

Waste Management Technology in Regions (WMTR) Program

GENERAL METHODOLOGY FOR ESTABLISHING WASTE MANAGEMENT TARIFFS AND COST RECOVERY SYSTEM IN GEORGIA

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1.0 PURPOSE

The purpose of this document is to elaborate a general methodology for the determination of waste tariffs in accordance with modern requirements and propose a cost recovery system that will insure the sustainability of solid waste management systems at the Municipal level. It is imperative that new or existing systems are sustainable; consequently, a methodology is needed to recover the costs associated with the services provided. A methodology is required that will result in a tariff system that can be implemented and one that will result in maximum recovery of costs. We hope this document will serve as a valuable resource for Municipal officials when determining tariffs and provide a basis for legislative or regulatory changes that will support the Government's effort to implement tariff reforms in Georgia.

The Waste Management Code states **Polluter Pays** means that the producer or holder of waste, shall cover the costs of waste management;¹ It is not, however, a mandatory requirement of the law of Georgia that the total cost to the Municipality for providing waste management services be recovered directly from the producer of the waste through the tariff system. For example, grants may be received from international donor organizations by the Municipality that are given for the specific purpose of reducing the cost of providing waste management services to the socially vulnerable and therefore, the tariffs for providing these services. Another important requirement of the law requires that collected tariffs should not exceed the cost of the service.² Despite the fact that current Georgian law sets the maximum allowable tariffs, we recommend that the tariff limitation should be eliminated for beneficiaries of waste management services.

Historically, in most cases, tariffs have not been based on the cost of the services provided. Also, in almost all cases, tariff collection rates have been very low due to a lack of community support and enforcement practices.

2.0 INTRODUCTION

Modern solid waste management services typically include street sweeping and public area cleaning, solid waste collection, recycling, transportation, and disposal. Solid waste management services are the most costly, difficult, and complicated of all Municipal public works systems. It may also be the least appreciated of all Municipal services. Water supply, electricity, sanitary waste disposal, streets, fire, and police protection satisfy immediate and essential daily needs of residents and businesses, consequently these services are given a much higher priority by the community and its leadership. Solid waste services are typically one the last community wide public works programs implemented at the local level.

Various National laws related to solid waste management and the setting of tariffs apply to local governments. At the present time, the main laws applying to the setting of tariffs are the Waste Management Code (2015), The Organic Law of Georgia - Local Self-Governance Code (2014), and The Law Of Georgia On Local Fees, 1998 (As Amended). These laws and any other national law, rule, or regulation in effect at the time of the setting of tariffs must be followed.

The Local Self-Governance Code currently states that a municipality (in particular the Sakrebulo as the representative body of a self-government unit) is responsible for introducing, collecting and abolishing local fees (tariffs). The fee rate must be determined based laws that regulate the general structure and size of fees throughout the country.³ Current laws do not specifically address the subject the

¹ Waste Management Code, Chapter 1, Art. 5, Para. 2.B

² Law of Georgia on Local Fees, Article 12¹, Para. 6

³ Waste Management Code, Article 5, Paragraph 2 (b).

methodology to be used for determining the tariff.

Current laws state that the responsibility for the introduction of local fees in a municipality is regulated by a resolution elaborated and issued by the Sakrebulo. Such a resolution defines fee rates for individuals and legal persons, *provides the fee calculation methodology*, and determines fee payment rules and forms.⁴

Internationally accepted rate setting methodologies for waste management services support an approach tailored to specific situations of each Municipality. Essential elements that should be considered when establishing tariffs include the application of internationally accepted tariff setting principals, Georgian legal & regulatory requirements, the anticipated costs and revenues of the services provided, and input gained from community outreach programs.

This document includes basic information including: internationally accepted modern tariff setting principals; descriptions of modern waste management services; revenue and cost accounting standards for waste management; and current legal and regulatory requirements applying to establishing tariffs.

3.0 MODERN PRINCIPLES FOR DETERMINING SOLID WASTE TARIFFS

Tariff-setting principles provide criteria for determining the amount of the tariff. These principles, when applied, affect the efficiency, equity, and sustainability of the waste management system. Each of these principles should be considered in the tariff setting process. At the present time, Georgia law requires the application of some, but not all of these principals.

The following principles are considered to be consistent with international “best practices” and should be considered in governing and shaping the determination of tariffs for solid waste services.

3.1 LEGAL REQUIREMENTS

- Tariffs must be established in accordance with all laws in effect at the time of the setting of the tariff

3.2 COST RECOVERY

- Tariffs should be based on the costs associated with providing the service, including operating and maintenance, and capital replacement and/or financing costs.

3.3 FINANCIAL VIABILITY

- Tariffs should allow for the financial sustainability of the service, taking any other subsidies into account.

3.4 HORIZONTAL EQUITY

- Users of services should be treated equitably and should pay the same amount for the same level of service.

3.5 VERTICAL EQUITY AND POVERTY ALLEVIATION

- Vulnerable consumers should get the same bill but via other regulation can be exempted from paying. The other regulation should include a definition of "vulnerable".

⁴ Tariff and Cost Recovery Assessment Report

3.6 ADMINISTRATIVE AND TECHNICAL FEASIBILITY

- Tariff methodology and implementation should be administratively and technically feasible.

3.7 POLLUTER PAYS

- Those responsible for waste generation and externalities from waste generation and disposal should pay for the social costs of this waste.

3.8 TRANSPARENCY

- Tariffs should be understandable by the public and any subsidies which exist must be visible and understood by all those affected.

4.0 TARIFF SETTING METHODOLOGY

4.1 INTRODUCTION

The modern and internationally accepted tariff setting methodology follows the steps outlined below:

- Identify the requirements of current laws applying to tariffs;
- Identify the waste management services provided;
- Determine who benefits from each service;
- Determine the cost for each service provided;
- Determine the tariff based upon the application of law and by applying modern tariff setting principals.

4.2 REQUIREMENTS OF THE LAW

A. WASTE MANAGEMENT CODE (2015)

The **Waste Management Code (2015)** is the law of Georgia that sets a general framework for waste management in Georgia. It governs the collection, transportation, recovery and disposal of hazardous and non-hazardous waste, regulates waste management planning related issues, defines competencies and assigns responsibilities to different stakeholders, states strategies and approaches in waste management, and provides the basis for core regulations.

With respect to this code that relates to the responsibility for determining costs and establishing tariffs, the code states that the responsibility lies with the local Municipality. In particular:

- “Municipalities, in accordance with the provisions of this law and the Code of Self- governance shall be responsible for municipal waste management”⁵;
- Polluter pays - a waste producer or holder is obliged to cover costs associated with waste management;⁶
- The municipalities in accordance with the provisions of this law and the Code of Self- governance shall be responsible for: municipal waste management (including elaboration of

⁵ Law of Georgia WASTE MANAGEMENT CODE Article 6 Para(8)

⁶ Law of Georgia WASTE MANAGEMENT CODE Article 5 Para(2)

municipal waste management plan), pursuant to Article 16 of this Law (excluding the competences pursuant to paragraph 7 of this Article).⁷

B. THE LAW OF GEORGIA ON THE PRINCIPLES OF THE FEE SYSTEM (1998)

The applicable provisions of this law that apply to tariffs for solid waste management services include the following:

- According to this law, any fee for cleaning of settlements, which includes waste collection/treatment and street cleaning, is classified as a local fee;
- The Sakrebulo (a representative body of the municipality) is responsible for setting local fees;
- Fee rate should not exceed 3 GEL per month for a person and 25 GEL per a cubic meter of waste for legal entities, organizations and institutions. Regardless of the number of household members, the maximum number should be limited to 4 persons⁸;
- The fee should not exceed the cost of organizing and administering the corresponding service;
- For legal entities, organizations and institutions, the fee should not exceed 25 GEL per cubic meter of waste;
- Provision(s) is not applicable to locales where municipal waste collection services are not available;
- A resolution (by the local responsible authority) defines fee rates for individuals and legal persons, provides the fee calculation methodology, and determines fee payment rules and forms.

