per persons; % of open points, collection frequency per week, % of overflowing containers or public collection points(PCP); % of cleanliness of public collection points; and level of cleanliness; Km or square(m2) of street cleaning and washing; No and % of standardized vehicle used; Population (not) served per vehicle; Households served per worker; **Waste minimization:** Number of new (at-house) composting activities; Number of new source-sorting consumers; No or % of PCPs have segregation containers or number of segregation collection points; Amount (% and tons) of recycling material prepare for re-use or recycle; % of waste recycled, composted; **Waste land-filling:** Tons or % of waste goes to the landfill;% or tons of processing plant capacity and throughput; No of the trucks disposed, type of waste	**Waste management departments; service supervisors, inspectors;** **Recycling programme manager, officer, etc;** **Landfill manager, supervisor, etc;**
Check environmental urban threats and problems: caused by waste generation and from the lack of services	(approx.) Tons and % of waste goes to unauthorized sites, Tons and % of waste illegally disposed, etc; No. of illegal points within city area; No. of hazardous waste disposal site, points within city area; No. of penalties issued for informal disposal of waste, and from other pollution sources from the public, firms, etc; No of environmental inspectors (e.g. per 10,000 inhabitants, or per urban space)	**Environmental inspectors, municipal police officer,** **Waste management officers**
Check the Efficiency: To check the efficiency of the services:	Cost for waste collection, transportation and disposal (per ton or cubic meter) Man-hours (or man-days) for waste collection, streets cleaning; Man-days per inhabitants; % use of vehicles; Time of use of vehicles, time of collection, transportation, hours of work of bulldozer; etc; % of time maintenance store used;	**Service providers managers; service supervisors, maintenance store manager;**
Check the Community satisfactions	Satisfaction with level of services, city or neighborhood cleanness, etc; Waste service complaints No or % of inhabitants, businesses willing to pay Number of persons that actively participates in local initiatives on awareness, waste minimization, etc;	**Waste management department, complaining offices, NGOs, community representatives; heads of city quarters;**

A model for monitoring and evaluating the LSWMP- Matrix of Objectives Evaluation [73]

		Nr				
		OBJECTIVES				
		Quantitative indicators				
Performance	Service Performance	% Rate of service coverage: Nr. of standardized points/containers				
		Quantity (kg) of collected and separated special waste (from households)				
		Cleaned area per inhabitant / day				
	Service Efficiency	Working hours (of workers) per ton of waste and m2 / working hours (of vehicles) per ton of waste and m2 of street				
		Cost of unit in Lek (Euro) per ton/m2				
Waste reduction and recovery	Waste separation (3 bin system)	Budget versus needs (%)				
	Recycling & reuse	Budget (Lek) per inhabitant or per quantity (ton) of managed waste				
	% Treated with energy recovery	Capital investment per person / year				
Finances	Financial stability	% Rate of coverage of operational cost / maintenance / depreciation				
		% Rate of household fees collection				
	Cost coverage					
		Invoiced Income / Collected Income				
Impact	Health at work	Security, safety measures at work				
	Risks for public health	Waste incineration, potable water pollution, infections				
	Environmental impact	Pollution of water and soil from waste				
Institutional	Regulations	Nr. of approved regulations				
	Information	Nr. of complaints / replies				
	Rule s application / Pollution control	Hours of waste inspection / Nr. of fines for waste				
	Permissions	Nr. of permissions given for waste				
Involvement of Actors	Community, NGO-s	Nr. of inhabitants, NGO-s, businesses involved in activities and initiatives				
	Projects	Nr. of projects / activities / products / budget (LEK) regarding waste				
Opinion	Citizens	Level of satisfaction (questionnaire)				
	Business	Level of satisfaction (questionnaire)				
	Workers	Level of satisfaction (questionnaire)				
Qualitative Elements		(++)Positive /Important Great effect /change	Comments			
		(+) Positive/useful/wanted/poor/side effect/change				
		(-) Negative poor/side effect/change				
		(--) Very negative effect/change				
		Empty cell: there is no change/effect or there is no relation of these to the objective				

[73] Model developed for the LSWMP of Municipality of Fier

A Model for Monitoring and Reporting of Cleaning Services by District Representatives [74]

Daily Report	District:	Repre-sentative/ Head of the district:				Day/Month:			Has been given to the super-visor on:			date……..
			Waste collection			Cleaning maintenance of the WCP and streets	Sweeping of the streets	Washing of the streets				
Street	ID of Waste Collection Point	To be washed during the summer	Number of the containers	service Frequency 1/day ose 1time in 2 days	Poor quality: uncleaned containers, damaged containers, unwashed containers, missing containers	Lack of cleaning maintenace: WCP, street	Lack of service or poor quality of sweeping services	Lack of service or poor quality of streets washing services	Date of observation	Date of communication to the company and to supervisor	Date of the repair of the problem	Other problems and concerns (need for containers, new WCP, displacement of the WCP, etc.
Name of the street												
B	B1	Y	3	1/day		13 March: WCP not clean	Streets uncleaned, garbages in the streets		13-Mar	13-Mar		insufficient number of containers, overflowing containers
C	C2	Y	2	1/day	container # 207 is missing				13-Mar	13-Mar		

[74] Model developed for the Municipality of Shkodra

Models of Job Description for Different WM Staff

Tasks and responsibilities of the Service Provision and Urban Sector Responsible & and of the Cleaning Specialist[75]

Municipalities (Mayor or Municipal Council) must approve tasks and responsibilities of the service sector in relation to waste management and of the specialist prior to the implementation of the waste collection scheme.

Duties of the Sector Responsible:

1. Responsible for organizing the work in the Service Sector
2. Liaise directly with the administrative and planning sectors as well as with management and decision-makers; reports periodically, as and when requested, in writing or orally on the completion of tasks, requirements and makes concrete proposals for improving the situation of the sector.
3. Maintains an ongoing relationship with subordinates in the sector and the responsible of the cleaning brigade seeking continuous information; supervises and directs staff under his supervision, assigning them additional duties as appropriate.
4. Reviews, responds and provides resolution requests and complaints of residents.
5. Together with the Finance & Budget sectors, designs and follows its implementation; in collaboration with the Division of Revenue participates in planning fees and oversees their 'collection' process.
6. Oversees the implementation of services and schedules, the work of cleaning brigade for each work operation and takes decisions and solutions to further improve the service.
7. Prepares draft decisions, ordinances, and regulations and proposes them for approval by the Chairman or Municipal Council.
8. Conducts studies and analysis of existing situation and prospects of the service;
9. Strictly follows the practical application of legislation in force, decisions, and orders of Council.
10. Raises issues on all agents polluting the environment and participates in their resolution.
11. Prepares projects under the framework of cleaning, pollution prevention and environmental awareness in the community.

The Operational tasks of the Service Specialist:

1. Based on the working schedule, municipal regulation of waste management, on the decisions and orders in force, it is the supervisors' duty to check the performance of all cleaning processes, their frequency and quality of cleaning.
2. Perform daily checks for each item of work, identifies all the shortcomings, and prepare weekly minutes for any work unperformed.
3. Review all the complaints, and evaluates them in cooperation with the brigade, other sectors and planning administrators, elders, community groups, citizens and business plans and provides solutions.
4. Oral and written report to the services sector and other sectors.
5. Prepares a monthly situation report on the work done and incurred expenditures, and reports to supervisors, decision-makers and management staff.
6. Participates in the preparation process of environmental projects.

[75] Example taken from the 'Follow up support" for the implementation of the LSWMP of Commune of Guri i Zi

7. All aforementioned tasks and responsibilities are to be accomplished by first and foremost keeping the city clean.

Terms of reference for the supervisor(s)[76]

In addition to the basic profile (legal requirements, license), the supervisor must have the ability to make the acquisition and treatment of the data (statistics, summarizes) on Excel.

The supervisor should also have the ability to work with cartographic data on a GIS (identification and positioning of the bins, trucks' routes,). If it is not the case, he could be helped by the GIS specialist within the Municipality.

The supervisor is responsible for the control of the respect of the cleaning contract.

He is working (contracted) for the Municipality under responsibility of Public Service Department (if possible within the Municipality offices).

The following points are describing more specifically the **main tasks of the supervisor:**

1. Coordination between the heads of quarter, the Municipality and the Company for the implementation and the further functioning of the new system
   - Positioning of the bins
   - Explanation to the Company of the work to do (points to collect, areas/streets to sweep, to wash, schedule,)
   - Verification that the work plan of the Company is meeting the requirements (work to do) and the needs of the population at any time
   - Verification that the technical specifications and legal requirements are met by the Company at any time
   - Organization of meetings with all the partners (heads of quarter, Public Service department and representives of the Company) when necessary
2. Establishing statistics and controls of quantities (new templates + excel file)
   - Compiling the data provided by the Company (see below: statistics provided by the Company); monthly.
   - Compiling the data provided by the heads of quarter and the controller on the disposal site weekly
   - Cross-checking the data; weekly
   - Doing field controls, meeting heads of quarter and ordering additional clarifications; daily or when necessary
3. Establishing weekly and monthly reports to the Municipality, based on the reports of the heads of quarter and statistics
   - Quantities of services: control and validation of the billing
   - Lacks of quality: bins not collected, streets not swept, collecting points not clean, damaged bins, disposal out of the landfill
   - Makes propositions of penalties to the Municipality, if necessary: based on the contract, reports of the heads of quarter and statistic
4. Ordering special needs to the Company in the frame of the contract and the budget
   - Collection of inert or voluminous waste
   - Cleaning (waste collection, sweeping, washing) work in case of special events
   - Decision of reduction or moving of bins or proposition of increasing their number, if

[76] For controlling a contracted cleaning service, e.g., taken from the Municipality of Shkodra

necessary
- Immediate information to the Company and delay given for the correction in case of lack of quality. Control of the effective resolution of the problems

5. Establishing propositions of adaptation/improvement of the system
   - In close collaboration with all the partners
   - Based on the valid propositions of the Company
6. Establishing propositions of special expenses and help to the preparation of annual budget for the Municipality
   - adaptation/improvement of the work
   - special expenses out of the budget (inert, open points,…)
   - purchase of new bins
   - modification of annual budget
   - proposition of additional communication campaigns to improve the citizens' awareness

Statistics provided by the Company:

The contractor has to hold a daily statistic on the main following points and report it monthly, on a paper and on digital form, to the supervisor:

- daily number of loaded bins on each route
- real hours of collection: daily time of departure of the trucks, time of unloading on the landfill, time of coming back to the garage
- Daily km of each truck
- Fuel and oil consumption of each truck, maintenance operations and date
- daily number and itinerary of trucks routes
- list of daily swept and washed streets, daily hours of mechanical sweeping and washing
- list of employees and daily hours of work
- monthly inventory of bins, street by street, with ID number and state
- displacement, maintenance or missing of bins, washed bins: list of concerned bins (street, ID number), specific repair, date
- feed back on demands of the Heads of Quarter or supervisor about lacks of quality or quantity

Propositions from the Company to the supervisor (monthly report) :

- Propose to add bins were necessary
- Propose to reduce bins were necessary or displace them
- Propose to add new collection points
- Propose all possibilities of improvement of services, waste recuperation, etc.

Evaluation Model: Efficiency of Waste Collection and Transportation versus Population Size

1. Technical and financial assumptions

Note that all the calculations are estimated to show potential variation of costs. Each specific case needs a more detailed analysis.

Cost calculation (truck only, no wages)	Unit Cost	Quantity	LEK	Euro
Investment				
Waste collection truck **10t**	11,360,000 LEK	1	11,360,000	82,319
Investment total			**11,360,000**	**82,319**
Operating costs				
Truck insurance + vehicle tax	100,000 LEK/truck/year	1	100,000	725
Oil + filters	75,000 LEK/truck/year	1	75,000	543
Tires	180,000 LEK/truck/year	1	180,000	1,304
Mechanical maintenance	150,000 LEK/truck/year	1	150,000	1,087
Parking lot	50,000 LEK/truck/year	1	50,000	362
1st total			**555,000**	**4,022**
Amortization				
Truck amortizaton, on 10 years	1,136,000 LEK/y	1	1,136,000	8,232
2nd total			**1,691,000**	**12,254**
Administration	9% of 2nd total		152,190	1,103
Net income	4% of 2nd total		67,640	490
Total (annual, excl. VAT, excl. fuel)			**1,910,830**	**13,847**

1 EUR = 138 LEK

2. Urban waste collection and transportation

Technical assumptions and estimates		Quantity	Unit	Comment
Solid waste production	0.6 kg/inh/day		t/day	
Estimated time to load a truck: 10 t		3	h	
Speed of truck: transport on road		60	km/h	
Distance covered during collection		55	km	
Fuel consumption during collection for a 10 t truck	3 l/h	9	l per shift	175 LEK / l
Fuel consumption during transport for a 10 t truck		0.7	l/km	
Estimated time to unload truck		0.25	h/shift	
Work days per week		6	days/week	
Work days per week and per truck		42	h/week/truck	
Hours en route		6	h/day	
Hours of preparation and maintenance		1	h/day	
Total shift		7	h	
Total fuel consumption per day		62	L	*Depends on distance to landfill here used 10km

3. Solid Waste Production In Municipality

Population (inh.)	5,000	10,000	20,000	30,000	40,000	60,000
Solid waste prod. (t / day)	3	6	12	18	24	36
Percentage of truck capacity filled (1 tour)	30%	60%	120%	180%	240%	360%
Time to fill truck (h)	0.90	1.8	3.6	5.4	7.2	10.8
N° of trips made by each truck (single journey)	2	2	4	4	6	8

4. Daily rate of truck usage (%)

Distance to landfill site (km)						
0	16%	29%	59%	84%	114%	169%
10	21%	34%	68%	94%	128%	188%
20	26%	39%	78%	103%	142%	207%
30	31%	44%	87%	113%	156%	226%
40	35%	48%	97%	122%	171%	245%
50	40%	53%	106%	132%	185%	264%
60	45%	58%	116%	141%	199%	283%

