



COUNTY GOVERNMENT OF ELGEYO MARAKWET

DEPARTMENT OF LANDS, PHYSICAL PLANNING, HOUSING AND URBAN DEVELOPMENT

ITEN TAMBACH MUNICIPALITY

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ITEN

SOLID WASTE MANAGEMENT PLAN

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1. INTRODUCTION

1.1 Overview of Iten Tambach municipality

Iten Tambach Municipality is located in Elgeyo Marakwet County in the North Rift part of Kenya and also serves as its headquarters. The Municipality covers approximately 183.4 square kilometres and is the only municipality in Elgeyo Marakwet County. The name of the municipality is believed to have evolved from the word “Hill Ten”, named after a local rock formation by Joseph Thomson in 1883. The rock sits at beginning of the escarpment within the Municipality. Iten Tambach was gazette as a special Municipality in December 2018 and the boundaries replaced those of the now defunct Iten Tambach Town Council.

According to the 2019 National population census results the Municipality had total population of 54,158 people and projected to reach about 66,108 by 2029. It is also projected that the population will rapidly increase following the recognition of Iten Tambach by the International Association of Athletics Federation as a Heritage Location in May 2019 for its contribution to athletics in the world.

1.2 Purpose of the solid waste management

Solid Waste Management Plan (SWMP) has been formulated to guide Iten Tambach Municipality on sustainable solid waste management by ensuring a healthy, safe and secure environment for all. The Strategy is a deliberate and visionary commitment for the municipal board in the management of solid waste. The guiding principle of this Strategy is to address the following: The Current situation (Where are we now?) The Preferred state (Where do we want to go?) and Implementation of the Strategy (How do we get there?)

Key objectives:

- Ensure timely and efficient collection, transportation, and disposal of solid waste.
- Improve public-private-people partnerships in collection, waste segregation and recycling practices/activities.
- Promote education, public participation and awareness.
- Reduce environmental impact by improving on waste disposal sites and pollution control.
- Ensure financial sustainability of the solid waste management system.

2. WASTE GENERATION AND COMPOSITION ASSESSMENT

Waste generation in Iten Tambach Municipality is mostly from the urban areas. Municipality Central Business District 6 zones which consist of Zone A & B covering Iten Town Central Business District (CBD). Zone C, St. Patricks Road and D Koisongur area. In addition to that zones E and F covers Kiptabus, Kapkesum, Chebaror, Sergoit, Tambach, Kessup Centres and Eden, Katalel, Boundary and Bugar areas respectively. The major residential estates generate most of the solid waste due to high population density. Iten Tambach municipality majors in agriculture; most of the waste in rural areas is used as compost manure. The waste in urban

set up is collected and mixed up at the disposal areas without sorting. However, below is a breakdown of the major categories of solid waste generators: -

1. Hotels and restaurants
2. Wholesale and retail outlets
3. Retail Agri- markets
4. Light industries
5. Financial, educational institutions
6. Offices
7. Construction waste

2.1 Waste Streams:

Food, kitchen and garden waste, Agricultural waste, Automotive waste (oil, tyres, end of life vehicles (or vehicle parts), Paper and cardboard, E – waste, Scrap metals, Construction and demolition debris, medical waste, Sewage sludge, Batteries, expired chemicals and pharmaceuticals

2.2 Waste Composition

Table 1: Solid Waste Composition

Type of waste	Percentage
Organic	60 %
Plastics	9 %
Glass	5 %
Metal	2 %
Paper Products	9 %
Sand and Rubble	2 %
Totally Mixed Waste	13%

2.3 Estimate Annual Amount of Waste Generated

Table 2: Estimate Annual Amount of Waste Generated

No.	Categories {e.g. residential/household, commercial, industrial, institutions (e.g. school, etc.)}	Current Population	Approximate Weight of Waste (2023- 2024) (kg)	Approximate Weight of Waste (2024 – 2025) (kg)
1.	Commercial	42,312	16,570,000 Kg	17,270,000Kg
2.	Industrial	2,871	1,172,500 Kg	1,300,000kg
3.	Institutions	23,051	2,497,000 Kg	2,6700,00kg
4.	Residential/ household	43,312	4,760,500 Kg	5,100,000kg

2.4 Human Resource Management

The municipality is currently operating with a workforce of forty (40) Staff; thirty-six casual workers and four permanent staff.