There is no unique fee-setting rule described in the Law of Georgia on Local fees. According to a recent publication by the State Audit Office of Georgia: *Municipalities, where waste fees are more or less collected, the rates are unfounded and do not cover actual costs that are required for cleaning. This approach is due to the fact, that municipalities neither consider nor observe the tariff system analytically. Cost and income are not calculated based on which acceptable collection rate should be determined.*⁹

⁷ Law of Georgia WASTE MANAGEMENT CODE Article 6 Para(8)

⁸ Law of Georgia On Local Fees Article 12¹ Para (4)

⁹ State Audit Office of Georgia Performance Audit of Municipal Solid Waste Management-Performance Audit Report 2015

C. EU-GEORGIA ASSOCIATION AGREEMENT

The Association Agreement between the European Union and Georgia does not include detailed provisions or requirements regarding waste fees.¹⁰ However, it spells out the cost recovery mechanism based on "polluter pays" principle.

4.3 WASTE MANAGEMENT SERVICES

Procedures for establishing tariffs must take into account: the service (cleaning, collection, ultimate disposal); who benefits from the service; and the quality of those service.

A. COMMUNITY CLEANING SERVICES

One of the modern waste management services is the Community cleaning service. Community cleaning services normally include the following activities:

- Street and area cleaning includes street sweeping, roadside cleaning, cleaning and providing waste bins in public spaces. This service is carried out at varying frequencies depending on the area being serviced.
- Special contract based services such as animal carcass removal; removal of wrecks, cleaning after public events etc. that are provided on a when needed basis.
- Removal of illegally dumped waste (accumulated waste) and the prevention of illegal dumping is often a significant element of MSW management. It typically costs up to 100 times more to clean-up illegally dumped waste than it does to handle waste that has been placed in the formal waste management system.

B. WASTE GENERATOR DISPOSAL OPTIONS

Waste generator disposal refers to how the producer (person/household, commercial business, or industrial entity) disposes of the waste. There is a wide-range methods employed by waste generators for disposing of solid waste in Georgia and throughout the world. Waste disposal methods are community specific, and affected by the economic, physical and demographic characteristics of the community and the availability of waste management services. The range of methods for the initial disposal of waste by the waste generator are described in the following table:

Waste Generator Disposal Options

SERVICE LEVELS	DESCRIPTION
On-Site Disposal	This is the most basic waste disposal practices that are widespread in scattered villages. The families have allocate plots of land, where they bury their waste.
Communal Dumping Sites	Waste generators are required to transport their own waste to a dumping site outside the settlement area. <u>The dumping site is provided, operated and regularly supervised by the municipality or an appointed contractor, and is basically a small landfill site that usually does not meet current landfill design standards.</u>
Neighborhood Waste	Waste Generators are required to carry their own solid waste to a

¹⁰ Tariff Baseline Report

Bins Or Building Bunkers	communal point in the neighborhood where waste bins or bunkers are provided. The bins or bunkers are emptied or transported to the landfill site and emptied by the municipality or an appointed contractor.
Door To Door Service (Curb Service)	Waste Generators put their solid waste outside each dwelling unit or business establishment (in waste bins or bags) for collection once or twice a week.
Official Landfill	Waste generators are obliged to export their waste to landfills located outside the populated area. Municipalities (if this territory belongs to them) allocate space for landfill. This is the small size landfill that typically does not meet the modern standards.

C. SERVICE BENEFICIARIES

The beneficiaries of each of the services must be identified and quantified. Beneficiary categories are usually defined as people/households, commercial establishments, or industries. For each of these categories, the number of beneficiaries for each of these services must be determined. The following information should be included in the Municipal Solid Waste Management plan:

- Information on the existing system for collection of waste from population;
- Data on the types and the amounts of non-hazardous waste collected, recovered and disposed of;
- Data on the types and the amounts of hazardous waste from population collected, recovered and disposed of;
- Location of the waste treatment facilities;
- Planned measures to be taken for the establishment of separate collection and recovery of municipal waste, including of biodegradable waste and packaging waste;
- Planned construction of new waste treatment facilities;
- Programmes to raise awareness of the public on waste management issues;
- Implemented and planned measures for co-operation with other municipalities in the field of waste management;
- The way and timeframe in which the proposed measures shall be implemented, responsible persons, estimated costs and sources of financing for their implementation.
- Community Cleaning Services
- Waste Generator-Initial Collection
 - a. On-site Disposal
 - b. Communal Containers
 - c. Bunkers
 - d. Door To Door Service
- Collected Waste Disposal
- Recycling

5.0 DETERMINING WASTE MANAGEMENT SERVICE COSTS

5.1 INTRODUCTION

Determining the cost of specific solid waste services is the most important consideration in the tariff setting process. Therefore, local officials must have reasonably accurate and comprehensive cost information available to them when setting tariffs. The information must include all costs for providing the services. Residents of the community must be informed of the costs so they will understand the financial basis for the proposed tariffs. Projected service cost is a critical factor in the tariff setting process.

The most difficult task associated with establishing the proper tariff for each service is the determination of the projected cost of providing the services. However, if a complete Municipal Solid Waste Management Plan has been prepared, all of the information for the cost of the services, as well as who specifically receives the benefits of the service, will be readily available. The actual cost of each service, as determined by the application of modern accounting methods (Full Cost Accounting) must be known and recovered through tariffs or subsidies (other revenue) in order to insure sustainability of the service.

At the present time, not all Municipalities may have prepared Waste Management Plans that contain all the cost and service information needed to establish tariffs in accordance with modern practices. For this reason, information is included in this document about how to determine the costs that must be divided between those who benefit from of the service. In order to fully explain the differences between commonly used methods of determining costs and modern methods for determining cost, both the commonly used method and the modern method is described.

5.2 SERVICE PROVIDERS

Services may be provided directly by the Municipality with its own equipment and personnel, by providing these services through a company wholly owned by the Municipality, or by contracting with a private company that is not owned and controlled by officials of the Municipality. Services provided by private companies are normally procured through a tendering process administered by the Municipality. In addition, some services, such and landfilling services are provided by the central government on a cost reimbursement basis.

A. SERVICES PROVIDED DIRECTLY BY MUNICIPALITIES

When the Municipality or a Company owned by the Municipality provides solid waste services, historical records should exist relating to the cash outlays previously made for the services performed. These records may consist of only the total cash outlays for all of the activities combined, or they may be separated into various services, that may be further subdivided into various of expenses such as labor, fuel, supplies, etc. The best information available should be adjusted to reflect full cost accounting standards (which are explained in following sections of this document) and used as the basis for determining past costs and estimating future costs.

B. SERVICES PROVIDED BY PRIVATE COMPANIES

When a private company (not owned by the Municipality) is selected through a public tendering process to provide some or all services to the community on a contractual basis, the total cost for the

contracted service will be known. The Request for Tender should require the Offeror to include a breakdown of costs based upon each unique service provided. The municipality, within its own competence (collection, transportation), may not contract for all waste management services, in which case, in addition to costs for contracted services, other costs will be incurred. The total cost for services must include contract costs, plus any additional costs incurred by the Municipality.

C. C. SERVICES PROVIDED BY THE STATE

Final disposal of MSW is managed by the State.¹¹ To this end, the state is constructing new regional landfills (and transfer stations) and rehabilitating or closing existing ones. Till now, the municipalities are not charged any costs. As soon as the new regional landfills are operational, the municipalities (and others) will have to pay a “gate fee”, an amount per ton of waste delivered. A transition period is under consideration where the state will subsidize the municipal budget for the costs of waste disposal. For proper cost calculations, these costs and subsidies have to be included in the methodology and final fee.

5.3 COST ACCOUNTING METHODS

For the purpose of setting tariffs, historical costs and revenues must be analyzed, adjusted, and incorporated into projections of future costs. Historical costs normally provide the foundation for future cost projections. Historical cost projections should be based upon the best records available, and where necessary, must be adjusted to reflect Full Cost Accounting (FCA) methods (described below), rather than using a Cash (Outlay) Basis Accounting (also described below) system. A description of both methods is provided to help clarify the differences between the two accounting methods.