5. Evaluation of the need for trucks and transfer station

	Annual cost						
0 km	Fuel cost (LEK) for collection	91,064	182,000	364,000	546,000	728,000	1,092,000
	Fuel cost (LEK) for transportation	-	-	-	-	-	-
	Total cost per ton (LEK/ton, truck only, no wages)	1,828	607	519	607	607	519
	Total cost per ton (€/ton, truck only, no wages)	15	5	4	5	5	4
10 km	Fuel cost (LEK) for collection	91,000	182,000	364,000	546,000	728,000	1,092,000
	Fuel cost (LEK) for transportation	472,000	472,000	943,000	943,000	1,415,000	1,887,000
	Total cost per ton (LEK/ton, truck only, no wages)	2,259	822	735	750	768	663
	Total cost per ton (€/ton, truck only, no wages)	18	7	6	6	6	5
20 km	Fuel cost (LEK) for collection	91,000	182,000	364,000	546,000	728,000	1,092,000
	Fuel cost (LEK) for transportation	943,000	943,000	1,887,000	1,887,000	2,830,000	3,774,000
	Total cost per ton (LEK/ton, truck only, no wages)	2,689	1,037	950	894	930	807
	Total cost per ton (€/ton, truck only, no wages)	19	8	7	6	7	6
30 km	Fuel cost (LEK) for collection	91,000	182,000	364,000	546,000	728,000	1,092,000
	Fuel cost (LEK) for transportation	1,415,000	1,415,000	2,830,000	2,830,000	4,246,000	5,661,000
	Total cost per ton (LEK/ton, truck only, no wages)	3,120	1,253	1,165	1,037	1,091	950
	Total cost per ton (€/ton, truck only, no wages)	23	9	8	8	8	7
40 km	Fuel cost (LEK) for collection	91,000	182,000	364,000	546,000	728,000	1,092,000
	Fuel cost (LEK) for transportation	1,887,000	1,887,000	3,774,000	3,774,000	5,661,000	7,548,000
	Total cost per ton (LEK/ton, truck only, no wages)	3,551	1,468	1,599	1,181	1,253	1,094
	Total cost per ton (€/ton, truck only, no wages)	26	11	12	9	9	8
50 km	Fuel cost (LEK) for collection	91,000	182,000	364,000	546,000	728,000	1,092,000
	Fuel cost (LEK) for transportation	2,359,000	2,359,000	4,717,000	4,717,000	7,076,000	9,435,000
	Total cost per ton (LEK/ton, truck only, no wages)	3,982	1,684	1,814	1,325	1,414	1,237
	Total cost per ton (€/ton, truck only, no wages)	29	12	13	10	10	9
60 km	Fuel cost (LEK) for collection	91,000	182,000	364,000	546,000	728,000	1,092,000
	Fuel cost (LEK) for transportation	2,830,000	2,830,000	5,661,000	5,661,000	8,491,000	11,322,000
	Total cost per ton (LEK/ton, truck only, no wages)	4,413	1,899	2,030	1,468	1,576	1,381
	Total cost per ton (€/ton, truck only, no wages)	32	14	15	11	11	10
	N° of trucks	1	1	2 *1 or 2	2	2	3

Comment : cost per ton can be reduced doing more than 1 collection per day and per truck, or more than 7 hours per day with 1 truck

Conclusions

- Insufficient use of truck, high cost, need private sector contractor or inter LGU cooperation
- Need more than 1 truck or transfer station
- Transportation too expensive, need transfer station

ANNEX 3: Awareness, Information, and Public Participation Protocol

Awareness, information and Public Participation

a) Importance

In order to have an efficient and well-functioning waste management system, it is important that the public understands the system and supports it. For example, the success of any waste collection or recycling scheme relies on the support among the users, e.g. the households, business or residents can greatly affect the performance of the collection system (costs, quality, and timing).

b) Perform Information and Awareness Activities

There are several ways for raising public awareness on waste issues and providing information on how they can be dealt with. Relatively low cost measures to raise public awareness may have a significant positive impact on environmental conditions.
In particular attention should be given to measures which:

- Provide information for the public at local level,
- Enhance awareness of legal and regulatory requirements,
- Promote environmentally friendly behavior, e.g. promotion of recycling or composting.

Commonly information, communication methods

Communication materials should be used to help residents understand the community waste management challenges and the progress in meeting them. Proposed methods of communicating information include brochures, articles in community newsletters, newspaper articles, announcements, and advertisements on local radios and televisions and local school handouts.

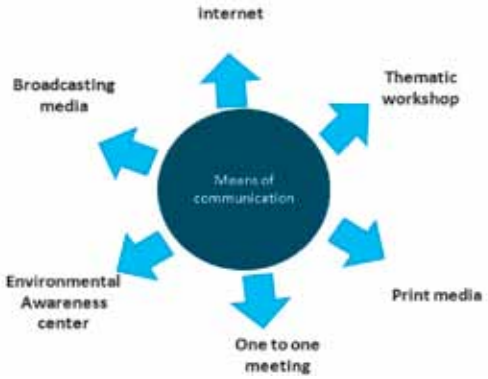


Figure 18 Various means of communication[77]

The list below gives on overview of some of the many tools available that can be combined for this purpose, distinguished broadly by cost categories.

[77] United Nations Environment Programme, 2009, Developing Integrated Solid Waste Management Plan,Training manual, volume 4

Recommendation: Methods of Publicity[78]		
Low Cost	**Medium Cost**	**High Cost**
News releases News advisories Public service announcements Community calendar announcements News articles Newsletter articles Speeches Guest spots on radio, T.V. Poster contests	Flyers Posters Fact sheets Briefing papers Media events	Commercials, T.V., radio Billboards Media events Calendars Advertisements Public relations firm

Involvement of youth and marginalized groups

Awareness campaigns should be organized to increase youth awareness on waste management and natural environment. Joint activities should be organized with schoolsand other educational institutions in order to involve youth in the municipal projects or initiatives.

Awareness and education activities with students
Exhibitions with painting and essays of pupils and students could be organized for children and youth with the aim of increasing their awareness on environmental issues. Other activities, such as organizing and celebrating Cleaning Day of the Community and other environmental days are deemed very important for youth involvement and awareness related to their role in the environment.

Door-to door" method

Door-to-door method: is mostly recommended to invite participatory households and business in recycling or composting initiatives, to improve their behavior toward waste segregation, following rules and schedules. The inhabitants and businesses are provided with an information folder on waste types to be recycled, home composting methodology, etc.

Use trucks and bins for information

On all the vehicles, and if possible on all containers *Keep your town clean* or any other slogan, may be written and clearly visible (letters shall be at least 10 cm), as well as the phone number of the service provider and the green number assigned by the local authority, according to a format approved in advance.

In additions, to all the distributed vehicles and containers, clear explanations on the type of waste to be collected, the hours for picking up the waste and environmental awareness messages will be available.

[78]EPA Decision Maker's Guide to Waste Management-Volume 2

How to minimize public opposition (from prejudices)

There is a discussion on what local authorities should do to avoid public opposition even regarding the best environmental solution in a regional or local context. One suggestion recommended here is that the citizens should be included earlier in the decision making process and make possible that issues are clarified and discussed properly.

How to inform about the necessity to pay?

As mentioned before, it is crucial that the waste services costs and tariff establishment process should be transparent and understandable to everyone. Especially if an element of local fee collection for WM services will be promoted, the active involvement of the local population is the key of success.

This can be organized for instance by creating local/neighborhood environmental committees, performing awareness campaigns and as well as by providing extensive information on citizens' tasks and necessity to pay.

Feedback mechanisms

Getting feedback from public helps the organization of collection and disposal to make improvements to the service and on the other hand create sufficient trust among inhabitants that their opinion and ideas are taken into account.

Two main methods to gain feedback from the public comprise:

- **To the public the possibility of complain**: The local authority or service provider should have information Contact Office for receiving complaints.
- **Demand assessment and willingness to pay study/survey:** To assess demand, willingness to pay, and affordability, there is a need to communicate with potential service recipients on the topics of service options, costs, and payment scenarios. For each type of community or area to be surveyed, a sample of between 100 to 200 respondents is desired.

Internet - by putting up a dedicated website[79]

- Interactive website can prove to be an effective mode of communication especially to reach the children, college going students and all members of the community. Internet is powerful tool to gain public feedback/complaints for the service and other local activities.
- **The website may include the following features:**
  - Frequently Asked Questions (FAQ) in question and answer format.
  - Accept queries or comments;
  - Provide Information about various workshops happening in the city on waste management;
  - A feature stating the existing waste regulations in a form easily understood by common people;
  - Facility for lodging complaints

[79] UNEP, 2009- Developing Integrated Solid Waste Management Plan,(Training manual, volume 4)

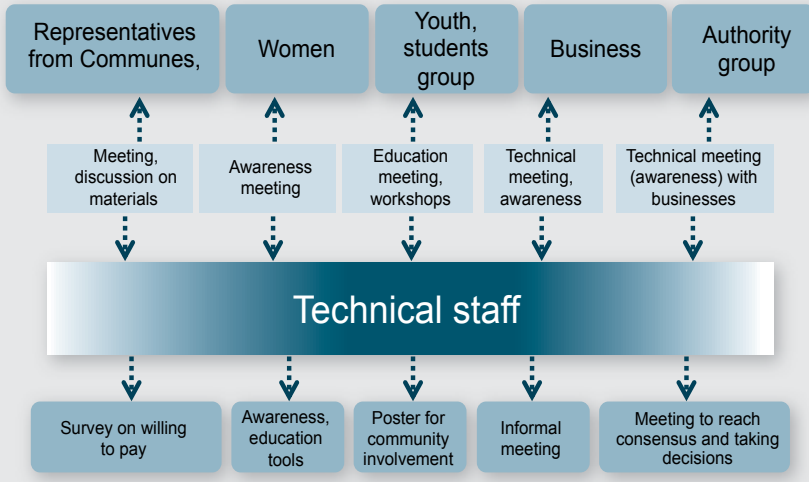
Public Participation Model for Developing a LSWMP

Participatory Process for the Development of the Local Waste Management Strategy in the Commune 'Ana e Malit'[80]

Waste management is a local service as part of local government is therefore, increasingly closer to the citizen. Seen from this perspective, citizens as direct voters, as well as direct beneficiaries, assume significant importance in ensuring sustainable service. Based on this reasoning and concrete analysis, REC Albania undertook the process of technical support for drafting the Waste Management Plan of the commune 'Ana e Malit' in Shkodra.

From the outset, the groups of stakeholders, with whom we would communicate and consult every step of the way, were carefully identified and analysed: an administrative group, elected council in villages, groups of businesses, a representative group of the women and girls, youth group and the group of authorities active in the commune. In addition, a communication and awareness scheme was designed, based on the simple tools of communication, nonetheless 'learning tools', which were spread throughout the community. Stakeholders actively participated in meetings, while the means of communication and learning process aimed at learning-during-the-process. Special attention was paid to the preparation and distribution of brochures and leaflets for people to understand *what waste was and how to separate it*, *health and environmental threats*, etc. The need for information came directly from the discussion with the residents who submitted their ideas, step by step, in response to the need to know more and respond better. The work in the commune was conducted to the following scheme. It produced valuable results, especially in understanding the level of local perception, the need for direct and real self and citizen engagement.

Communication and Community Involvement Scheme:



By the time the drafting was concluded, the values of the participatory process became very clear. Citizens learned to express themselves clearly and to understand the technical and economic part of the plan. On the other side, the commune personnel were given the opportunity to realize the value of dealing with its citizens, often in high numbers, such was the case of the 'women's participation who contributed with innovative ideas in recycling and reuse of waste. The best lesson learned from the process is that when people feel involved, that they can express themselves and be heard in return, they are ready not only to support an initiative, but also take it a step further than what the planners do.

[80] REC and Municipality of Ana e Malit (2011), Waste Management Strategy

Model of Information Package to Citizens

How the Mayor of Municipality of Lezha informs citizens on the performance indicators of the first year of the Waste Management Plan and invites them to co-monitor its implementation	
SERVICE THAT WILL BE OFFERED	**EXPECTED RESULTS IN THE 1st YEAR**
104.223 m2 of streets cleaned **89.928 m2** of streets washed with machines **234 containers** emptied out; **73 new containers added in Zone A** and the city will have a total of **234 containers:** Zone A=143, Zone B=67, Zone C=24; **13 new points will be placed 2+1 containers added in Zones A and B of the city** and the total number of points will be 90: Zone A=48, Zone B=22, Zone C=20 **3561 households of 'Zone A' separate waste in two streams**: in organic (NRC) and inorganic (RC) **1516 tons of recyclable waste (RC) of Zone A are removed from containers and transported to the Recyclable Waste Separation Center (WRSC)** **RWSC is established,** which prepares waste for recycling (in tons): 573-paper, 628-plastic, 263-glass, 52-metal **3680 households** pay the cleaning a cleaning tariff of 13,216 thousand ALL of incomes; **Citizens survey** on the quality of the service;	**28 %**of total streets are cleaned **24 %** of streets are washed **100%** of households benefit from waste removal **75 %** of the city is covered with containers by waste generation **86 %** of the city is completed with points: 2+1 containers in each point (1 for RC waste and 2 for NRC waste) **46 % of households** benefit non recyclable waste removal and separate their wastes at source, in two streams; **17% less wastes going to** in landfill of Bushat and the transportation **cost is lowered by 3%** for the Municipality **13 % of wastes which are separated** by RWSC have a secure market (paper/cardboard and plastic) **43 %** of households pay the cleaning fee **43% of operative cost is covered by fees, where 10%** is covered by households **72 %** of the citizens are satisfied with the new service;
SERVICE STANDARD	**SERVICE COST**
Cleaning and washing of streets: Each day: Roads, squares and sidewalks are cleaned. **In the period of May-October:** cleaned surfaces are washed with machine; **Waste removal: Each day:** Organic wastes are removed from appropriate containers and deposited in landfill of Bushat. **Once in two days:** Recycled wastes are removed from appropriate containers and deposited in RWSC; **Disinfection of points and washing of containers: Each day**: The area around containers is cleaned. **Twice a week**: Each point is disinfected with lime and chlorine in a surface of 6m2. **Twice a month**: Each container is washed with detergent; **The standard** of 1 point for 100 households is followed (2+1 containers in each point); **Fee level** by fiscal package: Households: Zone A 1300 ALL/year, Zone B 650 ALL/year and Zone C 400 ALL/year. Families with economic aid and disabled individuals, 300 ALL/year;	**30.675 thousand ALL/year is the Total Operative Cost** of the cleaning and waste removal services **8.266 thousand ALL/year** is the cost for cleaning and washing of the streets; **7.826 thousand ALL/year** is the cost of collection and transport of waste in appropriate destination **2.175 thousand ALL/year is the cost of** cleaning, disinfection of points and washing of containers **6.730 thousand ALL/year is the cost of** waste treatment in landfill **5.678 thousand, other, supervisor, VAT** **8.070 thousand ALL is the Capital Cost which will be funded by donators** - **1.825 thousand ALL** for purchasing and replacement of 39 containers in zone A; -**4.355 thousand ALL** for RWSC reconstruction; -**1.890 thousand ALL** for RWSC equipments

[81] Waste Management Plan of Municipality of Lezha

A Model of *How to develop an information and awareness program* [82]

STEP 1: PRELIMINARY AWARENESS ACTIVITIES: Local authorities try to promote to the community or to pilot areas, new ideas or new ways of doing things like new waste collection (at-source) waste separation, waste reuse, alternative bring waste methods, etc; by performing general and focused awareness campaigns;
The goal of the awareness stage is to let people know that a different way of handling waste may be preferable to the tradtional way and that good reasons for considering a change in their waste management practices do exist. The most preferable awareness campaigns includes different methods of publicity (see table of 'Methods of Publicity'), 'door-to-door' methods with consumers, students, et**c; [83]**:

STEP 2: INCREASING INTEREST: In the second step, individuals who are now aware of waste management issues and new ideas or programs seek additional information.
The goal is make them aware about waste management, recycling and composting practices. During this stage, program developers may need a variety of methods to explain in detail the program to the individuals and trying to increase their interest; Local authorities may organize meetings, workshops, site-visits to waste or recycling facilities, etc, with participation of individuals and group of interest by involving professionals and waste managers.