3. EXISTING SOLID WASTE MANAGEMENT SYSTEM (SWM)

Key Components of Existing SWM Systems:

- **Waste Generation & Collection:** Involves households, commercial, and institutional waste. The current waste collection methods include transfer station points, skip containers, litter bins and door to door Collection.
- **Transportation & Transfer:** The use of municipality Truck and Tractor assist in moving waste from collection points to disposal sites,
- **Disposal:** The municipality conservancy staff collect, transport and safely depositing waste materials finally at Iten dumpsite.
- **Financial Management:** The county government allocates funds to municipality through annual development plan for solid waste management and also collection of conservancy fee from clients.
- **Institutional framework.** roles of collaborating agencies Implementation of this strategy requires the involvement of several actors whose roles are outlined below.
 - a. **National Environmental Management Agency (NEMA)** formulate policies, legislations and economic instruments relevant to achieving sustainable waste management.
 - b. **County Government** allocating resources to municipality to carry out solid waste management and development of policies.
 - c. **Civil Society Organizations (CSOs)** represent the public's interest in the solid waste management agenda.
 - d. **Private Sector:** Through PPP, Involvement in the development of effective and efficient solid waste management facilities and prioritize on corporate social responsibility (CSR) on waste management
 - e. **The Citizens/Public:** Change in attitude and practice to embrace the concept of a waste generator's responsibility by ensuring waste is appropriately managed at source and in all phases of the waste management cycle

4. WASTE MANAGEMENT GOALS AND OBJECTIVES

4.1 Short-Term Goals & Objectives (1–3 Years)

These are quick wins aimed at establishing a foundation for better waste handling, compliance, and immediate cost savings.

- **Improve Waste Segregation:** Implement source separation (separating recyclables, organic, and general waste) in homes, schools, and offices.

- **Increase Public Awareness & Education:** Launch campaigns to inform the public/employees about proper disposal and the "3Rs" (Reduce, Reuse, Recycle).
- **Enhance Collection Infrastructure:** Increase the number of waste receptacles in public places and improve collection efficiency.
- **Conduct Waste Audits:** Assess current waste generation rates and identify areas for immediate improvement.
- **Improve Dumpsite Security:** Ensure existing, approved disposal sites are fenced, manned, and managed to reduce illegal dumping.

4.2 Long-Term Goals & Objectives (5 to 10 Years)

These goals focus on structural change, sustainability, and high-level environmental impact mitigation.

- **Achieve Zero-Waste Status:** Transition municipality toward zero-waste, aiming for 80-90% diversion from dumpsite.
- **Implement Circular Economy Models:** Design out waste by ensuring materials are kept in use, such as using industrial waste as raw materials for other processes.
- **Develop Waste-to-Energy Infrastructure:** Utilize advanced thermal technologies or anaerobic digestion to convert non-recyclable waste into energy (heat/electricity).
- **Implement Extended Producer Responsibility (EPR):** Enforce policies that hold manufacturers responsible for the entire lifecycle of their products, encouraging sustainable, recyclable, and durable design.
- **100% Waste Tracking:** Implement digital systems to track all waste from generation to final disposal to ensure compliance and optimization
- **Improve waste disposal facilities:** acquisition for land for sanitary landfill

5. WASTE MANAGEMENT STRATEGY

Solid Waste Management Plan has been formulated to guide Iten Municipality on sustainable solid waste management by ensuring a healthy, safe and secure environment for all. The Strategy is a deliberate and visionary commitment for the municipal board in the management of solid waste;

5.1 Waste minimization

Municipality strategies on how to reduce the amount of waste produced through source reduction and environmentally sound recycling methods, promoting sustainability and altering consumption and production patterns.

5.1.1 Education and public awareness campaign

Promote awareness through community workshops, educational initiatives for children, social media outreach, and promoting waste segregation at the source.

5.1.2 Partnerships with Businesses;

involve collaboration between private firms, governments, and communities to enhance recycling and operational efficiency. Municipality will partner with business community to adopt sustainable packing and reduction practices.