¹¹ Solid Waste Management Company (State Ltd) conducts disposal of municipal waste on the territory of Georgia except Tbilisi and Adjara A.R. Trilservice Group (State Ltd) disposes municipal waste in Tbilisi. As for Adjara A.R. - Kobuleti Cleaning (State LEPL) conducts disposal on the territory of Kobuleti and Sever Ltd accordingly in Batumi.

5.4 FULL COST ACCOUNTING

The current international “best practice” or “modern method” for accounting in the solid waste management field is the use of Full Cost Accounting (FCA). FCA is defined as a systematic approach for identifying, summing, and reporting the actual revenue and costs of solid waste management. It takes into account “*past and future outlays, overhead (oversight and support service) costs, and operating costs.*”¹²

A critical concept inherent in FCA systems is the difference between the terms outlay and cost. Outlay refers to the actual expenditure (outlay) of monies for the purchase of buying an asset or the payment for equipment, labor, tools, materials, and other services. Cost refers to the monetary value of resources as they are used or expended, which means the cost (consumption) of resources as they are used or committed in the MSW program. An outlay is defined as an expenditure of cash to acquire the resource. For example, a cash outlay is made when a collection truck is acquired, but the cost (decrease in value) of the truck would be incurred over its useful life. The cost of the truck, therefore, should be allocated over the period of its use, because every year of use contributes to the deterioration of the truck’s value, until it must be replaced with a new truck, requiring a new cash outlay.

Identifying revenue sources, when estimating total revenue, is also important because revenue received from sources other than tariffs can be used to offset the estimated cost of service and resulting tariffs. Some projected revenue may be intended for the general benefit specific segments of the community, and therefore, used to reduce the amount of the tariff for certain beneficiaries such as low-income households. These revenue sources could include grants, government transfers, and foreign aid. For example, foreign assistance given to the municipality for a specific purpose, such as for the purchase of equipment or for subsidizing the tariffs of lower income households could be applied in a manner consistent with the tariff setting principal of vertical equity.

The information presented in this section illustrates how to determine costs and revenue for solid waste management services using full cost accounting principles.

A. REVENUE DETERMINATIONS USING FULL-COST ACCOUNTING

A listing all sources of revenue for the past years should be compiled as illustrated in the following table.

Income Account	Description
Service Charges Billed	Charges billed for residential, commercial, industrial and other customers for the services provided.
Transfer from General Fund	Budgeted transfers from the municipality’s own funds to the structural unit assigned the responsibility for solid waste management.
Transfer from National Government	Budgeted subsidy provided by the national government though the Ministry of Finance.
Sales	Budgeted revenue from the sales of composted mulch, recyclables, and other products or services.

¹² United States Environmental Protection Agency (1997), *Full Cost Accounting for Municipal Solid Waste Management: A Handbook*, Washington, DC

Contracts	Budgeted revenue from negotiated collection contracts with large producers such as hotels, restaurants, etc.
Other	Budgeted Donor Contributions*.

* Some projected revenue may be intended for the benefit specific segments of the community, and therefore, used to reduce the amount of the tariff (subsidize) for selected beneficiaries of specific services. These revenue sources could include grants, government transfers, and foreign aid. For example, foreign assistance given to the municipality for a specific purpose, such as for the purchase of equipment or for subsidizing tariffs for low- income people.

The following table provides an example of an organizing framework for collecting historical revenue data. If income allocation information is not available based upon the type of service, it can be allocated later among principal solid waste management activities, as they become known. If not available in this form the total income amount should be given. The amounts shown should be the amount actually “obligated”, not the actual amount received.

FCA-Example Revenue Data Summary

Organizing Income Framework for SWM							
Primary Service	Income Accounts						
	Service Charges Billed	Transfer from General Fund Obligated	Transfer from National Government Obligated	Sales	Contract Billings	Other Revenue Received	Totals
Waste Collection							
Waste Recycling and/or Processing							
Waste Disposal							
Street & Public Area Cleaning (parks, etc.)							
Totals							

B. COST DETERMINATION USING FULL COST ACCOUNTING

The use of Full Cost Accounting principles for estimating costs requires the recognition of numerous types of costs, *many of which would not be recognized under a cash flow accounting system*. The following table lists costs used in a FCA system, and although not all of the costs shown may be applicable for the system.

FCA-Example Cost Categories

Type of Cost	Cost Components
Initial costs for newly established systems (Assets)	Equipment, Land Acquisition, Costs of permits for Construction of Landfill, Building construction, Public awareness and outreach programs, etc.
Direct Operating Costs	Recurring costs <ul style="list-style-type: none"> • Operations and Maintenance (O&M) • Interest Costs
Back-End costs. (future obligations)	Landfill Site Closure Building/equipment decommissioning Post-closure maintenance Retirement and health benefits for current employees
Depreciation	Costs allocated over the life of the asset, if the asset has a useful life in excess of one year (subject to depreciation). Initial Costs, Future obligations (Back-end costs), Equipment Costs, etc., generally fall into this category.
Uncollected Service Charges	Services Charges not collected are actually an expense when applying FCA (accrual) accounting principles. (Accounts Receivable)
Contingent Costs	Remediation costs Liability costs (property damage, personal injury, etc.)

Operating costs are recurring costs or expenses of doing business. The principal costs of doing business are generally considered to be: (1) operations and maintenance (O&M), and (2) interest costs (interest costs on loans). These two types of operating costs can be divided into direct and indirect categories. Direct expenses are those attributable to the principal activities of running a solid waste management operation, such as waste collection, transfer station operations, landfill operations, recycling operations, etc. Indirect expenses are those incurred in support of principal activities. Examples of these expenses are accounting costs, clerical staff, payroll services, data processing, insurance, public education programs, etc. Many of these kinds of costs are referred to as “overhead”. The costs of running these activities must be allocated across appropriate expense accounts. These expense accounts are listed in the table below together with a further description:

FCA-EXPENSE ACCOUNT CATEGORIES

O&M costs	Description
Labor	Wages/salaries of employee including the cost of employee benefits such as health insurance, retirement plans, bonuses, etc.
Vehicles & Equipment	Costs of operations of vehicles including: fuel, oils and lubricants, maintenance, etc. Also include lease costs if applicable.
Consumable Supplies	Office Supplies, parts, tools, etc.
Rent or Lease payments	Examples of this would be amount paid for leasing land for landfill operation, transfer station, fleet garage, offices, etc.
Contract Services	Expenses of contracting for specific services such as street sweeping, recycling, etc.
Interest Costs	Interest payments on any loans taken out for principal solid waste management activities.
Depreciation	Depreciation of Capital Items, front-end costs, and back-end costs having a life or benefit of more than 1 year.
Other payments	Any other type of payment not described above such as (Accounts Receivable) either due to non-payments or due to exemptions for socially vulnerable groups.

The following table provides an example of an organizing framework for collecting cost data. If costs have not been allocated based upon the type of service, they can be allocated later among principal solid waste management activities, as they become known. If not available in this form, the total expense amount should be given. The amounts shown should be the amount actually “obligated”, not the actual amount of the cash outlay.

FCA-ESTIMATED OPERATING EXPENSE SUMMARY

Basic Service	COST ACCOUNTS								
	Labor	Vehicles & Equipment Operating Expenses	Consumable Supplies	Rent or Lease Payments	Contract Services	Interest Costs	Depreciation and/or Principle Repayments /Capital Investments ¹	Uncollected Fees	Total
Waste Collection									
Waste Transfer									
Recycling									
Waste Disposal									
Street & Public Area Cleaning (parks, etc.)									
TOTAL									

¹ To be able to prevent double counting of costs, if depreciation costs are higher than the principal repayments of loans, then principle repayments should not be considered as a cost item at all. However, if depreciation costs are lower than the principal repayments of loans, then the difference (principle repayments - depreciation costs) should be added to the costs.

C. CASH BASIS ACCOUNTING

Local governments historically have used cash flow accounting methods (cash basis or general fund accounting which reflect actual cash OUTLAYS) to show the flow of financial resources, both for income and expenses. A cash flow accounting system records income and expenses (cash outlays) when they occur. For example, the purchase of a collection truck would be recorded as one expense on the date the truck was purchased. Or, income from tariffs would be recorded as they are actually received from payers. Full Cost Accounting, on the other hand, is an accrual system of accounting that recognizes costs as resources that are used or committed over a period of time, regardless of when the money is spent.