STEP 3: EVALUATION AND ADOPTION: At this stage, program managers and individuals decide to evaluate the program, if the program is clear, practicable, suitable and affordable for individuals, effective and efficient enough according to expectations and toward objectives. The evaluation may correct certain activities, schedule or routes, and take decision on whether to go along with the program. On the other part, local authorities aim to involve individuals close to the program, to increase their participation and contribution.

[82] During Coaching session of dldp-2
[83] Illustrations from awareness activiies and materials used in City of Shkoder, Lezha and Fier

STEP 4: TEST THE SUSTAINABILITY: During this stage, both local authorities and individuals seek proofs of sustainability from current partnership, in order to be assured that his contribution matters and there is a mutual commitment by the other part. Interviews, public meeting and workshops are recommended to show results and steps for the future.

STEP 5: CONTINUITY AND INCENTIVES: This phase is known as *follow up* phase where local authorities try to increase level of participation, enlargement of the schemes and improve individuals contribution, by using different incentives (like financial, fiscal, etc). Local authorities define and approve these incentives and organize different promotion activities to the public and individuals. These incentives can be accompanied by clear and comprehensive rules and obligations and continuous information and communication activities;

ANNEX 4: Regulation and Contracting Protocol

Local Rules Considerations

a) Importance of Rules and Regulation

To fulfill its *regulator* function' the local authority aims to ensure that legal, regulatory and environmental standards are met. In this regard they are responsible for establishing and approval of regulation for local management of urban waste, for authorizing and issuing permits for waste management activities, etc, which will ensure a successful waste management within its administrative territory.

Through the regulatory instruments, local authorities enable the establishment of the rules and obligations for inhabitants, commercial and institutional units, defining the role of waste operators, methodologies and the responsibility of controlling and imposing sanctions.

Rules may include anti-litter and anti-dumping by-laws, fees to be paid for WM services or a by-law requiring wastes to be presented for collection in a specific manner. By-laws can also specify certain fine levels say for littering or illegal dumping.

b) Content of the Waste Management Regulation

A common Waste Management Regulation[84] (WMR) may content the following main elements:

Rules and Obligations of waste producers:

- No damage of the bins; change of destination of bins; damage and change of destination of the designated places for waste collection;
- Discard of waste; No burning of waste in waste containers; No throwing of waste into water courses and storm drains; Littering of waste in public territories;
- Avoidance and prevention of abusive discard of voluminous waste or hazardous waste; disposal of dead animals and noxious materials;
- Avoidance of parking vehicles in front of/ or close to the designated places for waste collection;
- Clean space around shops or ambulatory selling points; Hygiene and disinfection of containers and waste stores;
- Payment of local tariffs and taxes on waste;
- Other public health matters.

Rights and Obligations of waste holders (waste operators, waste industry)

- Operation to be carried out only by licensed contractors;
- Administrative procedures for issue and revocation of licenses;
- Payment of charges (tariffs, taxes) levied by the local authority;
- Use of appropriate vehicles and containers;

[84] A complete model of Local Regulation on Waste Management is given at Annex 8

- Use of licensed disposal sites;
- Register of customers served;
- Keeping of waste records;
- Prevention of public health nuisance;
- Other public health matters such as health, safety and emergency procedures.

c) Enforcement and Sanctions

In the framework of ensuring the implementation of the local rules on WM[85], local authorities should determine a set of fines and sanctions, which should be approved at municipal Council. The fine and sanction levels should be based on service provision and the *polluter pays* principle that the violation should be punished in order to take in consideration cleaning or collection costs, environmental costs and furthermore to provide a fair system, to discourages and prevent polluters. Local fines should be imposed by the municipal inspectors, which fall under the jurisdiction of the local authority.

A Model of Local Regulation on WM

COMMUNAL REGULATION OF WASTE MANAGEMENT[44]

CHAPTER I
GENERAL PROVISIONS

Article 1
Intention

1) Detailing the rights and duties of all parties that participate in the management of solid waste. The regulation intends to facilitate the implementation of the legislation requirements in this area and to enable a continuous effective control of their implementation.

Article 2
The regulation object

2) This regulation determines the manner of environmental management of urban waste in the territory of the Guri i Zi Commune by specifying rules, techniques and methods of their administration at any stage of this administration, not including the waste processing, in order to protect by wastes the urban environment contamination and maintaining a healthy environment for the commune residents.

[85] Local Regulation on WM

[86] Developed in the Commune of Guri I Zi, under the dldp-1 (Co-PLAN, 2009)

Article 3
Definition of terms

In terms of this regulation:
3) *solid waste*: is a waste type consisting of everyday objects or substances resulting from human activity or natural cycles destined to be discarded.
4) *administratio*n: collection, transportation, recovery and waste management, including control of these operations, for even more and the control of discharging areas and treatment implants after shutting down the activity;
5) *Waste producer*: is a physic and legal person, whose activity creates, produces waste.
6) *urban wastes collection* is the process of waste picking up, selection and regrouping to certain places.
7) *Differential collection*: is a suitable collection for regrouping of urban waste on commodity homogeneous fractions, including wet organic fraction, intended for reuse, recycling and recovery of raw materials;
8) "*Submission*" is the extraction and urban waste disposal from their manufacturers in waste collection places.
9) *Public urban waste removal* means the process of submission, collection, transportation and urban waste collection.
10) *Waste manager*: company/enterprise, which through service contracts, licenses (permits), the Commune delegate/allow them the waste management process;
11) *Unacceptable waste,* are hazardous or voluminous wastes, which are administered by particular laws.
12) *Hazardous waste* means toxic, corrosive, irritating, explosive, inflammable, cancerous, infectious and radioactive substances that have the ability to destroy the property of the natural state of water, soil and air, with consequences for human health and natural ecosystems.
13) "Landfill is a site designated by local government bodies for waste processing.
14) *Final deposit (extermination*): includes processes which do not foresee other waste processing and are closed after the waste deposits.
15) "*Waste processing*": is the change in properties or waste composition by transforming it into the final product or in raw or auxiliary material to the production of final products.
16) *"Recovery":* operations to ensure waste utilization for the profitability of products, raw materials or energy production;
17) "Waste recycling": renewal or renovation of the waste properties to be used later as raw material or as assistant material;
18) *Waste stocks*: is the process of product storage (disposal) after waste processing till to the final destination.
19) *Contract area* means areas within the yellow line, where the contractor will provide waste management services to existing customers, as well as those that may be added during the contract within the same area. Area boundaries define by the municipality or commune.
20) *Washing area* means the washing service of streets and in some cases also the sidewalks.

Article 4
The process of waste management

21) Waste management process intends to:

- leave less waste from the manufacturing operations;
- the created wastes, the degradable waste should occupy the leading place in

recyclable and editable ones;
- use only techniques and the best methods available based on environmental criteria for separation, collection, transportation, storage, processing and waste distraction;
- realize a much shorter cycle of waste management in order to reduce the time of their exposure to the environment;
- recycle and process waste as much as possible;
- collect and treat waste separately during at all stages of their administration and not allow the mix with hazardous waste;
- prevent further use of wastes from their treatment in a previous stage;
- reduce as much as possible the waste movement and transportation and their elimination to be performed in the nearest facility;
- prevent the environment pollution and to limited its impact when it occurs;
- preserve natural resources especially from the waste impacts;
- compensate and recover from physical and legal persons the pollution and damages caused by their waste mismanagement;
- perform a safe landfill for the residues that resulting from the waste processing;
- avoid any harm or danger to health, welfare and safety of person's life;
- ensure the hygiene and health requirements and to avoid any risk of pollution of urban environment;
- preserve fauna and flora, the landscape and environment from degradation;

22) All kinds of waste, as defined in this regulation, after submission of the creators are state property.

Article 5
Stages of waste management

23) Waste management process includes generation, collection, storage and deposit by the creator, systemic delivery to the containers, transporting from on-site containers for storing, sharing, recycling, processing and final disposal in landfills.

Article 6
Wastes classification

24) In view of this regulation the wastes are divided into the following categories:
- Urban waste;
- Industrial waste;
- Voluminous waste;
- Agricultural waste;
- Hospital waste;
- Construction waste;
- Residues in sewage system, etc..

25) According to the production origin the wastes are divided into: Urban Waste and Special Waste and according to risk characteristics are divided in: Hazardous Waste and Non Hazardous Waste.

26) "*Urban Waste*": are called the residues of houses, administrative buildings, social and public ones. In this category are included residues that result from commercial and service activities, vacation and entertainment places, amount and composition of which does not obstract their management with urban waste.

27) Special wastes are:
- waste from industrial activities, including the voluminous waste from these activities;
- "waste from agricultural activities";

- "hospital waste";
- waste generated by the "construction activities" or demolishing;
- waste from non-urban "artisan activities", "trading" or "service";

28) *Industrial Waste*: are called the solid waste generated as a result of manufacturing or industrial processes and does not participate in hazardous waste. Such residues may include wastes that are generated from the production lines for: electric energy, iron and steel, plastics and resins; letter, rubber products, stone products, glass and ceramic, textile products, transport equipments, but are not limited by them. This term in this regulation does not include mining waste industry and those of oil and gas industry.
29) *Voluminous wastes"* are called big facilities with sustainable consumption like appliances, computer equipments, furniture's, vehicle parts, concrete fragments, metals and other waste of voluminous proportions which dimension inhibit the use of common methods for their collection, transportation or disposal.
30) *Agricultural waste*: are the waste generated by plants cultivation and animal husbandry.
31) *Hospital waste* called "pathological waste" coming from anthropogenic autopsies and surgeries; "microbiological waste" which includes crop planted with different microbiological agents. Here are included also the medical laboratory cultures, pathological, pharmaceutical, scientific - research, industrial and business; "sharp waste" which includes needles, syringes, knives operations etc.
32) Residue (finite residue) from the activities of recovery and waste treatment, clay which comes from cleaning process and other water treatment and filtering of the turbulent waters and the collapse of river beds;
33) *Hazardous Waste*: from household use, are: paints for painting, writing varnishes, adhesives, solvents, photochemical products, pesticides, blank holder labeled "T", "C" and/or "F" and spray cylinders, batteries, car batteries, medicines, syringes, accessories for computing, mineral oils, vegetable oils, fluorescent pipes and any residue with mercury contents.

Article 7
Waste - subject of the regulation

34) Subject to this regulation are the urban wastes.
35) In view of this regulation, the Urban Wastes are divided into two categories:

- Recyclable Urban Waste - which includes waste that can be re-used or recycled (can be processed by using as raw material). In this category are included:
  - The metal waste;
  - The gardens (green) waste;
  - The plastic waste;
  - Paper and paperboard;
  - Glass Bottles (glassware) etc.
- Unrecyclable Urban Waste – for e.g. food scraps and kitchen residues with enzyme components etc., which includes all urban waste not included in the category of Recyclable Waste.

Article 8

36) The wastes produced by households but not included in the Urban Waste, for example hazardous waste, construction waste and voluminous objects are transported from their producers in respective areas of storage, specified by the Commune for each of the waste. The commune may offer alternative points for collecting them near residential areas.

CHAPTER II
CLEANING OF STREETS, SQUARES AND PAVEMENTS
Article 9
General

37) The commune authorities, with assistance and cooperation of relevant regional structures as representatives of the district state Sanitary Inspectorate, the representatives of the Environmental Inspectorate and those of the cleaning company/ enterprise, determine and publish the schedule for cleaning the streets, squares and sidewalks.
38) The Cleaning of streets, squares and pavements is done generally once in 24 hours, early in the morning or during evening hours when the urban activity is significantly reduced. During the day the cleanliness obtained by collecting and lifting from the squares, streets and sidewalks the solid waste and other pollutants.

Article 10
Cleaning of territories

39) Spaces and private territories are cleaned by their owners.
40) The public open areas which are not included in the cleaning city scheme are cleaned up by institutions or residents who are the users of this space.
41) All physic and legal persons that have stationery or ambulant activities and those who does transport activities are obligated to clean the territory around their facility or venue in width 5m.
42) The public open spaces included in the scheme of clearing are cleaned by the commune.
43) Commercial sites are cleaned daily after finishing the activities by administrators or users.