5.2 Waste Segregation. Municipality

Will enhance reduction into organic waste, recyclable waste, and dangerous waste; that reduces the impact on the environment and maximizes efficiency in the entire waste management process

5.2.1 Waste segregation at source.

It is a crucial process of separating garbage into biodegradable (wet), recyclable (dry), and hazardous categories directly where it is generated such as homes, markets offices, or schools reduces the amount of waste ending up in dumpsite.

5.2.2 Collection System for Segregated Waste.

Municipality will utilize color-coded bins (yellow for recycling, green for organics, red for general) and multi-compartment vehicles to keep waste streams separate from source to disposal based on legal requirements.

5.3 Collection Systems

5.3.1 Door-to-door collection

Waste is collected directly from containers placed outside individual homes, markets or businesses on a set schedule

5.3.2 Public waste bins.

Municipality has durable containers used for managing trash in high-traffic areas like parks, streets, and commercial spaces.

5.3.3 Collection frequency.

Solid waste collection frequency typically ranges from daily to weekly; municipality collect waste daily from Sunday to Friday with 1–3 times per week being common for residential areas, and daily collection for commercial, high-density, or Odor-sensitive waste

5.3.4 Collection Zoning.

For easy solid waste management Municipality has divides urban areas into specific, manageable parts, central business district, markets, residential, commercial and peri urban to optimize waste collection routes, improve efficiency, and ensure regular service. This

approach supports targeted resource allocation, such as assigning specific vehicles to high-density residential areas versus commercial zones.

5.4 Transport Infrastructure.

Solid waste transport infrastructure requires a multi-stage system: primary collection, community transfer station, skip containers and litter bins, strategically located transfer stations, and transport vehicles (truck and tractor) to move waste to disposal sites.

The equipment for solid waste transportation ensures efficiency, safety, and compliance with regulations and selecting appropriate vehicles, planning routes, and maintaining equipment to prevent environmental contamination and odour,

5.5 Solid Waste Recycling and Recovery.

Solid waste recycling and recovery convert waste materials into new products, energy, or raw materials, promoting a circular economy

5.5.1 Recycling Facilities.

Municipality has built transfer stations which acts as intermediate sites where waste is collected, sorted, and transferred to disposal facilities.

5.5.2 Composting Facilities.

These sites use aerobic decomposition to convert organic waste into compost or soil conditioners. A biological process that decomposes organic waste (food scraps, yard waste) into nutrient-rich fertilizer

5.6 Waste Disposal.

Municipality has fenced waste disposal site for management, collection, sorting, and disposal of materials to minimize environmental impact.

6. INSTITUTIONAL CAPACITY AND REGULATORY FRAMEWORK

Municipal solid waste management (SWM) requires a strong institutional framework, often including local environmental policies, waste separation at source, and licensing for private collectors. Effective systems require integrating 5Rs (Refuse, Reduce, Reuse, Recycle, Repair), designated disposal sites, and collaboration with stakeholders.

6.1 Institutional Capacity

- **Organizational Structure:** Municipality roles for waste management, often requiring inter-departmental participation, such as involving environmental, health, and urban planning departments.
- **Technical Capacity:** Trained staff to handle waste logistics, manage disposal sites, and implement modern recycling technologies.

- **Financial Resources:** Establishing sustainable funding mechanisms, such as waste conservancy fees or PPPs (Public-Private Partnerships), is critical to address budgetary gaps.
- **Data Management:** Municipality must maintain data on waste generation and service provision.

6.2 Regulatory Framework

- **Legislation and Policies:** Implementation of local bylaws and policies based on national legislation (the Environmental Management and Coordination Act - EMCA) is essential to define standards for waste handling, transportation, and disposal.
- **Enforcement:** Strong enforcement of regulations, such as mandatory separation of waste at the source and licensing for waste collectors, is necessary to ensure compliance.
- **Solid Waste Strategy:** Adopting integrated solid waste management (ISWM) policies that include waste minimization, recycling, and safe disposal sites
- **Stakeholder Participation:** Formalizing the role of community-based organizations (CBOs) and private sectors in waste collection and recycling.