Revenue determinations based upon a cash basis accounting system will reflect only the actual cash received during the period being evaluated. The significant differences in the determination of revenue would be associated with service and contract billings versus actual amounts collected, and possibly in fund transfers and community grants.

EXAMPLE REVENUE SUMMARY-CASH BASIS ACCOUNTING

Organizing Income Framework for SWM						
Activity	Income Accounts					Totals
	Service Charge Payments Received	Transfer from General Fund Received	Transfer from National Government Received	Donor Support Received	Contract Billing Payments Received	
Waste Collection						
Waste Recycling and/or Processing						
Disposal						
Street & Public Area Cleaning (parks, etc.)						
Totals						

Cost determinations based upon cash basis accounting are based upon the actual cash outlays made during the period of consideration. Historical cash outlay information is normally available from existing records. The level of available detail will vary widely between communities.

CASH BASIS-OPERATING EXPENSE SUMMARY

CATEGORY	COST ACCOUNTS-CASH BASIS								
	Labor	Vehicles & Equipment (New Purchases) + Operating Expenses	Consumable Supplies	Rent or Lease Payments	Contract Services	Loan Repayments	Depreciation *	Uncollected Fees*	Total
Waste Collection									
Recycling									
Waste Treatment									
Street & Public Area Cleaning (parks, etc.)									
TOTAL									

*These categories are not included in a cash based system

6.0 WASTE MANAGEMENT SERVICES-COST ALLOCATIONS

6.1 INTRODUCTION

If the cost of the each specific service is known and the number of customers receiving the same identical service is also known, the allocation of those costs is very simple. The total cost of the service is divided equally among the service beneficiaries. If a Municipal Waste Management Plan has been properly prepared, this information will be readily available. However in many cases, at the present time, this information may need to be developed in the tariff setting process. If no subsidies shall be involved, to be able to cover the full costs, the costs to be reflected to the paying groups shall be higher since socially vulnerable groups will not pay (Unit Cost = Total Cost of Service / No. of Paying Service Beneficiaries).

For tariff setting purposes, public officials and residents need to be knowledgeable about the services to be provided including who is being served, the level of services provided (quality, quantity & convenience considerations), and the costs associated with each services. For example, collection services that consist of providing a waste bin at each residence, commercial establishment, or industry site (door to door service) is a more costly service than placing large waste bins at various locations in the service area (waste pooling service). The balance depends on the type of residential area: high density or rural. In the case where both types of services are provided, but only the total cost of collection for the entire community is known, the costs allocated for the door-to-door service should be higher than for the waste-pooling service.

It is also necessary to consider other factors besides only the method of providing the initial disposal service (door-to-door or communal waste bins). The cost for the ultimate disposal is also affected by the quantity of the waste. Since it is typically not practical to determine the actual weight or volume of the waste at the point of collection (impossible for communal waste bin services), it is modern practice to allocate costs for door-to-door services based upon container size and frequency of pickup. Most tariff schedules provide for charging on the basis of the container size and number of containers and/or the frequency of service.

For the purpose of explaining and demonstrating the concept of cost allocation that follows in this document for allocating costs to those receiving services, information was taken from the previously prepared "Tariff and Cost Recovery Assessment Report - prepared within the framework of the USAID-WMTR program". The data used is based upon information received in a survey response received from the Kobuleti Municipality, Adjara Autonomous Republic. While the information available in this report for Kobuleti contains very little detail, this example provides the opportunity to illustrate that in the case where a Municipal Solid Waste Management Plan does not exist, it is still possible to apply modern tariff setting practices. Using limited data also permits the opportunity to provide insight into the application of modern tariff setting principals and methodologies. Kobuleti information is also used because Kobuleti data is likely similar to data limitations in many Georgian municipalities. Demonstrating that it is possible to use the modern methodologies with limited existing data may make this document more useful throughout Georgia at the present time.

The available information used includes the following:

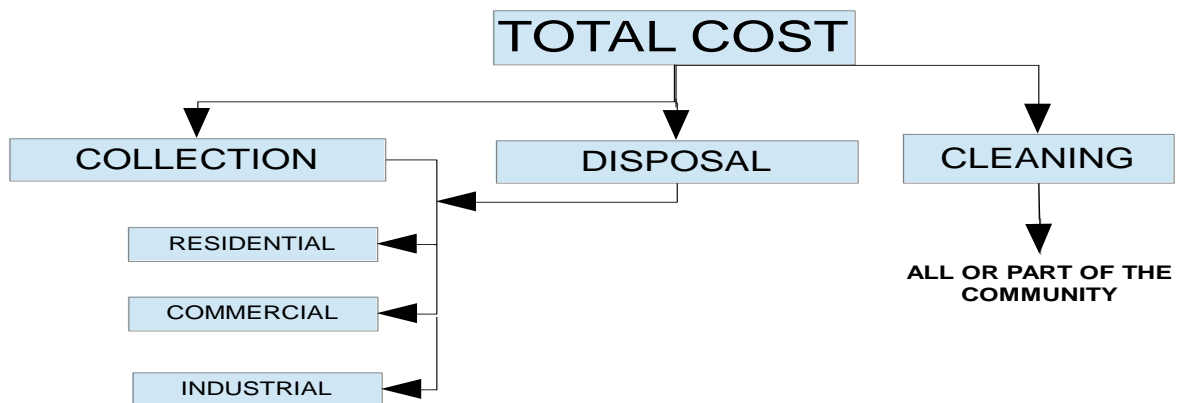
- Population = 75,200;
- 45% served with solid waste services;
- Services provided include public area cleaning, waste collection, and waste disposal;
- Waste pooling (neighbourhood bins) and building bunkers are used to accumulate solid waste

for collection;

- Total costs for waste management was 1,025,969 GEL per year;
- Costs for waste collection and removal were 391,776 GEL per year;
- Costs for disposal were 45,450 GEL per year;
- Costs for sweeping and cleaning costs were 588,742 GEL per year.

6.2 OVERALL ALLOCATION OF SERVICE COSTS

The total cost for solid waste services must be allocated to the categories of service and service beneficiaries as illustrated below.



When actual or projected costs for each service are unknown, but the total cost is known, estimates of the cost for specific services must be made that are based upon the best information available. The total cost must first be allocated to the basic service categories; collection, disposal, and cleaning. If available, Municipal Solid Waste Management Plan data should be used as a basis for the cost. However, if a Municipal Solid Waste Management Plan has not been prepared, but actual historical costs are known, costs should be projected based upon historical costs, giving consideration to inflation and any changes to the services.

The following table (Kobuleti Municipality Data) illustrates the result of projecting future costs based upon historical financial data.

This table is part of a tariff calculation model that can be used to calculate the required tariffs by simply clicking on the table and inserting the data in those cells that are coloured green. Only those cells indicated in this colour allow data to be entered. As you progress through this report, explanations are provided before each table describing the data that should be entered. Once you have reached the end of the report and have completed the data input in the last table, the model will show the tariff required, based upon the criteria for setting tariffs described in this report.

COST DISTRIBUTION-BASED UPON SERVICE PROVIDED			
SERVICE TYPE	BASIS OF COST PROJECTION	HISTORICAL ACTUAL COST¹	PROJECTED COST²
STREET AND PUBLIC AREA CLEANING	Approved and Forecasted Budget	588,742.00 ₾	621,120.00 ₾
WASTE COLLECTION	Approved and Forecasted Budget	391,776.00 ₾	470,132.00 ₾
WASTE DISPOSAL	Approved and Forecasted Budget	45,460.00 ₾	56,813.00 ₾
WASTE RECYCLING	Approved and Forecasted Budget	0.00 ₾	0.00 ₾
TOTAL		1,025,968.00 ₾	1,148,065.00 ₾

¹Kobuleti Municipality Data.

²Should be based on planned changes in the service system and other factors affecting the anticipated cost of the service, such as inflation.