Article 11
Cleaning and washing of streets

44) Roads cleaning and washing is carried out by the commune, or by a third party in charge of the commune or contracted to perform this service.
45) Cleaning applies to all paved roads, cobbled streets, squares and the sidewalks of commune and township.
46) The commune has planned to administer all public green areas and to perform maintenance, preservation and cleaning of territory from the remains.
47) Use of uniforms for employees and special treatment in accordance with sanitary norms is strictly obligatory.
48) Frequency of cleaning service is determined from the commune based on the level of its pollution.

Article 12

49) The wastes which come from the streets, sidewalks and squares cleaning are placed at closers waste collection points according to the type of wastes.
50) It is categorically prohibited the dumping of wastes which comes from streets, sidewalks and squares cleaning in the electricity manholes, in the telephone manholes, in the potable water manholes, in the sewage manholes, in the hydrants manholes, in the carriers of water pits weather, in the beds of natural water flowing, in the natural or artificial water basins.

Article 13
Street containers

51) In order to ensure the public spaces cleaned can be putted and administered under the commune attention, street containers for scraps of reduced dimensions produced by pedestrians.
52) The pedestrians throw the various instant wastes like different package only the containers located in the city or placed close by the stores. It is prohibited their dumping on the street, on sidewalks or other public facilities.

Article 14
Cleaning of manholes and delivery of cleaning waste

53) Breakthrough manholes and street cleaning is done only by employees of the entity charged for their administration.
54) Before the rainy season should be performed the cleaning of all atmospheric water manholes to provide their proper function. After each cleaning, should remove immediately the debris resulting from their cleaning and should be disinfected around the manholes with disinfectant substances or lime powder with 5% content of chlorine.
55) The wastes generated by manholes cleaning should immediately remove by the responsible company and deposited at designated sites by the commune.

Article 15
Pollution of public spaces

56) Who conducts operation and/or activities that could lead to pollution of public spaces is constantly forced to keep them clean as what is mentioned above, in each case, and not to leave any kind of residues.
57) It is prohibited dumping and throwing on the sidewalk, streets and squares of residential areas the waste water resulting from cleaning or washing of public service locals.

Chapter III
SEGREGATION, SETTLING AND DELIVERY OF URBAN WASTE
Article 16
Waste segregation and settling

58) In cases where the commune provides the service of differentiated waste collection, the families and also the public and private entities which in their activity create wastes, they segregate them in groups as:

a. food waste
b. package (plastic, glass, paper, cardboard)
c. construction debris (mortar, bricks, concrete, soils)
d. Voluminous objects (chairs, tables, armchairs, etc.)

59) Each group of is treated and packed separately, in separate sacs or baskets.
60) Voluminous waste (as vehicles, machinery, equipment), brought by their owners in the special storing place. Abandoning them outside their places is a violation and it is punished as a violation.

Article 17

61) All entities in accordance with the nature of their activities that create different types of waste are obliged to have more than a container to collect and segregate their wastes.
62) The containers should be of different color or with visible inscriptions that orientate the separation of waste disposal. The containers should be placed in visible locations

and easily accessible.
63) State and private hospitals, clinics, health centers, laboratories, pharmacies, dental clinics are obliged to use waste bin system, one of which each is for hospital hazardous wastes which have to go to a special treatment.
64) Public and private nursery schools, kindergartens and schools could use the system of some different bins to educate students with contemporary norms and rules to separate their wastes.

Article 18
The waste delivery

65) Arrangement and delivery of waste from households and all other entities applies only into the public waste collection places that the commune has determined or in individual containers that are defined by type of manufacturer, quantity of waste and infrastructure. Their delivery out of the rules set up by the commune is a violation and will be punished.
66) The traders and other persons, who perform ambulant services, must be equipped with special bin for disposal of waste that are generated during their trade service offered to citizens.

Article 19
Use of public container

67) Based on Law no. 8094, Dated 21.03.1996 are entitled to use the public container:

- Families, within the yellow line of the commune.
- Businesses, commercial activities, artisan or services which produce urban waste with daily production of each entity does not exceed the amount of ¼ of the volume of the public container as defined in Article 12 of Law No.8094 dt.21.03.1996.

68) All businesses or state and/or private institutions which produce waste more than limits mention above must necessarily have individual containers in their territory.

Article 20
Limits for the waste delivery

69) The waste submission is an obligation of manufacturers and should be performed according to the methods, days and schedules laid down by the Commune as well as based on the categorization of wastes and producers as defined in this regulation.
70) Waste submission of industrial, construction, apprenticeship, lubricating oils and other wastes that are not considered as urban waste by Law No.8094, dated 21.03.1996 “On public disposal of waste” and by this regulation will be submit in specific places designated for this purpose by the Commune.
71) Their delivery into the sites of specific collection in the city for urban waste is prohibited and punished.

Article 21

72) The construction remains are delivered into sites designated for this purpose by the Commune. During the construction, repair or demolition, citizens, investors and builders entities should provide their measures for continuous removal of construction wastes.
73) Disposal of construction waste in the streets, on sidewalks, in any public place and at certain points that Commune has determined for urban waste, is prohibited and constitutes an offense punishable.

Article 22

74) Residues resulting from trees and vines pruning, the works in yards, in gardens

and parks, before their delivery into their waste in the collection places should be cut into small pieces and fold over in way not to feel trapped and to make difficult the container transportation.

CHAPTER IV
WASTE COLLECTION, REMOVAL AND TRANSPORTATION OF
Article 23
Waste collection

75) Waste collection places (WCP) are small serving area which serves for waste delivery of their manufacturers. WCP should be cemented or asphalted.
76) WCP where are placed the containers, bins or cemented stations for waste collection are decided by Commune.
77) The Communal Council approves and publishes the concrete scheme of the WCP and structure and dimensions of each of them. Changing the location of WCP without the approval of the Commune is a violation and punishable.
78) Delivery and acceptance of service is mandatory in all communal territory, not excluding anyone, only just when the Chairman authorizes temporary experimental forms of differentiated waste collection.

Article 24

79) Waste collection service in a not differential way provided by the City in one or several specific ways, as:
a. collection through public containers;
b. collection through bags, *door to door*
c. collection through delivery platforms (squares) and utilities;
d. collection through containers for private spaces and of different sizes.
80) The waste manufacturer can deposit them in individual way directly in the collection landfill in accordance with this regulation.
81) The service should ensure the collection of all wastes for any motive found out containers, in areas where service is performed "*door to door*" as well as the collection of wastes that occur in public spaces.

Article 25
Collection with containers

82) Collection with containers should be performed by municipal public housing premises, businesses or yards of private or public companies and generally in all places where it provided a significant manufacturing waste.
83) Discharge of containers should be performed on a fixed schedule based on an operating schedule previously communicated to the user under the operator's attention;
84) The territory around the container in an area of 20-25 m2 should be cleaned immediately after the wastes disposals are moved away. The containers are disinfected with chlorinated lime (up to 5% active chlorine) or other kinds of disinfection after emptying the waste containers.
85) For any case are not allowed the containers to be overflowing and with garbage left in the area around the containers or in the designated areas. In all cases where are identified blockages or barriers by external factors, the operator must immediately notify and take its measures to clean them.
86) The user is obliged to use the closer available container and to close the lid if the container has it; in cases where the container is overflowing from bags, the wastes must be delivered to another container available and there should never be left on the ground.
87) The containers should be washed and disinfected according to a schedule approved

by the municipality with disinfection, disinsection and deracination substances:

- For public container at least once a week.
- For containers that stands in public or private indoors at least once a month.

88) The disinfection, disinsection and deratination substances which are used for containers and the territory around them are approved by the Ministry of Health or its depending institutions under the procedures approved by the Ministry of Health and the Ministry of Environment, in accordance with Council Decision of Ministers No. 415 Dated 01.08.1993.

Article 26
The bag collection

89) The commune being impossible of performing public service with public container can provide an alternative service of waste collection with bags in certain urban areas.
90) The familiar user has the obligation to put out of his apartment, near the door or in a place specified in the public zone, the bags on a regular basis which should be closed (tided) in the way not to create obstacles or hazards to pedestrians at specified hours in advance.
91) May be applied mobile collection points which are open means discharge machinery of small tonnage, always on determined frequency schedules.
92) Frequency and the collection time are determined by the operator with the approval of the Commune and the schedule announcement should do by the service operator.
93) The bags must be of at the same type and are offer to the users by the operator in proportion to their consumption. The bags should be no greater than 20 kg weight and should not have objects that may cat, with sharp tips, which are however hazardous materials for responsible person for the manual service of the collection;

Article 27
Accumulation with stationary containers

94) The voluminous and construction remains produced by households may be delivered and collected by means determined by the Municipality, as follows below:

a. through delivery of stationary containers, with large dimensions;
b. through the collection at former users, by calling the Administrator;
c. through the delivery close to multi collection Centers.

95) On the day scheduled for collection, the materials must be disposed by the former user at the nearest collection point in order to avoid any obstacle of vehicles and/or pedestrian movement.

Article 28
Markets cleaning services

96) The markets administrators, particular persons or group trade persons who occupying commercial sales sites in private or public markets are organized in public or private areas must administrate themselves the market clearing territory immediately after the close of daily activity. In terms of waste management that coming from these markets should be operated as follows:

a) The Administrator of the private market or trader's representative is responsible for waste collection and their disposal into the landfill through separate obligatory contract with the commune or private operators which should ensure the implementation of sanitary and hygiene conditions of this regulation.
b) In the case of public markets administered by the commune this service is included in other cleaning services that are administered by the commune.
c) Each market necessary must be approved by the municipality the temporary or

permanent “WCP” within the market territory to enable of the container placements.
97) All market vendors of agricultural and livestock products, their waste that they generate in the marketing of such products; they should collect and dispose into the specified places decided by the Commune. Leaving the market place without regulate these residues it is an offense which is punishable by not allowing them to trade again in the market.

Article 29
Collection of small plant residues

98) The collection of small plant residues is conducted through delivery in the designated are by the commune in the public waste containers or through the collection service “door to door”.

Article 30
Placement and container characteristics

99) The containers are provided in such numbers to ensure in time and quantity the accumulation between the flows of each delivery cycle.
100) Assignment of WCP should be done while respecting the hygiene requirements, where is possible at a distance of 10 meters in straight distance (air line) from doors and windows, in harmony with urban infrastructure, in addition to facilitating the emptying and withdrawal operation.
101) For all new constructions, the reconstruction projects or new urban areas the determination and approval of sites of waste collection is mandatory to be in accordance with Article 29 of Law 8094 dated 21.03.1996.
102) The containers may be placed in private spaces, in shops, in markets and at wholesale or retail sale areas or in public institutions, schools and sports centers etc. with or without owner or administrator consent and the approval of the Commune, in the following cases:

a) in areas where urban structure makes impossible the deployment of containers in public spaces;
b) in special need cases of the collection service related to:

- Consumer desire to have independent points;
- The amount and type of waste it produces, including non-urban wastes.
- Type of activity, etc.

In these cases there may have additional benefits service fee.
c) In cases where the customer does not provide consent to have independent containers, he is obliged to deposit its wastes at the nearest collection place when it is in accordance with the criteria’s of Article 20 “Use of public container,” or otherwise must be delivered by themselves at the wastes deposit in their deposit area in accordance with the rates specified in this regulation.

103) The waste collection generated by the business (small, medium, large) but not included in the category “business waste” (as for e.g. sawdust, glass etc.), is done with private container within the area where the activity is performed. The private containers should have the same parameters as the public ones.
104) The containers should have smooth surface, waterproof material with high durability, metallic material (steel sheet thickness = 1.5-2 mm) or plastic equipped with lids and wheels (or fixed leg) of various capacities.
105) The containers always should kept in optimum working condition from the entity that has engaged the service of waste collection and transportation.
106) The containers types can be as follows below:

a) Internal containers with volumetric capacity of 120/240/360 liter; urban public containers with volumetric capacity of 1100, 2400, 3200 liters, which has to stand outside;
b) Containers for voluminous waste, static, without wheels, with volumetric capacity of over 5,500 liters, for fixed positions and emptying process is performed in a mechanical way.
c) Containers with pressing, static, without wheels, large volumetric capacity, with self-pressing (equipped with independent hydraulic or mechanical system).

Article 31
Employee's hygienic-sanitary service care

107) To maintain employees hygienic-sanitary of waste management service should be applied safety and hygiene rates of the working activity. Employees should be provided with appropriate clothing and mechanisms or accessories for being personal protected, and must be treatments for sanitary controls provided by law.

Article 32
Waste transport

108) The waste transport into disposal sites should be performed by the Municipality or by a party in charge from it.
109) Transportation should be arranged and be done in the evening hours or during the day.

Article 33

110) Transportation of wastes from the collection points to disposal and their processing sites should be done with special technological and covered tools, loads of them does not endanger redistribution or discharge of waste
111) Trucks that transport material and building material or that transport construction waste to their deposit places, shall ensure that during the movement not to spill or leak the transporting materials.
112) Trucks, vehicles, etc., when they move into the streets of the municipality from construction sites and from unpaved secondary roads, are forced to clean the tires f mud, mortar, concrete and any other impurities that contaminate the municipality.

CHAPTER V
RATES
Article 34
Collection of fees

113) Cleaning fee should be collected by the municipal authorities to cover the costs of collection, disposal and treatment of waste and cleaning up the city.
114) The authorities of the commune must define itself or may assign a third party to calculate the fees preparation and submission of reports for these fees and transfer their receipt issuing the certificates for the authorities of the commune data processing required and to inform the authorities.

Article 35
Scope of Rate

115) Fees are collected for cleaning the commune for induction into working condition and use of implants for removing, transporting, storing and processing waste.

Article 36
The taxpayers

116) The level of fee is determined by a special decision of Communal Council.
117) Setting the cleaning fee, its payment and collection are performed according to a decision of the Communal Council for the cleaning fee.
118) The Commune may apply different rates according to different manufacturers, based on the service they receive, the amount and type of waste they generate. It also may apply additional fees for specific businesses where the type and amount of waste can‘t be handled from the public service of waste collection.
119) For these businesses can be applied fee discounts if they undertake the removal of waste. In this case may be applied only the fee of depositing wastes in their areas of treatment.
120) For any change of the amount of tax should be announce a decision of change. New fee deadline should be defined in the decision of change. Overpayments should be inherited.