6.3 STREET AND PUBLIC AREA CLEANING

Benefits for these services generally accrue to the entire community. However, if the “Polluter Pays” principal is considered, and if it is believed that those households, businesses, and industries using Municipal disposal services are not the primary source of the community waste, then the full cost of cleaning services could be allocated to only those benefiting from Municipal disposal services. The decision about who is responsible for the cost of this service should be made at the local level by the Sakrebulo.

6.4 COLLECTION

When total costs for collection are known, but it is not known how much of the total cost is incurred for each customer class (residential, commercial, or industrial), the total cost must be divided between the classes. These values should have a rational basis, based upon an overall understanding of the operation of the collection system. The amount of the cost allocated to each customer class can be based on different factors such as: measured weight or volume of waste delivered to the landfill when the source is known; the relative amount of equipment and manpower assigned; depreciation, principal and Interest payments/capital Investments and/or other considerations. The main point here is that the allocation should have a rational basis and not be an arbitrary assignment of cost that cannot be explained to the public. The following table illustrates a hypothetical allocation the total estimated cost given in this example and along with a hypothetical justification for the allocation.

A. RESIDENTIAL WASTE COLLECTION SERVICES

COLLECTION COST DISTRIBUTION BY CUSTOMER TYPE		
SERVICE TYPE	PROJECTED COST FROM SWM IF AVAILABLE	TOTAL PROJECTED COST
WASTE COLLECTION	NOT AVAILABLE	470,132
RESIDENTIAL	Subjective Estimate Made by the Contractor	75%
		352,599 ₾
COMMERCIAL	Subjective Estimate Made by the Contractor	15.00%
		70,520 ₾
INDUSTRIAL	Subjective Estimate Made by the Contractor	10%
		47,013 ₾
WASTE RECYCLING	SERVICE NOT PROVIDED	0
TOTAL		470,132 ₾

At this point in the process the total costs for collection services has been determined. These costs must now be distributed, based upon how the services are provided. How the service is provided is directly related to the cost of the service.

There are four different methods that are commonly used for residential waste collection:

- Door-to-Door Collection (curb service): This service is provided by placing waste bins at each household and emptying the bins on a predetermined schedule;
- Neighbourhood waste bins (waste pooling): This service is provided by placing waste bins at intervals throughout a settlement or residential area that are collected and emptied on a regular basis;
- Bunkers: This service is provided by removing wastes from a trash container, which is a permanent part of a residential building structure;
- Collection of Recyclables: Collection of mainstream recyclables (paper, plastic, glass, and metal) at the source, communal collection points, or at accessible drop-off centres from where it is transferred to recycling facilities.

The total cost for residential collection services must be divided between the above methods of service when actual cost data for each type of service is not available. Once again, the allocations must have a rational basis applied by management, based upon their knowledge of the operations of the service system. The rational used should be one that is easily explained to the public.

Information similar to that shown in the following table should be included in the Waste Management Plan, but if not, it must be developed as part of the cost allocation process.

The allocation of total collection costs developed in Section 6.4 to the different collection service types is illustrated in the following table:

RESIDENTIAL WASTE COLLECTION SERVICES		
COST DISTRIBUTION-BASED UPON TYPE OF SERVICE		
TOTAL AMOUNT TO BE ALLOCATED		352,599 ₾
TYPE OF SERVICE	COST ALLOCATION BASIS	% ALLOCATED
DOOR TO DOOR	Subjective Estimate Made by the Contractor	
		0 ₾
WASTE POOLING	Subjective Estimate Made by the Contractor	70%
		246,819.30 ₾
BUNKERS	Subjective Estimate Made by the Contractor	30%
		105,780 ₾
TOTAL		352,599 ₾

B. COMMERCIAL WASTE COLLECTION

Waste collections costs contained in Paragraph 6.4 needs a separate contract to be negotiated.

The allocated collection costs developed in section 6.4 would be accomplished as shown in the following table:

COMMERCIAL COLLECTION SERVICES		
COST DISTRIBUTION-BASED UPON TYPE OF SERVICE		
Amount To Be Allocated		70,520 ₾
WASTE COLLECTION	COST ALLOCATION BASIS	ALLOCATED AMOUNT
DOOR TO DOOR-SERVICE COST	Management judgment based upon the resources used for providing this service	80%
TOTAL		56,416 ₾
BUILDING TO BUILDING-SERVICE COST	Management judgment based upon the resources used for providing this service	20%
TOTAL		14,104 ₾

C. INDUSTRIAL WASTE COLLECTION

Collection contracts are the only way to be provided to industries. Waste volumes are highly variable and therefore, different tariffs agreements (contracts) should be established that fully cover the costs for the services provided. Industries that do not produce significant wastes as a by-product of their industrial processes would normally receive waste disposal services in the same manner as residential and commercial services and the costs for these services would be allocated on the same basis as for commercial services.

INDUSTRIAL COLLECTION SERVICES		
COST DISTRIBUTION-BASED UPON TYPE OF SERVICE		
Amount To Be Allocated		47,013 ₾
WASTE COLLECTION	COST ALLOCATION BASIS	ALLOCATED AMOUNT
DOOR TO DOOR-SERVICE COST	Negotiated Contracts Based Upon Services	75%
		35,260 ₾
Waste Bunkers Cost	Negotiated Contracts Based Upon Services	25%
TOTAL		11,753 ₾

D. RECYCLABLE WASTE COLLECTION

There are basically two possible ways of collection recyclable materials. Source separation requires the waste generator to separate all recyclable materials into separate containers or to deposit those materials in recycle bins located throughout the community. The other method is to include recyclable material with their other wastes and include them in the collection system (mixed waste collection – that is not an option anymore). Separation then takes place at a central location, usually at the landfill site. All recycling programs, with the exception of mixed waste collection, require a change in behavior by the generator; however, specific tariffs are not generally charged for those participating in a waste-recycling program.

6.5 DISPOSAL

The LTD “National Solid Waste Management Company” is responsible for the operation of landfill disposal sites in Georgia, except Tbilisi and Adjara Autonomous Republic. The company is under the system of the Ministry of Regional Development and Infrastructure. *“The Ministry of Regional Development and Infrastructure of Georgia shall be responsible for construction, operation and closure of non-hazardous waste landfills, as well as construction and management of waste transfer stations in accordance with the requirements of this law and relevant sub-legislation. The competences under this paragraph can be assigned to a third person under a relevant decision of Government.”*¹³The Company currently manages 53 registered old landfills and is constructing and operating 9 others.

It has been agreed by now that the disposal fee, the gate fee, will only be charged for the new landfills and thus based on actual weight. This also gives the time for the municipalities to encourage the larger commercial entities and industries to negotiate separate contracts for collection and disposal.

¹³ Waste Management Code-Chapter 2, Article 6, Para. 7

Disposal costs are directly related to the quantity (volume or weight) of waste disposed. Since it is not a common practice to weigh the waste at the point of collection, other methods are commonly used to estimate the contribution of waste for the customer type. For residential service, estimates of volume or weight of the discarded waste are typically available from previous studies, or they can be estimated based on historical data from communities of similar size and standards of living located in other countries throughout the world. This information is available in numerous publications available from the World Bank, United Nations, Asian Development Bank, European Union, and many NGO and environmental organizations.

Disposal costs should be allocated to each customer category (residential, commercial, or industrial). The cost distribution should be based upon the estimated waste volume or weight of the waste. It many instances these values are not known, and must be estimated. When known, the actual amounts should be used.

The following example illustrates the allocation disposal costs to categories of customer services:

COST ALLOCATIONS-SOLID WASTE DISPOSAL			
AMOUNT TO BE ALOCATED			56,813 ₾
SERVICE CATEGORY	COST ALLOCATION BASIS	ALLOCATION PERCENTAGE	ALLOCATED COST
RESIDENTIAL	Estimated % of Contributed Waste	75%	42,610 ₾
COMMERCIAL	Estimated % of Contributed Waste	15%	8,522 ₾
INDUSTRIAL	Estimated % of Contributed Waste	10%	5,681 ₾
TOTAL			56,813 ₾

6.6 SERVICE BENEFICIARIES

In order for it to be possible to assign service costs for a specific type of service to individual beneficiaries of the service, it is necessary to know how many beneficiaries there are for each service. Once again, this information should be contained within the MWMP, however when it is not available from this source, this must be determined as part of the actions in the WM plan.

A. COMMUNITY CLEANING SERVICES

The cost of cleaning services may be allocated to everyone in the community including all households/people, commercial establishments, and industries, or they may be allocated to only to only portions of the community such as to only those not using other collection services.

The following table illustrates the basic information that may be needed for determining the tariff for each type of waste management service.

CLEANING SERVICES	
BENEFICIARIES	NUMBER People Or Businesses
Total Community Population	75,200
Served With Waste Disposal Services	33,840
Not Served With Waste Disposal Services	41,360
Commercial Establishments	120
Industrial Facilities	30

B. WASTE DISPOSAL (COLLECTION) SERVICES

The following table illustrates the basic information that is needed to form the basis for determining the tariff for collection services.

Collection Services

COLLECTION SERVICES BENEFICIARIES	
BENEFICIARIES	NUMBER OF CUSTOMERS
RESIDENTIAL	
Door-To-Door	0.0001
Communal Waste Bins	25,380
Building Waste Bunkers	8,460
TOTAL	33,840
COMMERCIAL	
Door-To-Door-Total	70
Basic Standard Service	70
Additional Bins	0
Building To Building	50
TOTAL	120
INDUSTRIAL	
Door-To-Door	24
Communal Waste Bins	0
Waste Bunkers	6
TOTAL	30

7.0 TARIFF CALCULATION

7.1 INTRODUCTION

Municipalities are responsible for setting and administering tariffs. The “Sakrebulo”, the representative body of the local government is responsible for the overall management of the affairs of the Municipality, including the setting and collection of tariffs. In order to fulfill the responsibility for setting tariffs and the collection of fees, the “Sakrebulo” must:

- Know and understand the requirements of the national laws and policies applying to solid waste management;
- Make accurate projections of the cost of the services provided for the period of application of the tariff;
- Know who will be receiving the services;
- Apply modern principals for solid waste tariff setting;
- Involve the public in the tariff setting process;
- Adopt a resolution defining the fee rates, document the fee calculation principals applied in setting the tariffs, and determine fee payment rules and forms.

7.2 DETERMING THE AMOUNT OF THE TARIFFS

Tariffs must be based upon applicable laws contained in Section 4.2 and application of some or all of the Principles set forth in Section 3.0. Specific provisions of the law must be followed, whereas the Principles are guidelines that should be considered in the determination the tariff.

Specific requirements of existing laws governing the amount of the tariff include:

- The fee should not exceed the cost of organizing and administering the corresponding service;
- Fee rate should not exceed 3 GEL per month for a person and 25 GEL per a cubic meter of waste for legal entities, organizations and institutions. Regardless of the number of household members, the maximum number should be limited to 4 persons;
- For legal entities, organizations and institutions, the fee should not exceed 25 GEL per cubic meter of waste.

The tariff limitations are stated based on the Law on Local Fees passed in 1998. These upper limits (3 GEL/capita/month and 25 GEL/m³) have to be fully abandoned by amending the Law on Local Fees since the new Waste Management Code (2015) says "polluter pays principle must be applied". Similarly, limitation on household size (currently max. 4 persons per household) must be lifted and actual household size must be used for SWM tariff charging.

A. CLEANING SERVICES

It is not a standard practice to distribute cleaning costs to only those within the community receiving collection services. Cleaning services generally benefit the entire community and the costs can be recovered in as illustrated in the following table. For example, it could be concluded that those not receiving collection services are not the main contributors of public waste, thus everyone except unserved population should pay cleaning service fee. Local officials must make this decision in the

tariff setting process.

CLEANING SERVICES				
SERVICE	NUMBER	COST OF THE SERVICE	TARIFF REQUIRED PER PERSON PER MONTH	MAXIMUM TARIFF ALLOWED BY CURRENT LAW
DISTRIBUTION BASIS		621,120 ₾		
Entire Population	75,200		0.69 ₾	
Receiving Collection Services	33,840		1.53 ₾	
Unserviced	41,360		1.25 ₾	

B. COLLECTION SERVICES

Costs allocations for this service and resulting tariffs that are based upon full cost recovery for the service provided. Where applicable, tariff limitations contained in current laws are illustrated in the following table:

1. Residential

COLLECTION SERVICES				
RESIDENTIAL WASTE COLLECTION SERVICES				
PROPOSED TARIFFS				
TOTAL COST	352,599 ₾			
TYPE OF SERVICE	COST ALLOCATION BASIS	ALLOCATED COST	TARIFF BASED ON FULL COST RECOVERY PER PERSON PER MONTH	MAXIMUM TARIFF ALLOWED BY CURRENT LAW
DOOR TO DOOR	Number of People Served	0	0	3 GEL/PERSON 12 GEL/HOUSEHOLD
WASTE POOLING	Number of People Served	246,819 ₾	0.81 ₾	3 GEL/PERSON 12 GEL/HOUSEHOLD
BUNKERS	Number of People Served	105,780 ₾	1.04 ₾	3 GEL/PERSON 12GEL/HOUSEHOLD

In addition to tariff for waste collection services, the total tariff must include waste disposal costs, which are determined in following paragraphs.

2. Commercial

COMMERCIAL WASTE COLLECTION SERVICES PROPOSED TARIFFS				
TOTAL COST	70,520 ₾			
TYPE OF SERVICE	COST ALLOCATION BASIS	ALLOCATED COST	TARIFF BASED ON FULL COST RECOVERY PER BUSINESS PER MONTH	MAXIMUM TARIFF ALLOWED BY CURRENT LAW
DOOR TO DOOR-BASIC SERVICE	Number of Commercial Establishments Receiving Basic Service	56,416 ₾	67.16 ₾	25.0 GEL/Legal Entity or institution
TARIFF FOR EACH ADDITIONAL BIN	Management Decision Based Upon Estimated Cost For Providing and Emptying An Additional Bin As A Percentage Of The Basic Service Tariff	100%	67.16 ₾	
BUILDING TO BUILDING	Number of Commercial Establishments Located in Buildings That Do Not Receive Door To Door Service	14,104 ₾	23.51 ₾	25.0 GEL/Legal Entity or institution

In this example, the tariff required to cover the full cost exceeds the amount required to fully cover the cost and must be subsidized with revenue from other sources.

3. Industrial

Industrial waste tariffs should be negotiated separately with each industry desiring services. These negotiated contracts should be based on full recover all costs for the services provided.

INDUSTRIAL WASTE COLLECTION SERVICES PROPOSED TARIFFS				
TOTAL COST	47,013 ₾			
	COST ALLOCATION BASIS	COST OF SERVICE	TARIFF	TARIFF LIMITATIONS
Door-To-Door	Negotiated Contracts Based Upon Services	35,260 ₾	122.43 ₾	No limits/FULL RECOVERY
Waste Bunkers	Negotiated Contracts Based Upon Services	11,753 ₾	163.24 ₾	No limits/FULL RECOVERY

A. WASTE DISPOSAL

The following table summarizes waste disposal costs the required tariff for customers based upon the previous illustrations.

WASTE DISPOSAL SERVICES				
PROPOSED TARIFFS				
Amount to Be Allocated	56,813 ₾			
CUSTOMER CLASSIFICATION	COST FOR SERVICE	BASIS OF COST DISTRIBUTION	PROPOSED TARIFF PER MONTH	MAXIMUM TARIFF ALLOWED BY CURRENT LAW
RESIDENTIAL	42,610 ₾	Population Served	0.10 ₾	Total for all services must not exceed 12 GEL per household/month
COMMERCIAL	8,522 ₾	Number and Type of Business	5.92 ₾	Total for all services must not exceed 12 GEL per commercial business/month
INDUSTRIAL	5,681 ₾	Negotiated Contracts	16 ₾	Full Cost Recovery
TOTAL	56,813 ₾			

7.1 REVENUE ESTIMATES BASED UPON PROPOSED TARIFFS

In order to fully understand the results of determining tariffs based upon allocating costs to the beneficiaries of the service, revenue projections should be made based on the proposed tariffs for collection and disposal. The following table illustrates revenue projections based upon the previously considered tariffs and a collection rate of 100%.