CHAPTER VI
PROHIBITIONS, CONTROL AND SANCTIONS
Article 37
Prohibitions and obligations

121) Regulation violations are punished according the norms and laws in force and as defined in regulation.
122) In addition to all the prohibitions expressed clearly in the articles of the Regulation:

- It is prohibited dumping and depositing in public areas of all communal territory, in the open or covered public markets, any residue, every dirt’s, junk solid, semi solid, liquid and generally any kind of waste materials, by nature and by dimensions, although they may be in the sealed bag. This prohibition is applicable to water surfaces, rivers, canals, water resources, pits, shores, roadsides etc.
- It is prohibited the waste delivery at open private areas, on lands and flat squares, returned property, fenced or not, on which did not have start any construction activity or any other nature activity. Their owners are obligated to take care for maintaining them cleaning and not allowing to return them in waste disposal sites.
- Anyone who violates the prohibitions stated above is obligated to perform the removal of wastes. This action must be performed by the owner or a person with delegated rights over the contaminated area. The commune chairman settles by an order the required operations and the limits within which should be acted and also the period of time for payment of the monetary damages;
- It is forbidden to the citizens and to anyone unauthorized person to perform any kind of manual selection of the submitted waste inside the container, digging or taking the wastes delivered in containers or next to the plant of final processing or recuperation ;
- In the collection cases of “door to door” service it is prohibited the exposure of bags and / or house containers that have wastes along the road of the collection, on different days and hours set out by the Municipality;
- It is prohibited dumping in containers or in equipments used for waste collection services, of liquid waste, with untied or not tide properly bags, of warm or

flammable substances, even more solid wastes that can damage the container or can pose any risk;

- It is prohibited dumping of wastes other than those for which are located the containers or is designated this collection service;
- It is prohibited the voluminous waste delivery that are not previously reduced as from the dimensions, composition and other characteristics which may cause damage to container or to the collection tools, moreover may cause risks to people or to the persons responsible for the service;
- It is mandatory for all types of producers and urban waste holders, object of collection separated in order to recuperate the material and energy, to deliver these materials in accordance with methods specified in the respective services;
- It is prohibited moving the containers or the collection points, the used equipments for collection services, damage or subversion;
- There are prohibited the behaviors that cause obstacles or delays in performing the service, including vehicle parking near the containers or in the maneuvering vehicles areas for waste collection or sweeping service;
- It is prohibited dumping of small wastes in public spaces or for public use (fruit peelings, paper or pieces of papers, cigarette boxes, bottles and similar like those);
- It is prohibited delivery of dead animals at the service collecting point;
- It is prohibited at the service collecting point delivery of special wastes for which does not exist any appropriate agreement;
- The waste burning inside the containers, around them and in any other place, it is strictly forbidden and it is punishable as serious offense because of the fumes of burning gases endangers human health.
- It is prohibited pasturing of herbivore livestock in waste bins and collection points as well as taking from waste food for animal as waste bread, etc.
- It is not acceptable the right of asking to be excluded from common service without the consent of the Commune.

Article 38
The control

123) Except the competences of the organizations responsible by law for the control, the commune activates the supervision to regard the regulation by applying administrative sanctions foreseen by current legislation.

124) The assigned authorities to do the control are authorized to perform all inspections that they feel necessary to determine compliance with certain standards in the regulations.

125) The Commune has the right to require from special waste producers to submit confirming documentation which verifies that the process is performed.

126) In the case of verifying for not conforming to regulations, the Commune through an ordinance motivated by sanitary, hygienic and environmental reasons, decides the execution of required works, which is in charge of the company responsible for the contamination. Also the commune orders the adoption of opportunistic measures to prevent the repetition of the violation of rules and taking the penalizing measures under regulations in force.

127) In cases of leaving the waste in public areas or for public use, where it is not identified the responsible entity for the contamination, the Commune performs collection and further processing, with its funding.

Article 39
The sanctions

128)Towards the physical and juridical individuals that do not respect the requirements of this regulation are applied the sanctions of law No.8094, date 21.3.1996, "On the public disposal of waste"
129) Violation of this regulation shall be punished according to the PUBLIC DIRECTION Nr._____ Date _____.

CHAPTER VII
PUBLIC RELATIONS

Article 40
Obligation for information

130) The commune published the scheme of cleaning, cleaning schedules and the preferable public delivery schedules of the disposal of wastes.
131) In the decision process for allocating landfills for composting unit and for their use, are invited to attend the environmental NGOs and the interested public.
132) Everyone has the right to request to be informed on the progress of public waste removal according to the rules and procedures provided for this issue.
133) Physical and legal persons engaged in public disposal of waste who have and use landfills or composting unit, publish the data that have been resulted from their continuous monitoring of their activities, not less frequently than once in three months.

Article 41
The complaint procedures and execution

A. Obtain Appeal and its Review

134) Every consumer has the right to appeal orally or in writing on the process of public waste removal.
135) Primarily all the customer complaints file in the information office in the Commune and they are addressed to the director of public services section.
136) The party that performs the service receives each day from the service section the list of complaints, which contains the type and source of the complaint.
137) It is obligated to fix the cause of the complaint within 24 hours. In case of not fulfillment it is forced to give explanations to the head of service section within this period regarding the reasons for not fulfillment of the complaint cause.

B. Resolution of Complaint

138) The commune has the right to send a supervisor to check the resolution of the complaint. If the supervisor finds deficiencies, he must notify the party that performs the service for these shortcomings. The party should notify the commune when such deficiencies have been fulfillment. The company should crosscheck the work to see if everything is completed in a satisfactory manner.

Article 42
Public events, fairs, simultaneous shows and season events

139) Activities of the season, Public or Religious Entities, Foundations or Associations, circuses, Political Parties or any citizens group that aims to organize initiatives, such as festivals, fairs, popular celebrations, runs, moveable spectacles or even cultural manifestations or sports, etc., in streets, squares and public areas or for public use are required to provide directly, or through special arrangements with the commune the cleaning of the area which is given to them for use during and at the end of the initiative, delivering in suitable containers set by the administrator all the waste produced directly from their activity as well as those produced by the citizens that have frequented their manifestation.

140) the additional liabilities arising from performing public service will be charged to the organizers of the events.

Article 43
Awareness and information campaigns

141) The commune takes care to education, awareness and incentives campaigns for cooperation with the community.

142) Periodically is performed in a broad way an advertising through the comprehensive materials of the qualitative and quantitative results achieved during previous years, particularly in the collection of different type of wastes, with the intention of active community participation.

143) periodically is distributed free of charge a booklet with guidelines for proper delivery of various materials, the use of containers and their location; among other things will be given guidance on the collected fractions, modes of delivery, their destinations, the reasons, needs and claims of citizens' cooperation.

144) Should be promoted by the respective departments in the commune, as appropriate in cooperation with involved legal persons, education and information campaigns aimed at citizens for specification of:

- types of waste for which is activated the differential service;
- the purpose and methods of service delivery;
- destinations of factions that restores;
- obligations and duties to properly submit the waste;

145) In particular, the promotion can be accomplished:

- Through tables at the collection points;
- Through the press communication;
- Through the leaflets distributed to interested users;
- Through the other information distribution forms of materials;

146) The legal person as administrator of the collection service is restricted to communicate any changes regarding the methods of performing the service to interested users with a verbal warning, within a minimum of 7 days.

Article 44
Cooperation with non-governmental organizations

147) In the activity of urban communal wastes management can exploit the cooperation of volunteer associations, NGOs, public participation etc.

148) Non-governmental organizations carry out the necessary contributions in order to help in properly collecting the waste, which can be inspired from the environmental goals without profits using volunteer activities.

149) Non-governmental organizations that operate without the benefits can be also

included in the collection of specific fractions of recoverable urban waste after signing agreements with the commune, with the filing necessary requirements to demonstrate the collection ways of performing, types of collected materials and their destination, even more the tools that will be used to provide services to guarantee the performance of the hygiene and safety of the works.
150) Non-governmental organizations are authorized by the commune, which determine the place and manner of administration etc.

CHAPTER VIII
Article 45
Application of regulation

151) Implementation of this regulation is subject to:

- State bodies and local organizations
- All individuals, city residents, casual pedestrians, tourists and visitors, foreign nationals resident in the commune, employees in public bodies and private organizations.
- All subjects who performs economic, commercial, social, educational, cultural, artistic, health, tourism activities.
- Legal and physic persons, public and private, domestic or foreign, with contract and licensed for collecting, storing, transporting, recycling, waste processing and disposal.

Article 46
Entry into force

152) This Regulation shall enter into force one month after the announcement and its local publication.

FOR THE COMMUNAL COUNCIL OF THE COMMUNE GURI I IZI

_____
C H A I R M A N
(.....)

A Contract Model for the City Cleaning Services

CLEANING SERVICE IN ZONE B OF SHKODRA CITY (NORTH PART)

Established today on date _____, between Contracting Authority of Municipality of Shkoder, represented from Mayer _____ and Economic Operator: _____ L.t.d. registered with the Court's Decision as a juridical person with registries No._____, date_____. equipped with license _____.
The Company _____ L.t.d with administrator _____, with full rights and authority to act and represent the company in all relations with municipality investor to realize the object of the contract.

Article 1
LEGAL BASE

1.1 Civil Code Law No.7850, dated 29.07.1994 and its amendments, Part V, "CONTRACTS" title I (chapter I to chapter III), title II (chapter VII), articles 850 and following.

a. Law no 9643 dated 20.11.2006 "On Public Procurement".
b. Government Decision No.1 dated 10.01.2007 "On rule approval of public procurement"
c. Law No.8094 dated 21-03-1996 "For the public waste disposal"
d. Law No.8402 dated 10.09.1998 "On Control and Enforcement of Construction works", instruction No. 2 of K.M, dated 13.05.2005 "On the implementation of construction works"
e. The initial contract signed on 09-07-2008 between investor Shkodra Municipality and Company _____ L.t.d., no. Rep. 3341 and no.col. 1145.
f. KM Instruction No. 1, dated 20.01.2010 "On budget implementation" chap.4, under chap.4.1, item 74 "For local use budget."

Article 2
OBJECT OF THE CONTRACT

2.1 . The object of this contract annex is "THE REALIZATION OF CLEANING SERVICES IN THE CITY OF SHKODRA ZONE B (NORTH)"
2.2 Shkodra Municipality aims to collect the urban waste with high level of quality. In this service is included the collection of solid urban wastes as organic waste and non-organic household and transporting them in the garbage pit. There are exempted from this service the industrial and hospital waste.

Article 3
THE CONTRACT VALUE

3.1 The contract is signed for value of _____ leke (VAT excluded) and the value of _____ leke (VAT included). The value of the contract annex is extracted from Shkodra Municipality budget with MCD (municipality Council Decision) no.____, dated _____.

3.2 The contractor prices for the well-done services according to the contract annex should not vary from offered prices by the contractor in his offer. This annex contract is financed from Shkodra Municipality budget.

Article 4
CONTRACT PERIODE

4.1 This annex contract covers the period from 01.03.2010 until 31.12.2010 and is integral with the basic contract, signed by the parties on July 2008.

Article 5
THE CONTRACT LANGUAGE

5.1 The contract language is Albanian.

Article 6
THE INTENTION

6.1 These general conditions of contract (GCC) shall apply to purchase the services procured by negotiated tender procedure.
6.2 Public Procurement Law in the Republic of Albania provides that the provisions of the Albanian Civil Code shall apply to the public procurement contracts. Some provisions of the Civil Code are reiterated in the GCC in order to increase the transparency of contractual terms. However, citing some provisions herein in no way negates the application of other provisions of the Civil Code of this contract.
6.3 Similarly, some provisions of Public Procurement Law are reiterated in the GCC in order to increase transparency of the law regulating public procurement. However, citing some provisions herein in no way negates the application of other provisions of Public Procurement Law on the parties rights, duties and obligations.
6.4 GCC will apply till at that level until it is not super passed the terms or the provisions represented in other parts of this contract.
6.5 Terms of the contract include also the Special Conditions of Contract (SCC). If there is a conflict between the GCC and the SCC, the SCC shall prevail over the GCC.

Article 7
DEFINITIONS

7.1 “Contract” means the written agreement signed between the Public Purchaser and the Contractor consisting by the tender documents including the GCC and SCC, all attachments and completed forms and all other documents incorporated by reference in any document.
7.2 “Contract price” means the payable price to the Contractor under the contract condition for the full and punctual to its contractual obligations.
7.3 “Object of the Contract” mean all services that the Contractor will provide under the contract.
7.4 “Party (ies)” means the signatories to the contract.
7.5 “Contracting Authority” means the Contracting Authority that is part of this contract and in the provisions of this contract is the purchaser of the service. Anywhere this term is used has the same meaning with the definition that is the law.
7.6 “Contractor” means a physic or a legal person which is part to this contract and in the provisions of this contract sells the services.
7.7 “Services” means all tasks to be performed by the Contractor under the contract.
7.8 “Terms of Reference” express object and purpose of the contract, determine the duties, requirements, objectives, distribution, location and delivery of services to be provided.

Article 8
CONTRACT COMPILATION

8.1 The winner announcement will serve for contract drafting between the parties, which must be signed within the time stated in the tender documents.
8.2 The contract existence will be confirmed with the signing of the contract document by materializing all agreements between the parties.

Article 9
CORRUPTED PRACTICES, INTEREST CONFLICTS AND RECORDS CONTROL

9.1 The Contracting Authority may request the Court to declare illegal the contract if it reveals

that the Contractor has committed corruption acts. Corrupt acts include the acts described in Article 26 of the Public Procurement Law.
9.2 The Contractor shall not be related (present or past) to any consultant or unit that has participated in the preparation of tender documents for this procurement.
9.3 The Contractor agrees to exclude himself from the procurement of goods, services or construction that may ensue as a result of connection with this contract.
9.4 The Contractor should allow the Contracting Authority to inspect accounts and records relating to the implementation of the contract or to have them audited by appointed auditors by the Contracting Authority.