REVENUE SUMMARY							
CUSTOMER TYPE	NUMBER OF CUSTOMERS	TOTAL MONTHLY TARIFF (COLLECTION AND DISPOSAL)	MAXIMUM ALLOWABLE TARIFF	COLLECTION RATE %	TOTAL PROJECTED REVENUE AT COLLECTION RATE CHOSEN BELOW	TOTAL COST	SUBSIDY REQUIRED
MUNICIPALITY							
Cleaning	75,200	1.53 ₾	Full Recovery	100%	621,120 ₾	621,120 ₾	0 ₾
RESIDENTIAL	33,840						
Door to Door	0	0.10 ₾	No Service	100%	0 ₾	0 ₾	0 ₾
Communal Waste Bins	25,380	0.92 ₾	3 GEL/Person	100%	278,777 ₾	276,646 ₾	2,130 ₾
Waste Bunkers	8,460	1.15 ₾	3 GEL/Person	100%	116,432 ₾	118,563 ₾	-2,130 ₾
				TOTAL	395,209 ₾	395,209 ₾	0 ₾
COMMERCIAL							
Door to Door-Basic Service	70	73.08 ₾	25	100%	21,000 ₾	63,233 ₾	-42,233.40 ₾
Additional Bins	0	67.16 ₾			0.00 ₾	0.00 ₾	0.00 ₾
Building to Building	50	29.42 ₾	25	100%	15,000 ₾	15,808 ₾	-808.35 ₾
				TOTAL	36,000 ₾	79,042 ₾	-43,041.75 ₾
INDUSTRIAL							
Door-To-Door	24	138.21 ₾	25	100%	7,200 ₾	39,521 ₾	-32,320.88 ₾
Waste Bunkers	6	179.02 ₾	25	100%	1,800 ₾	13,174 ₾	-11,373.63 ₾
				Total	9,000 ₾	52,695 ₾	-43,694.50 ₾
				TOTAL	1,059,528.75 ₾	1,134,891.38 ₾	-75,362.62 ₾

*Full cost recovery not possible due to current tariff limitations for commercial customer

8.0 TARIFF IMPLEMENTATION

8.1 PUBLIC PARTICIPATION

Creating and operating an efficient, effective and sustainable solid waste management system requires the enthusiastic support and participation of the entire community. In other words, the need for, and benefits of solid waste management must be communicated to the entire community. Without community support, the tariff collection rate will remain low and it will be very difficult to maintain or improve the system.

Public Participation is a dialogue between government officials and the community, which enables residents to understand and influence decisions that affect them. Public participation may be broadly defined as the involvement of citizens in governmental decision-making processes. This allows the residents to have the opportunity be better informed, and be actively involved in decisions that affect the community, resulting in a better understanding of the need for the services and the cost for providing the service. It is generally a process of informing and receiving input from the stakeholders, so that those most likely to be impacted by a particular activity can influence the outcome. *Public* refers not only to private citizens but institutions, civil society, labor unions, the Government, public officials, industrial, agricultural and trade associations, scientific and professional societies, environmental, educational and Health associations and other minority Groups.

Public participation is very important in the waste management services tariff setting process. Involving the public (stakeholders) will have significant benefits including in higher levels of utilization of the service and higher collection rates. A public awareness and communications campaign is key to the successful implementation of any policy decision, particularly when it requires the support of the public and behavioral change from constituencies. Public awareness campaigns are designed with the main objectives of: drawing the public's attention to certain public issues or problem areas and bringing about behavior and social change. When introducing a new public concept, issue, policy or project, it is crucial that the main audience that will be affected accepts the messages. Therefore, it is important to understand the needs and desires of the target audience as well as their perceptions of the proposed changes. This kind of understanding is part of what is referred to as social marketing.

8.2 BILLING, FEE COLLECTION AND ENFORCEMENT

A. BILLING METHODS

One of the main problems associated with the implementation of user charges is that not everyone is willing or able to pay a tariff (fee) for solid waste service. Generally, the collection rate of user charges for waste services is extremely low. Some cities have tried to solve the problem of willingness to pay by attaching the user charge to the billing for a service for which residents are more willing to pay. For example, the user charge for solid waste could be included with the electricity bill or residents receive a single bill for water, wastewater, solid waste, and other services when applicable. Combined billing of services allows for reduced costs associated with the billing process, and leads to a higher collection rate of the user charges. According to the UNDP, *"The addition of solid waste service charges has not led to a discernible reduction in the collection of user charges for electricity or water, or other source"*.¹⁴

Commonly used tariff recovery methods are described in the following table.

¹⁴ UNEP-SWM Vol. 1, CHAPTER XV. REGULATORY AND ECONOMIC INSTRUMENTS FOR SOLID WASTE MANAGEMENT
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WASTE MANAGEMENT SERVICE	METHOD OF TARIFF RECOVERY
CLEANING	Tariff is incorporated into the general taxes and distributed to residents of the community. The cost should be allocated to only those receiving solid waste collection and disposal services.
COLLECTION:	
RESIDENTIAL	Billing based upon average number of people in each household, or based upon the actual number of people in each household. Billing based upon the actual number of people in each household requires significantly more administrative cost, but is the more equitable method of total tariff distribution. The tariff can be included with the billing for other community provided services such as water, electricity, and or liquid waste disposal.
COMMERCIAL	Billing based on factors related to waste contribution. The amount of contribution can be estimated based on the type and size of the commercial establishment, or the volume of service provided, as determined by bin size and service frequency.
INDUSTRIAL	Industrial service is normally a contracted service and the fees and billing procedures are set forth in each service contract.
DISPOSAL	Disposal Tariffs are usually included as part of the collection fee for the collection service fee.

B. TARIFF COLLECTION

Tariff collection rates are historically very low due to lack of decent services and the lack of municipal commitment, not to say political commitment, to set up and maintain decent services is a cause of low collection rates. A lack of enforcement of the requirements for payment, inability to pay due to low income, and a lack of public awareness of the need for community based waste management services. There are only a limited number of ways available to improve collection rates, which are described as follows:

- **Increase the quality of the service**
- **Increasing public participation in the decision making process.**

Involving the community in the planning and implementation of waste management services is essential in order for the community to fully recognize the need for the services, the costs associated with providing the service, and the importance of tariffs. Unless the community recognizes the need for the service and the associated tariffs, collections rates will continue to be low.

- **Termination of the waste collection service for lack of payment.**

Termination of waste collection services is not an effective way to improve tariff collection rates. It is not possible to use this method when services are provided using communal waste bins, because there is no practical way to terminate these services on an individual basis. Where door-to-door services are provided, services can be terminated, but doing so may only result in people using less desirable ways for disposal of their waste.

- **Termination of other community services such as water or electricity for lack of payment of waste collection costs based on individual agreements.**

This approach is the most effective means of enforcing the collection of tariffs. Termination of any essential service results in serious consequences to the customer that will usually result in payment of the waste management tariff. However, it can be viable if transaction cost to be charged by water and electricity companies can be lowered to a reasonable level by the Law to be passed from the Parliament (e.g. not more than 5% of the total SWM service charge).

- **Using collection services with payment based upon a percentage of the fees collected.**

The use of “bill collectors” has serious drawbacks. Bill collectors typically go from household to household to personally collect the tariff and the motivation to do so is very low. It is very difficult to insure that the collectors treat the people in a respectful way and that they turn over all of the money collected.

- **Establishing and enforcing fines for lack of payment.**

Generally, many people who do not pay their tariffs do not have adequate financial resource to meet all of their other financial needs. Imposing fines usually remain uncollected as well unless aggressive enforcement actions are taken and even then, the tariff and fines may never be collected.