Article 10
CONFIDENTIAL INFORMATION

10.1 The Contractor and the Contracting Authority should keep confidential way all documents, data and other information provided by the other party in connection with the contract.
10.2 The Contractor may give to subcontractors such documents, data or other information received by the Contracting Authority to the sub-contractor till at the required amount in order to perform its work under the contract. In such case, the Contractor should include in its contract with the subcontractor a provision promising confidentiality as stated in Section 5.1 above.

Article 11
INTELLECTUAL PROPERTY

11.1 Except the cases provided differently in the contract, all intellectual property rights provided by the Contractor during the contract period shall belong to the Contracting Authority which may use them in his judgment.
11.2 Except the cases provided as otherwise in the contract, the supplier, upon completion of the contract, must submit all reports and data such as maps, diagrams, drawings, specifications, plans, statistics, calculations and supporting records collected or prepared by the Contractor during the contract or materials earned to the Contracting Authority. The contractor may retain copies of such documents and data, but he should not be used them for purposes unrelated to the contract without prior written permission by the Contracting Authority.
11.3 3 The Contractor should assure the Contractor Authority from the irresponsible violating of the intellectual property rights which could arise from the production or performance of services under the contract.
11.4 In case of any claim or suit against the Authority in connection with any violation of intellectual property rights caused by the implementation of the contract or by using the things supplied under the contract, the Contractor should provide the Contracting Authority with all evidences and information on Contractor's possession relating to such suit or claim.

Article 12
GENERAL OBLIGATIONS OF THE CONTRACTING AUTHORITY

12.1 Municipality of Shkodra shall provide this documentation to the Economic Operator which is an integral part of this contract (Annex No.1)

- Map of areas with different frequency of collecting, with markets indication and the landfill.
- Map of roads that will serve for garbage collection and maintenance.
- Map of actual collection points.
- Maps and roads list for wiping and washing.
- Map of upcoming points of collection, designed by Department of Public Service in cooperation with the chiefs of the Regions.
- Map of southern part of town.

12.2 Municipality of Shkodra owns 600 new containers identified with corresponding numbers that will be placed according to maps that are mention above. For the northern area, the municipality shall provide 240 containers of 1110 liters capacity to replace at the current system.

12.3 The general height of roads in the southern area where the containers should be cleaned is about 36 km. The containers place will be determined by the municipality in such a way that the maximum distance of services for the population to be 200 m (in the straight area line).
12.4 Although it is not possible to have a scale, the entire control of the work of making payments for waste collection service will be based on the number of collected containers not in tons of trash collected.
12.5 The current place of wastes is in the territory of the "Giri i Zi" Commune, in a distance of 3 km from the center of city (village Rrenc). Municipality of Shkodra at any moment will be ready to provide the contractor with the relevant authorization for storage and wastes transport in the current landfill.

Waste disposal

12.6 During the next few years will set up a new place of controlled compost in the "Bushat" Commune. As soon as this landfill will be in action, the urban solid waste will not jump any more into the actual place or somewhere else but only in new landfill.
12.7 Because the new landfill is 15 km away from the city center (the actual place is 3 km away, the difference is 12 km) actually should be given an additional cost for wastes transportation for this difference from the company and it should be calculated according to price leke/ton given into the winning bid.
12.8 The possible additional costs required by the new landfill will be determined by the Municipality. They will be added to the current bid and will replace the current landfill costs.

Recycling, selection of the collection

12.9 Will encourage the innovative practices for separate collection and their recycling. They can be undertaken by the contractor during the contract. These practices must be presented for approval at the municipality and are in the responsibility, risk and benefit of the contractor.

Article 13
THE CONTRACTOR GENERAL OBLIGATIONS

13.1 The contractor should perform the services and fulfill its obligations with all efforts, efficiently and economically in accordance with professional techniques and practices generally accepted.
13.2 The Contractor should follow effective business practices and to use advanced and appropriate technology and safe methods.
13.3 If the contract requires the performance of professional advisory services, the Contractor should always act as a faithful adviser to the Contracting Authority, in accordance with the rules and ethical code of his profession and should always support and safeguard the public interest.
13.4 If the contract requires the performance of professional advisory services, the Contractor should execute full care in relations with third parties including the media and should not take part in actions that are outside its competence in the representation of the Contracting Authority.
13.5 The Contractor applies to this contract 3 (three) waste transport cars with capacity of 10 ton according to the technical specifications required by the Contracting Authority with the manufacturing year after 1998 and 1 (one) road sweeping machine with high efficiency for waste, leaf, mud and dust removal with the capacity of 130,000 m^2/day equipped with the system to prevent the distribution of dust in the air (water spraying), minimum working width of 2m with the manufacturing year after 1998.

Article 14
SPECIAL DUTIES OF THE CONTRACTOR

14.1 The Contractor should perform all services as specified in the Terms of Reference.
14.2 The contractor should submit to the Contracting Authority all services, in specified quantities as required by the contract, including but not limited to all reports, documents, studies, drawings and plans.

14.3 The Contractor should provide reports related to the implementation of the services as required by the contract.

A - Frequency of waste collection

14.4 The B Area shown on the map, defined on dependence of the density of population:

- Town Center: 2/3 of the containers should be placed in the center of town and will be cleaned once a day, 6 days a week, from Monday to Saturday.
- The surroundings: 1/3 of the containers should be placed in the suburbs and will be cleaned three times a week, from Monday to Saturday.

14.5 In this basis, will collect an average number of 200 containers each day, 6 days a week. The market areas will be cleaned each day. These areas are:

- Russian market of retail fruit and vegetable (supermarkets meat-fish)
- The wholesale market in the road to Koplik 6 km away from Shkodra

Hours:

14.6 The center cleaning will be done by night (22:00 to 5:00 a.m.) to avoid traffic and to facilitate the collection of garbage created during the day. The suburbs cleaning can be done during the day. For the center, the cleaning hours can be extended during the day, only in accordance with the municipality to perform the service or in special cases (like markets). It may consider also the use of cars with two shifts.

B.- Sweeping and maintenance of roads

The purpose of the service

14.7 The purpose of this service is roads cleaning (sweeping and maintenance) with high level of quality. The service is divided as follows:

- Mechanical street sweeping – during the night
- Sidewalks and squares manual sweeping – during the night
- Maintenance of roads – during the day

Mechanical sweeping of the streets

14.8 The total area of the city covered of paved roads by mechanical sweeping is 260,000 m^2, on which is estimated that 60% are in the southern area and 40% in the northern area.

14.9 The total area determined by the list of roads and maps made available by the Municipality must swept just in two days. Therefore, the sweeping mechanical frequency is 3 times per week, 6 days a week, from Monday to Saturday. The mechanical sweeping hours will be during the night from 22:00 to 06:00.

14:10 Sweeping of difficult surfaces along the sidewalks, where are parked the cars will be organized regularly in cooperation with the municipality. Meanwhile, sweeping of these areas will be manually carried out.

14:11 Sweeping must be done by a machine for street sweeping (vacuum machine):

- The machine must have high efficiency for trash, leaves, mud and dust removal.
- The machine must have the system to avoid distribution of dust in the air (water sprayer)
- The minimum working width of the machine should be 2 meters.
- Vehicles must not be older than 10 years (manufactured year 1998) at the beginning of the contract.

Sidewalks and squares manual sweeping

14:12 Manual sweeping consists on the removal of trash, leaves, mud and dust. The collected material should lead to garbage containers.

14:13 The total city area covered by mechanical sweeping paved roads is 116,000 m^2, according to the list and mapping of roads, including 80,000 m^2 and 36,000 m^2 of sidewalks, where it is estimated that 60% are in the southern area and 40% in the northern area.

14:14 The difficult areas of roads for sweeping machines are included. For these areas, manual sweeping should be done in coordination with mechanical sweeping by throwing the wastes manually in the machine.
14:15 The total area should be clean in two days. Therefore, the mechanical sweeping frequency is 3 times per week, 6 days a week, from Monday to Saturday.
14:16 Each employee must be equipped with appropriate tools such as wheelbarrow, broom, shovel and clip bin. The workers should wear appropriate clothing with the logo of the firm.

Roads maintenance

14:17 Road maintenance consists on the waste removal and collection points cleaning along the 36 km route where are located the containers.
14:18 It is a daily maintenance frequency, 7 days a week.
14:19 The maintenance should be performed in accordance with garbage collection, so the wastes must be jumped into the containers before the arrival of cleaning machines.
14:20 The payment for this service will be based on cleaned and maintenance effective surfaces.

C.-The washing roads service

14:21 The purpose of this service is refreshing the roads in summer, which are shown in the list and map.
14:22 The total area covered by washing the city roads is 200,000 m^2 of paved roads, according to the list of roads and mapping, which estimated that 60% are in the southern area.
14:23 Frequency of washing is twice a day, 200 days per year (from 1 April-31 October) from 4:00 to 8:00 and 17:00 to 20:00.
14:24 It must use only clean water to wash the streets. Washing should be performed by a washing machine:

- The machine must provide a tank of 10 meter cubic water capacity
- The machine must be equipped with spraying water on the road with minimum working width of 2 meters
- Water consumption should be approximately 0.5 liter/m2, attributable to the firm.

14:25 The payment for this service will be based on effectively cleaned surfaces.

D.-Efficient operation of this service

14:26 The company must have and shows that everything is in order with the function and to provide a complete service: cars and machineries, containers located on their places, staff etc. At this time will be a check and a formal receipt.
14:27 Till this system is new, needs to be improved and adjusted in the number of cleaned containers, place and frequency of collection containers to ensure a high quality service for the population.
14:28 For this purpose, the municipality must take decisions to:

- Add containers and/or to increase the frequency of collection in places where have lack of containers (in case the regular waste presence distributed in the environment around the containers).
- Remove the containers and/or to reduce the frequency of collection in countries where full containers are never find.

14:29 In the case of the regular wastes presence around the side containers because their number is not enough in some places, the company may propose to monitoring team the containers movement from another place where there are surplus containers. If there are not enough containers, the municipality should to buy new others. Before doing this, the company should increase the cleaning frequency and will be paid for this in accordance with prior municipality approval.
14:30 Containers removable and their maintenance are tasks of the contractor and are included in the price.

14:31 Till the calculation of the amount and service payment will be based on the number of cleaned containers, any change higher than 10% of cleaned containers per day, according to a monthly average, will be include in the payment change.

F.-The landfill management

14:32 The landfill management is current contractor's task that consists in:

- avoidance of fires,
- surface fielding's,
- cover the surface with inert material to facilitate movement of vehicles,
- avoiding the expansion of the river bad,
- restricting the entry of animals and humans,
- Restricting the entry and removal of any waste produced by subareas and/or the city or that produced from industrial sources or hospital.

14:33 The current landfill management will be made by the responsible company for the northern city area. For this reason, the contractor must use a suitable machine (charger or bulldozer) and hire a guard to the waste landfill.
The work volume for the machine is estimated on average of 3 hours per day, 6 days a week.
14:34 The Monitoring Team (Department of Public Services) will have a person present in the landfill during garbage collection, who will be responsible for monitoring the arrivals, schedule, type and other information on machines and wastes as well as a means of control and data observation of the company. Therefore, the contractor of the northern part of the city should create a room/office (container) in the landfill entrance for the municipal staff.
14:35 Payment of this service will be based on hours per car and in a total amount for environment providing (room or container for the Controller to pay the landfill + controller). Driving hours for each week will be transmitted each month by the company and will be checked by the monitoring team.

Just start a the function of new landfill, the landfill management will be reviewed

F.-Management and maintenance of containers

14:36 Management and maintenance of the containers are duty of the contractor.

Containers management:

14:37 System Implementation: At the beginning of the contract, the contractor should bring the containers in a storage place designated by the municipality and to place 355 new containers in Shkoder City territory based on the plan of the municipality. 5 containers will be placed at the company as the contractor for replacement reserve of damaged containers during their repairing.
14:38 Improvement of the system: During the contract, the contractor will need to add or remove the containers purchased by the municipality with its request. All containers movements are included in price. The company must have the machine for this purpose.

Containers maintenance:

14:39 The containers are and will remain the municipality property. Damaged containers should be regularly repair by the contractor. The company is responsible for permanent control and inventory of all damaged containers, replacement, removal, repairing and restore the damaged containers. For this task, the company must have a car and needed staff to provide containers transportation for repairing and changing the containers places. The company will maintain a stock of 5 containers to be replaced in case it needs spare parts. Major damage to be considered is those related to wheels, caps and large distortions in the body. Till the containers are made for intensive use, will have no needs to repair them if they are treated properly.

14:40 The contractor must have available the proper materials and personnel's to perform this service. It may be a sub-contractor. The payment for this service is in global way (monthly).

Washing of the containers

14:41 Each container should be washed and swept every month. For this reason, the contractor must have required personnel and materials. Report for sweeping will be included in the monthly report.

Article 15
SPECIFICATIONS AND DRAWINGS

15.1 If the contract requires drawing services, the Contractor should prepare the specifications and drawings using systems which are accepted and recognized generally acceptable to the Contracting Authority and will take into account the latest standards.
15.2 If the contract requires drawing services, the Contractor shall ensure that all specifications, drawings and other requirements have been prepared on neutral bases regarding the promotion of competition in the procurement of drawing objects.

Section 16
PERMITS AND LICENSES

16.1 The Contractor will be responsible for obtaining the permits or licenses as required by the laws of the Republic of Albania to perform the Services in this contract except the case when the parties agree otherwise.

Article 17
REMOVAL AND REPLACEMENT OF MAIN PERSONNEL

17.1 The Contractor shall provide prior written approval from the Contracting Authority before the removal or replacement of main personnel as described in the offer of the Contractor.
17.2 The Contractor will replace any employee if the Contracting Authority finds out that the person has committed illegal acts or the Contracting Authority is very disappointed by the work of the person.
17.3 If it becomes necessary to replace any main personnel, the Contractor shall provide a person as a replacement with equivalent or better qualifications.
17.4 The Contractor will pay additional costs for the replacement of the main personnel except the case when the replacement has come from neglect or lack of attention of Contracting Authority.
17.5 Contractor at his own expenses employs a qualified staff with a minimum of one driver and two workers (loading) for the car. In case of shortage, he is responsible for hiring additional staff.
17.6 The working conditions must be in accordance with current legislation. The contractor is responsible for taking all measures to prevent accidents and diseases.
17.7 The contractor staff must be provided on a permanent and appropriate way with working clothing and gloves with the company logo and appropriate signaling to be safe during the night.
17.8 The containers must be treated carefully by the staff of the contractor, they have to empty them completely and place them properly in certain places. The company is in charge to fix the damaged containers.
17.9 The monitoring team of the municipality is competent to give instructions to the contractor's staff leader.

Article 18
THE ADDRESS

18.1 The services should be performed on the place or places specified in the contract.
18.2 If the place is not specified yet, the Contracting Authority reserves the right to approve the place or places to perform the Services, however, the approval should not unreasonably be delayed.

Article 19
THE INSURANCE OF PROFESIONAL RESPONSIBILITY

19.1 The Contractor should maintain insurance for professional responsibility based on rules and practices generally recognized in the profession to reimburse the Contracting Authority for damages resulting from negligence, errors or deficiency during the performance of the Services.
19.2 If the contract does not define the minimum amount of insurance, the Contractor shall provide insurance in the amount recognized in general as sufficient under the circumstances of the services that is being provided.

Article 20
TERMS OF PAYMENT

20.1 The contract price, including any advance payment must be paid on time as specified in the contract.
20.2 Except when is foreseen by another provision in the contract, the payment must be made in Albanian currency. The rate of exchange of different currencies will be the course of the Bank of Albania on the same day that the contract notice is sent for publication.
20.3 Except when is foreseen by another provision in the contract, the Contractor's request for payment shall be made in writing to the Contracting Authority. For each request, the Contractor shall submit an original and copy together with a list of items that describes the services performed and for each one of them must be paid.
20.4 Except when is foreseen by another provision of the contract, the payment for the services will be made within 30 calendar days from the date that the services are performed, delivery was submitted or made, or from the date of receiving the request for the payment whichever is the later.
20.5 The payment date will be the day that funds are debited from the account of the Contracting Authority.

Article 21
THE PAYMENT DELAYS

21.1The estimated damages caused as a result of the payment delays consist on the interest rate that starts from the date of default of the debtor (Contracting Authority) in the official currency of the country where payment will be made. The percentage of interest is prescribed by law. At the end of each year, matured interest is added to the total amount on base of which is calculated the matured interest.
21.2 The legal interest is paid without forcing the creditor (the Contractor) to prove any damages. If the creditor (Contractor) certifies that it has suffered a greater loss than the legal interest, the debtor (Contracting Authority) must pay the remainder of the damage.

Methods of payment:

21.3 Within a range of 200 cleaned bins per day ± 10% cleaned average per day on monthly based, 6 days a week, the adjustment of the number of collected bins will not cause changes in the value of the contract.
21.4 Outside this range, the costs will move depending on the effective number of the cleaned bins. The difference of unit price (up or down) will be 50% of the price per unit for loading a bin.
21.5 The costs of introducing the bins in the system and the movement and their maintenance during the contract are included in paragraph 4, "Management and maintenance of the bins."
21.6 The collection waste costs and transportation from current collection points during the transition period are fully involved in the collecting service and waste transporting.

Article 22
LAWS AND REGULATIONS AMENDMENTS

22.1 If after the date of signing the contract, any law, regulation, ordinance, order or procedure with law effect in the Republic of Albania enter in force which issued or changed and influences the conditions, including the date of delivery, or contract price, the terms or contract price will be adjusted to that way that the contractor is affected in the performance of its obligations under the contract.

Article
23 MAJOR FORCES

23.1 The Contractor shall not be in charge for loss of the contract deposit, liquidated damages or interruption for un fulfillment if and to the extent that the delay in implementation or other failure to implement its obligations under the contract comes as a result of a Major Force.
23.2 For the purposes of this article, “Major Force” means an unforeseeable event beyond the control of the Contractor on the fault or negligence. Such events may include, war or revolutions, fires, floods, earthquakes, epidemics, quarantine restrictions and transit embargo, but they are not limited by, the actions of either Contracting Authority in its sovereign capacity or contractual capacity.
23.3 If it occurs any Major Force situation, the Contractor shall immediately notify the Contracting Authority. Excepting the case when the Contracting Authority gives different directions, the Contractor shall continue to carry out its obligations according to the contract in the extent reasonably practical and shall seek all reasonable alternative means for his performance that can’t be prevented by Major Force.

Article 24
DELAYS IN IMPLEMENTATION AND EXTENSION OF TERM

24.1Excepting when is provided differently, the Contractor shall start the execution of the contract immediately after signing it.
24.2 Excepting the case when the Contracting Authority agrees to contract extension, the Contracting Authority is entitled to liquidate the damages for delay in implementation if the Contractor fails to perform the Services within the contract period.
24.3 The Contracting Authority may deduct the amount of liquidated damages that should be paid from the amount of payment to the Contractor. In this case the Contracting Authority shall give the contractor a written notice about the amount and the reason for the deduction.
24.4 The Contracting Authority will agree to an extension of time in case of Major Force.
24.5 The Contracting Authority may agree to an extension of time even in other circumstances if it is in the public interest to do so. In case that the contractor faces conditions that obstruct timely implementation, the Contractor shall immediately notify the Contracting Authority in writing about the delay, the cause and the proposed date of ending Services. The Contracting Authority must assess the application. If the Contracting Authority agrees to the delay, the extension will come into effect by a written amendment to the contract signed by the Contracting Authority and the Contractor.

Article 25
LIQUIDATION OF DAMAGES FOR DELAYED DELIVERY

25.1 Liquid able damages for delayed performance of services shall be calculated with the following daily rates:

a) For contracts with longer implementation period than 12 months, the daily fee will be 1/1000 of the corresponding value which is left without carrying out the contract total price but not less than 25% of its value.

Article 26
NEGOTIATIONS AND AMENDMENTS

26.1 The Parties shall not negotiate changes or amendments to any element of the contract that would change the conditions that form the base of selection of the Contractor.
26.2 No amendment or other variation of the contract shall be valid without being written, dated, expressly refers to the contract and signed by an authorized representative of the Contractor and the Contracting Authority.
26.3 Any waive of rights, powers or corrections that may be made by the parties under the contract shall be write, dated and signed by an authorized representative of the party making the waiver and must specify the right and the limits in which it is issued.

Article 27
CHANGING OF ORDER

27.1 The Contracting Authority reserves the right to order additional services up to an amount not exceeding 20% of the total contract price. Any additional order must be done consistently with the rules and procedures foreseen in the Law on Public Procurement.

Article 28
INTERRUPTIONS FOR DEFAULT

28.1 The Contracting Authority may interrupt the contract in the whole or in part of it, if:
a) The Contractor fails to perform services within the period specified in the contract or within any extension granted, or,
b) The Contractor fails to perform any other obligation under the contract.

28.2 The Contracting Authority shall give the Contractor written notice of interruption for default and give the contractor 15 days to fix the default except when the interruption is made for corrupt or illegal actions, in this case the interruption will be immediate.

Article 29
INTERRUPTIONS FOR BANKRUPTCY

29.1 The Contracting Authority may interrupt the contract at any time if the Contractor becomes bankrupt or insolvent.
29.2 The Contracting Authority shall give the Contractor written notice of interruption.

Article 30
INTERRUPTIONS FOR PUBLIC INTEREST

30.1 The Contracting Authority may interrupt the contract at any time if it considers that this action must be taken to a better serve on the public interest.
30.2 The Contracting Authority should give the Contractor written notice of interruption.
30.3 The Contracting Authority should pay the Contractor for all services performed prior to interruption. and shall pay the Contractor for damages caused by partial performance of the Services. In calculating of damages amount, the Contractor will be required to take all necessary actions to minimize the damages.

Article 31
THE SUBCONTRACT

31.1 A subcontract shall be valid only if it is in the form of a written agreement by which the Contractor entrusts the performance of a portion of his contract obligations o a third party.
31.2 The contractor should not subcontract without a prior written approval of the Contracting Authority and not more than 40% of the contract value. The contractor shall notify the Contracting Authority about the contract elements that has to be subcontracted and the documentation that proves the ability of the subcontractor. The Contracting Authority will notify the Contractor of its decision within 5 days of receiving notice, expressing its reasons if he approves it or not.
31.3 Each subcontractor should have the right to participate in public procurement according to the Public Procurement Law. The authority may provide direct payment to subcontractor for services that will supply.
31.4 When the Contractor intends to realize a part of the work with subcontractors, must submit to the offer, according to tender documents, all documents required for subcontractor concrete works and that will give through the subcontractor.
31.5 The Contractor remains fully responsible for the implementation of the contract regardless of the behavior of the subcontractor.

Article 32
THE TRANSFER OF RIGHTS

32.1 The Contractor should not transfer, in whole or in part, it's under the contract obligations unless the prior consensus of the Contracting Authority.

Article 33
CONTRACT INSURANCE

33.1 Within 30 days of receiving the notification of winning the contract, the Contractor should give to the Contracting Authority's the contract insurance in the amount and form acceptable as specified in the contract. Failure to provide the contract insurance in the form and in the required amount within 30 days will result with cancellation of the contract and confiscation of bid security of the Contractor.
33.2 The amount of contract insurance has to be paid to the Contracting Authority as compensation for any loss resulting from the Contractor's failure to fulfill its obligations under the contract.
33.3 The contract insurance should be returned to the Contractor no later than 30 days after the date of rendering the services.

Article 34
LEGAL BASE

34.1 The contract shall be governed by and interpreted under the Republic of Albania laws.

Article 35
DISAGREEMENT SOLUTIONS

35.1 The Contracting Authority and the Contractor should make every effort to resolve the disagreement or dispute arising between them under or in connection with this agreement by direct negotiations.
35.2 If the parties fail to resolve their disagreements or conflicts, the problems will be considered by the solution of contractual agreements and legal procedures applicable under the legislation of the Republic of Albania.

Article 36
REPRESENTATIONS OF PARTIES

36.1 Each party should designate in writing a person or organizational position that will be responsible on behalf of the represented party, for making statements and party representation in matters related to the execution of the contract.
36.2 Each party should promptly notify the other party for any modification in the designation of the party's representative. If a party fails to notify, should undertake any losses caused by failure to give sufficient notice.
36.3 The parties may appoint additional persons or organizational units to represent the party in the action or special event through the written notice in which case it must be given and should define the scope of the representative's authority.

Article 37
THE NOTIFICATIONS

37.1 Any notice given by one party to another under the contract should be made in writing to the address specified in the contract.
37.2 The notice shall be effective when it will be delivered.

Article 38
TIME LIMITS CALCULATION

38.1 All references to days shall be calendar days.

Article 39
SPECIAL DUTIES OF THE CONTRACTOR

39.1 The contractor should present to the Contracting Authority, all services in specified quantities as required by the contract, including but not limited to all reports, documents, studies, drawings and plans.
39.2 The Contractor should provide reports related to the implementation of the Services as required by the contract.
39.3 The Contractor should perform all services as defined in technical specifications.

Article 40
TECHNICAL SPECIFICATIONS

40.1 The contract is based on technical specifications drawn up by the contracting authority (Department of Public Services) and was expressly accepted by the parties under the contract. The technical specifications are annexing integral part of this contract.

Article 41
TECHNICAL SAFETY

40.2 The economic operator is responsible for all activities in the offered service, implementing the corrective technical measures for all the staff. The economic operator is responsible for controlling and respecting the requirements for the services quality. It is obliged to perform all tests and inspections in various works which are obligatory technical conditions in force.
40.3 An economic operator is obligated to provide, among other:

- Capable employees, health controlled, with permission to exercise specific professions (evidence, permits, authorizations), from authorized bodies recognized by law.
- Materials, equipment, protective facilities, individual and collective.
- Periodic maintenance and control of machines and machineries which are using for the provide service.
- Regulations, orders and instructions in force for technical insurance and labor protection.
- The instruction book for technical and protection at work safety of employees.

Article 42
PROHIBITIONS, FINES AND PENALTIES

42.1 The economic operator should reimburse the Municipality for any damage caused by its fault.
42.2 The economic operator is subject to restrictions and penalties for unfinished works as follows:

1. In cases where service items are identified undone, which are forecasted estimate in the contract by the Municipality, then in addition to the unfinished work stoppage, the economic operator will be penalized with 5-times the value of the respective item.

1 In cases where the economic operator does not perform the required quality of service from the contract technical specifications and processes provided for any voice work, in addition of stoppage to the work voice, the economic operator will be penalized with 2-times the value of the respective item.

2 The entrepreneur is obliged not to engage other workers out of it society. The economic operator is obligated to provide its employees with uniforms, in which should be placed clear hallmarks of the entrepreneurial society logos (economic operator). In case of not respecting of such a liability the supervisor makes notice for the fulfillment of the obligation. If the economic operator does not arrange it within 5 days from the receiving notice, the supervisor applies fine from 50,000 to 200,000 leke.

b. Penalties

42.3 The Monitoring Team (Department of Public Service) will be charged with controlling the quality and quantity of services. Key elements of penalties provided in this contract are:

The penalties 1, for damaged containers

The purpose: To avoid reducing the collection efficiency due to damaged containers: not damaged containers on the street

The responsibility: the company needs to identify and repair all damaged containers. The company has to wash the containers each month.

The control: the head of the neighborhood will check all defective or unwashed containers. The company should replace the containers to another one and it has 5 days to repair the damaged containers. It gives the supervisors a list of damaged containers that are in process to be fixed and the list of washed containers in the monthly report.

The criteria: more than 3% of damaged or dirty containers (reported in the street or in refit) reported in a month.

The penalty: 5% reduction of the monthly price for garbage collection for every 3% of damaged containers.

The penalties 2, for dirty containers

The goals: providing the comprehensive quality of collection, the obligation of the firm to provide alternative solution in case of trouble (mechanical, personal ...)

The responsibility: the company has to clean each container in the required frequency

The control: the head of the neighborhood will check and report to the company, the information on the supervisor, if the cleaning is not done, showing the location, the number, the date and the time of observation.

The criteria: punishment if it has more than 10 dirty containers per month.

The penalty: 150% reduction of the price for cleaning 1 container for every dirty container.