9.0 METHODOLOGY SUMMARY

The Sakrebulo is the governing body that has the power to approve the city budget and to set local taxes and tariffs. Suggested procedures for establishing tariffs are summarized as follows:

9.1 ASSIGNMENT OF RESPONSIBILITY

The Sakrebulo should assign responsibility for assembling the basic information they will need to establish tariffs to a special committee or department within the local government services organization. This information should be provided by the committee/department to the Sakrebulo to provide them with the necessary information to make an informed decision regarding tariffs. If a complete Municipal Waste Management Plan has previously been prepared, all of the required information should be readily available and easily provided. If a Municipal Waste Management Plan does not exist, then the committee/department will need to prepare the information, based upon the previously presented guidelines contained in this report.

The information provided to the Sakrebulo by the committee/department should include the following data:

- Summary of the Laws Applying to the Setting of Tariffs;
- Description of the Waste Management Services Currently Provided;
- Summary of the Costs for the Services Provided;
- Tariff Required to Fully Recover the Cost of the Services;
- Current Tariffs;
- Current Tariff Revenue;

- Alternative Tariff Considerations;
- Projected Revenue Based Upon Each Alternative Tariff Presented;
- Requirements for Exemptions for Specific Groups;
- Billing and Collection Procedures.

9.2 PUBLIC PARTICIPATION

Based upon the information provided by the assigned committee/department, the Sakrebulo should undertake a public information and participation process to inform the public about the tariff setting process. Some or all of the following activities should be undertaken:

1. Public Hearings;
2. Community Meetings;
3. Press Releases.

9.3 SETTING THE TARIFF

The Sakrebulo should consider the information provided by the committee/department, Georgia Law, principals for setting tariffs, public input, and the financial realities of the community when making the final decision setting tariffs.

A resolution (by the local responsible authority) shall be adopted that defines fee rates for individuals and legal persons, provides the fee calculation methodology, and determines fee payment rules and forms.

The information that should be contained in the resolution adopting the tariffs is illustrated in the following paragraphs:

A. THE FOLLOWING TARIFFS ARE HEREBY ADOPTED:

TARIFF SUMMARY				
CUSTOMER TYPE	NUMBER OF CUSTOMERS	TOTAL MONTHLY TARIFF (COLLECTION AND DISPOSAL) BASED UPON COST OF SERVICE	MAXIMUM ALLOWABLE TARIFF	PROPOSED TARIFF
MUNICIPALITY				
Cleaning	75,200	1.53 ₾	Full Recovery	1.53 ₾
RESIDENTIAL	33,840			
Door to Door	0	1.53 ₾	3.00 ₾	1.53 ₾
Communal Waste Bins	25,380	2.44 ₾	3.00 ₾	2.44 ₾
Waste Bunkers	8,460	2.68 ₾	3.00 ₾	2.68 ₾
COMMERCIAL				
Door to Door	70	73.08 ₾	25.00 ₾	25.00 ₾
Additional Bins	0	67.16 ₾	25.00 ₾	25.00 ₾
Building To Building	50	29.42 ₾	25.00 ₾	25.00 ₾
INDUSTRIAL				
Door-To-Door	24	138.21 ₾	25.00 ₾	25.00 ₾
Waste Bunkers	6	179.02 ₾	25.00 ₾	25.00 ₾

B. METHODOLOGY FOR DETERMINING TARIFFS

The tariffs have been developed based upon the requirements of Georgia Laws and the following criteria:

- Tariffs reflect the costs associated with providing the service, including operating and maintenance, capital, replacement, and financing costs;
- The tariffs do not exceed the cost of providing the service;
- Tariffs allow for the financial sustainability of the service, taking any other subsidies into account;
- Users of services are treated equally and are charged the same amount for the same level of service;
- Those responsible for waste generation and externalities from waste generation or disposal pay for the social costs of this waste;
- Modern tariff-setting principles were considered and applied.

10.0 SUMMARY AND RECOMMENDATIONS

10.1 SUMMARY

The responsibility for waste management is clearly defined in the Waste Management Code. The Law of Georgia on Local Fees (1998 As Amended) addresses the subject of fees for waste management services. The overall framework for the assignment of waste management responsibilities is clearly defined in the Waste Management Code. Basic legal requirements for setting of tariffs for waste management services are also given in the Law on Local Fees. Requirements of these laws do not prevent the determination of tariffs in a rational way in accordance with modern, internationally accepted, tariff setting methodologies.

Setting tariffs is a complicated process. It requires having basic knowledge about solid waste management practices, proper accounting methods, applicable laws, and principals of good practice for setting tariffs. In some municipalities such as Tbilisi, solid waste management services such as collection and disposal have been provided for many years on an organized and regular basis. In many other municipalities, only limited, or no services are provided. Obviously, a complete solid waste management plan should include all of the information needed, as illustrated in this document, to establish tariffs in a methodical and rational way. In fact, a comprehensive solid waste management plan should include an analysis of the alternative tariff scenarios that would to support the planned services.

10.2 RECOMMENDATIONS

A. TECHNICAL SUPPORT

It those communities having limited or no services, assistance from the central government would be extremely beneficial to local governments when preparing solid waste management plans and setting tariffs. Communities that currently do not provide solid waste services will probably not have locally

available people having the experience and technical expertise needed to prepare a solid waste management plan and assist in the tariff setting process. Consequently, the national government should consider providing technical assistance to those communities planning new services. This assistance could consist of providing guidance manuals, holding workshops, and making technical experts available to assist in the preparation of their SWMP and setting of tariffs. Another option would be to fund the cost for Municipalities to retain technical support services from private sources to assist in the preparation of MSWMP's and establishing tariffs.

B. RECOMMENDED CHANGES IN THE LAW

The current Law of Georgia on Local Fees limits the maximum amount of the tariff for waste management services to a maximum monthly amount of 3 GEL per person and 12 GEL per household. Current law also states that the polluter must pay all costs for waste disposal. Since this cost may exceed the tariff limitations contained in the law, it is recommended that the tariff limitation be eliminated. The current law also does not include some important principals they should be considered for inclusion in the law.

The current law applying to tariffs for waste management services contains the following provisions:

Article 12¹. Fee for cleaning a residential area

1. Cleaning a residential area implies sweeping and cleaning an area and management of waste generated in the area in accordance with Waste Management Code of Georgia.
2. Fee-payers are physical persons and/or legal entities, organizations, institutions generating waste on the territory of a local self-governing unit.
3. (Extracted)
4. Fee rate should not exceed 3 GEL per month for a person and 25 GEL per a cubic meter of waste for legal entities, organizations and institutions. Regardless of the number of household members, the maximum number should be limited to 4 persons.
5. A waste generator can differentiate the amount of a fee by weight, volume of the accumulated waste and/or waste accumulation rate or a type of waste as well as according to his/her/its income, property and/or number of employed personnel and/or goods (services) consumers. Combinations of the above values could be applied while establishing the fee rate.
- 5¹. Fee rate for physical persons should be differentiated for socially vulnerable families in accordance with poverty limit specified by the Georgian legislation.
6. Fee rate should not exceed the cost of service organization and administration.

Law of Georgia #3503 adopted on July 24, 2006 - SSM I, #35, 03.08.2006; Article 259

Law of Georgia #4241 adopted on December 29, 2006 - SSM I, #50, 30.12.2006; Article 392

Law of Georgia #4128 adopted on December 17, 2010 - SSM I, #71, 21.12.2010; Article 425

Law of Georgia #380 adopted on March 22, 2013 - website, 04.04.2013

Law of Georgia #2999 adopted on December 26, 2014 - website, 12.01.2015

ADDITION OF THE FOLLOWING REQUIREMENTS TO THE CURRENT LAW SHOULD BE CONSIDERED:

1. Tariffs must be established in accordance with all laws in effect at the time of the setting of the tariff;
2. Tariffs must be based on the costs for providing the service as determined by using accounting

methods that comply with present day tax and fiscal regulations and accounting practices for determining costs and revenues;

3. Tariffs must allow for the financial sustainability of the service, taking any other subsidies into account;
1. Users of services must be treated equitably and should pay the same amount for the same level of service;
2. Vulnerable consumers may pay proportionally less for services to allow access to basic services;
3. Tariff methodology and implementation must be administratively and technically feasible;
4. Those responsible for waste generation and externalities from waste generation and disposal should pay for the costs of this waste
5. The basis for the tariffs should be made available to the public and any subsidies that exist must also be made known to the public.