The penalties 3, for unwept roads

The goals: providing the comprehensive quality of sweeping, to force the company to find alternative solutions in case of troubles (mechanical, personal ....)

The responsibility: the company must sweep any road in the program and with the required frequency, and to find alternative solutions if it is necessary.

The control: the head of the neighborhood will check and report whether the sweeping is done or not.

The criteria: penalty if more than 2% of the area is not sweep in a month or 10 days in a month without functional machine

The punishment: 150% reduction of the price for unclean road surface.

The penalties 4, for throwing in the wrong place

The purpose: strict obligation intending to stop the company to throw the wastes in the wrong place without a prior consent of the municipal official.

The responsibility: the firm should throw the waste where it is required

The control: the head of the neighborhood, the supervisor or any other official person will check and report about throwing in the wrong place

The criteria: penalty for each wrong throw from a company load

The punishment: 5% reduction of total monthly price for garbage collection for each machine in question. Obligation to company to take back the waste again and to clean the place at his own expense;

The penalties 5, for the implementation phase

Goals: avoiding the lack of service during the transfer of duties from the old company to the new one, the new company's obligation to take the necessary measures to be ready in time with the required material.

Responsibility: the company must provide a sufficient level of quality from day one and to find necessary materials in less than two months.

The control:

42.4 At any time in the first period of two months, the supervisor can control that the quality of garbage collection, cleaning and washing are on the same level as before. If there is an apparent lack of service, the municipality should inform the company and gives them 2 days to correct the situation.

42.5 At the end of first two months, the municipality and supervisor takes the machines, machinery and materials to verify that they are in proper working condition: vehicles equipped with lifting system, machines for containers replacement, cleaning and washing machines and for storage place, workshop to repair cars and containers, washing containers device, equipment for personal staff.

Criteria: For each day of lack of visible service or for each impossibility day of material required and operational after 2 months of implementation

Penalty: 300% of service unperformed in case of lack of quality. 3% of service monthly value in case of lack of raw materials required;

The Penalties 6 for unperformed or incorrect reporting;

Goals: to ensure that the company gives throughout the month the requested reports and statistical data and they correspond to the reality.

The responsibility: the company must give each month, up to 15-th of the next month, the required records and reports by the supervisor with correct and realistic data.

Control: supervisor will check the receipt date of the report and should check and verify the compliance of data with the help of the Regions President and controller on deposit place;

Criteria: collection fine for each week or week part of any delay. Double fine if the records are incorrect and all legal consequences taken into account;

The fine: 2% discount, then 4% after next week so on the monthly bill that will complain the following month.

Article 43
CONTRACT MONITORING

43.1 The Contracting Authority within the meaning of Article 62 of Law 9643 dt.20-11-2006 "On Public Procurement" and Chapter III, point 2 of the VKM 1 date 10-01-2007 "On public procurement rules" in any case can practice controls on the contract implementation or disbursements and in case of violation of the required conditions it applies the penalty provided in the contract.

43.2 The monitoring team will be composed by the Department of Public Services from service supervisor and regional administrators.

43.3 During the control performance the Contracting Authority keep a written process-verbal. At the end of the contract the Contracting Authority should prepare a summary report for accuracy and quality of contract implementation. A copy of this report is given to the contractor upon it is requested.

43.4 The project leader is Eng._____ nominated by Municipality with license no._____ date_____ the rights and obligations that belong to him will be regulated by supervisor contract signed by Shkodra municipality.

Article 44
REPORTING AND MONITORING

44.1 The monitoring team of the municipality shall have the duty of monitoring the quality and quantity of service. The organization and duties of monitoring team will be as follows:

A. Municipality

- Defines the priorities, the basics of tenders, waste management plan
- Defines the communication strategy on wastes collection, street cleaning and washing
- Defines the budgets, approve bills, including the penalties
- Purchase new materials (containers) and determines the tenders if it is necessary
- Negotiates with the company in case of disagreement

B. Heads of regions (+ inspectors)

Role: service control to the population and reporting

- Verification of the quality and quantity of service: unclean containers, upswept routes, dirty collection points, damaged containers
- Verification and adjustment needs for containers
- Where there are many containers (are empty): propose to take them out
- Where there is lack of containers (filled containers and wastes in the streets): proposes to increase them
- Proposes removal or adding the collection points
- Identification of specific needs: solid wastes, event and monitor proposals
- provides information

Company + supervisor, immediately of any lack quality / quantity:

- • Unclean containers (containers ID, basket, street, day and observation time)
- • Upswept streets (streets, day and time of observation)
- • Damaged containers (containers ID, street, type of injury, date and time of observation)
- • Containers that are not washed every month

2. **Supervisors, each month: synthesis of quality deficiencies**

Monthly report as the basis of the municipality report, compensations and penalties

C. The supervisor

Role: Control of contract compliance, invoices verification and payments proposal to the company's as well as penalties

- Works in the municipality office under the responsibility of the Department of Public Services, sets priorities and provides special company needs (inert, events, containers relocation...) in the framework of the budget
- Define statistics and controls the quantities (template (template) new + excel file)
- Data on the company (containers maintenance, hours of collection, roads, km, employees, etc.) chairman neighborhood data and controllers in the and landfill
- Prepare weekly and monthly reports for the municipality, based on reports of the chairman of the neighborhood

Service quantities: control and certification of invoices

Lack of quality: the unclean containers, unwept road, dirty collection points, damaged containers, jumps out of the landfill

Proposes penalties before the municipality, if necessary, support in the contract, the reports to the chairman of neighborhoods and statistics

- Decide the reduction of containers displacement or proposes to increase their number if is needed
- Defines specific spending proposals and helps to prepare the annual budget for the municipality of separate from the budget expenses (inert, open points ...) purchase of new containers annual budget amendment.

The statistics

44.2 The Contractor should keep a diary for the following items and report every month to the supervisor throw paper and electronic documents:

- The processed number of containers to each route
- The real collection hours, the daily cars time departure, time of discharge into the landfill, time to return to the garage
- Daily mileage of each car
- Fuel and oil consumption for each machine, maintenance actions and dates
- Number and street car route
- List cleaned and washed of streets, hours per day of mechanical cleaning and washing
- the workers list and their working hours
- Monthly inventory of containers, street by street, with ID numbers and their conditions

- Relocation, containers maintenance or their absence, washed containers: the list of those containers (route, ID, number), correcting certain dates.
- report on request to the chairman of the quarter or to the supervisor over the containers lack of quality or quantity

In the monthly report, the contractor proposes changes to the supervisors:
- proposes the addition of containers where they are needed
- proposes the reduction or relocation of containers where if there is any need
- proposes for addition new collection points
- proposes all options for services improved, waste recovery etc.

Article 45
PUBLIC COMMUNICATION AND INFORMATION

45.1 Municipality of Shkodra has the right and obligation to inform the public about the state of cleaning, its performance and to take monitoring initiatives with interested groups. It has the obligation to inform the public through printed and electronic media and to distribute to the citizens an information document about the functioning of this system.
45.2 At any time the Contractor should inform the municipality of Shkodra in printing document and to report on the situation of clearing the area “B”, giving all the necessary details for this service system.

Article 46
CONTRACT NEGOTIATIONS ON AFTER EACH PERIODICAL YEAR

46.1 For the value that will be approved each year, corrected for inflation based and in cases of negotiation for the new conditions that may arise, which would reflect the fuel price and the minimum salaries. The contract value may have changes from year to year according added or subtracted working volumes.
46.2 The waste transportation in the new collection place in a distance about 15 km, which may be realized in the future.

Article 47
SOLUTION OF DISAGREEMENTS

47.1 The Contracting Authority and the economic operator will resolve with common understanding any disagreement that will arise during the implementation of this contract. In case they do not agree then they should go to Shkodra District Court.

Article 48
ADMINISTRATION OF CONTRACT ANNEX

48.1 The contract is drawn, administered and interpreted under the laws of the Republic of Albania. This annex contract is based on the basic contract signed after the tender of dated 14.06.2008. The data’s about the economic operator, timing, value, financing source and warranty period are ensured by the Procurement Unit, which has followed the tender procedure.

Article 49
AVAILABILITY OF ANNEX CONTRACT

49.1 This contract shall be considered valid from the moment of signing by both parties.
49.2 This contract was designed in five copies, two copies to the parties and a copy to the project manager.

FOR CONTRACTOR AUTHORITY
Municipality of Shkoder
Mayor

ECONOMIC OPERATOR
Representative

GLOSSARY OF TERMS 6

Avoidance – programs, strategies and activities that prevent materials from entering the waste stream;

At-source waste separation- system or scheme of collection of sorted materials directly at the source (houses and/or business units);

Baler - a machine that is used to compress recyclable waste or other materials;

Biodegradable (organic) waste - means biodegradable garden and park waste, food and kitchen waste from households, restaurants, caterers and retail premises and comparable waste from food processing plants;

Capital Cost – (investment cost) means those direct costs incurred in order to acquire real property assets such as land, buildings and building additions; site improvements; machinery; and equipment;

Cell – compacted solid wastes, which is enclosed by natural soil or covering material in a sanitary landfill;

Commercial Waste– Solid waste generated by commercial establishments such as shops, offices, and restaurants, etc;

Compactor Truck/ technological truck- A waste collection vehicle designed for collecting low-density solid waste;

Composting – the biological decomposition of organic materials such as leaves, grass clippings, brush, and food waste into a soil improvement;

Construction and Demolition Waste– Solid waste that result from construction and demolition activities.

Collection – waste gathering, including preliminary storage of waste for the purposes of transportation to a waste treatment facility;

Curbside Collection – method of collecting domestic (urban) waste in which the householder is responsible for putting the waste (in a bag or container) outside his property;

Disposal - The final placement of solid waste that is not recovered or reused, in a landfill or a dumpsite;

Drop-off-Station– A location where recovered materials or waste can be set-aside for collection;

Dustbin – small container/bin placed along sidewalks and used for storing domestic waste;

Industrial Waste– Solid waste that results from industrial processes and manufacturing;

Integrated Solid Waste Management– The process of solid waste management that incorporates all steps from generation through to disposal;

Inert waste - Includes any solid waste that does not undergo any significant physical, chemical or biological transformation;

Hazardous waste - Any waste which displays one or more hazardous properties;

Household waste - Any waste coming from households in communes, or municipalities;

Leachate – Liquid that is produced after water comes in contact with waste or any liquid percolating through the deposited waste and emitted from or contained within a landfill;

Landfill – A solid waste disposal site for the deposit of waste on land or underground;

Municipal Solid Waste – Residential and commercial solid waste generated within a community;

Material Recovery Facility (MRF) - A mechanic systems for waste separation;

Open Burning – The practice of setting fire to waste in open dumpsites;

Open Dumpsite - Uncontrolled method for disposing of waste;

Operator - any person or company who is responsible for a waste collection, transportation, recovery or disposal site;

Packaging - All products made of any materials of any nature to be used for the containment, protection, handling, delivery and presentation of goods, from raw materials to processed goods, from the producer to the user or the consumer;

On the side segregation - Represents the collection of sorted materials at the public waste collection points located near side-roads, crossroads, within neighborhoods or near commercial centers;
Operational costs - Those direct costs incurred in maintaining the ongoing operation of a service, program or facility;

Privatization – The process of transferring the provision of existing services from the public to the private sector;

Public Awareness and Education - Public relations campaigns focused on informing the public or trying to affect behavior;

Public Consultation – The process of informing interested members of the public and discussing the details with them, with the objective of obtaining their support;

Public/Private partnership – A joint venture between the government and the private sector;

Prevention – Measures taken before a substance, material or product has become waste.

Residual material - Remaining part of the waste after a waste treatment process, e.g., the remaining material after composting of waste;

Recovery - Any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function;

Recovery installation - Any facility or plant used for treatment of waste with recuperation of energy and/or recyclables, composting material, etc;

Re-use - Any operation by which products or components that are not waste are used again for the same purpose for which they were conceived;

Recyclables – Components in municipal solid waste that still have useful physical or chemical properties that can be reused or remanufactured;

Recycling – The process by which waste materials are transformed into new products; any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes.;

Residential Waste – All solid waste that normally originates in a residential environment;

Sanitary Landfill – A site where solid waste is disposed of using sanitary techniques (waste compaction and covering);

Secondary segregation system/schemes - Stations or recycling centers may serve as complementary of the primary segregation system of recycling materials (acceptance, temporary storage and further separation);

Separate collection - The collection where a waste stream is kept separately by type and nature so as to facilitate a specific treatment;

Storage – Temporary holding of municipal solid waste pending collection;

Stop-and-go - A repetitive operation process of waste collection- stop to empty containers and collect waste and go to consecutive collection point;

Transfer Station – A facility where municipal solid waste from collection vehicles is consolidated into loads that are transported by larger trucks or other means (such as by rail or barges) to distant disposal sites;

Temporary storage - Storage of waste for a period less than one year without operations resulting in a change in the nature or composition of waste;

Transport - The entire range of activities including loading, conveyance and unloading as well as the preparation, servicing and maintenance of vehicles used to transport wastes;

Treatment - Recovery or disposal operations, including preparation prior to recovery or disposal;

Transfer Vehicle – A vehicle with a large capacity for transporting waste from a transfer station to a disposal facility;

Solid Waste Management – The purposeful systematic control of the generation, storage collection, transport segregation, processing, recycling, recovery, and disposal of solid wastes;

Tipping Fee – A fee that is charged for unloading of waste at a transfer station, resource recovery facility, or disposal facility;

Waste Management Hierarchy – Internationally recognized strategy for management of municipal solid wastes that places greatest emphasis on strategies and programs for avoiding and reducing waste, recovery and reuse of materials, with treatment and disposal being the least favored options;

Waste Minimization – The action taken to eliminate or reduce the quantity of materials before they enter the waste stream;

Waste Prevention – Programs, strategies and activities that prevent materials from entering the waste stream (Synonymous with Avoidance);

Waste Audit - A formal, structured process used to quantify the amount and types of waste being generated within a waste area, neighborhood or a certain number of consumers;

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

Waste producer - Any person whose activities produce waste (the original waste producer) or any person who carries out pre-processing, mixing or other operations resulting in a change in the nature or composition of that waste.

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