6.3 Regulatory Compliance

- **Sustainable Waste Management Act (2022):** This is the primary legislation, which promotes circular economy principles, reduces pollution, and mandates the conversion of open dumpsites into sanitary landfills.
- **Environmental Management and Co-ordination (Waste Management) Regulations (2006/2024):** These regulations provide specific guidelines for the handling, transportation, and disposal of all waste types, including solid, hazardous, and biomedical waste.
- **Extended Producer Responsibility (EPR) Regulations:** Producers are now legally responsible for the entire life cycle of their products, requiring them to manage post-consumer waste.
- **Public-Private Partnerships:** The municipality can collaborate with private companies to develop waste collection, recycling, and disposal services. There is potential for private sector investment in waste-to-energy projects and modern landfill management.

- **Community engagement:** Community engagement in solid waste management (SWM) in municipality is a critical, emerging strategy, shifting from top-down municipal approaches to inclusive, community-driven models. Active involvement by community-based organizations (CBOs), youth, and residents is enhancing waste collection, recycling, and environmental awareness, particularly in urban, peri-urban, and informal settlements

7. PUBLIC EDUCATION, AWARENESS AND STAKEHOLDER ENGAGEMENT

Environmental education and engagement aim to change behaviour by increasing knowledge of waste impacts and teaching practical skills, such as proper waste segregation;

- **Public education Campaigns:** These are essential for educating the public on the importance of the 3Rs (Reduce, Reuse, Recycle) and in educating people on how to properly separate waste at the source. The public Education awareness is tailored to different audiences (households, businesses, schools) to encourage adoption of sustainable habits.
- **Feedback Mechanisms:** Establishing clear, accessible channels for public feedback and complaints (e.g., digital platforms, hotlines) is crucial for maintaining trust and improving service.
- **stakeholders Consultations:** Holding regular, transparent dialogue with community members development partners, government institutions ensures that concerns are addressed and that new strategies are accepted.

8. FINANCIAL STRATEGY

- **County Government Financing:** annual budgetary allocation by the county government to municipality for solid waste management and collection of conservancy fees by all clients. Municipality will also allocate funds for solid waste from funds by development partners.
- **Public-Private Partnerships (PPPs):** Due to limited public capacity, the sector is increasingly relying on private companies for collection and disposal, with a focus on improving financial performance through better liquidity and reduced debt.
- **Cost recovery** Implementing direct charges for waste collection to recover operational and maintenance costs. Implementing service fees that balance cost coverage with affordability

- **Financial projections.** Requires investment strategy that combines public funds with private capital through public-private partnerships (PPPs), extended producer responsibility (EPR) schemes, and user-fee models. comprehensive municipal solid waste project requires substantial investments in collection, transport, and sorting infrastructure. The infrastructure and equipment are high, operational efficiency can lead to a break-even point within 3–4 years and for the next 10 years

9. MONITORING AND EVALUATION

To ensure the plan remains on track, a robust monitoring and evaluation framework will be implemented.

9.1 Data Management and Continuous Monitoring

Data collection is central to evidence-based management. The SWM Unit will maintain and analyse the following:

- **Route Logs:** Drivers and supervisors will complete daily logs tracking routes covered, waste volumes collected, and any operational challenges.
- **Monthly Waste Volume Estimates:** Data from the dumpsite and collection schedules will be used to generate monthly estimates of total waste collected.
- **annual Performance Reports:** A comprehensive report will be prepared every six months, tracking performance against the plan's objectives.

Table 3: Annual Waste Monitoring Targets (FY 2024/2025)

No.	Category	Current Population	Target Waste Collection July–Dec (kg)	Target Waste Collection Jan–June (kg)
1	Residential	43,312	4,760,500 Kg	5,100,000kg
2	Commercial	42,312	16,570,000 Kg	17,270,000Kg
3	Institutions	23,051	2,497,000 Kg	2,6700,00kg
4	Industrial	2,871	1,172,500 Kg	1,300,000kg
Total				

Table 4: Key Performance Indicators

Indicator	Baseline	Target FY 24/25	Data Source	Frequency
Waste collection coverage (%)	50%	55%	Route logs	Quarterly
Waste collection efficiency (%)	55%	60%	Dumpsite records	Monthly
Staff OHS incidents (number)	[Baseline]	0	Incident reports	Monthly
Community complaints resolved (%)	[Baseline]	99%	Complaints register	Monthly

Indicator	Baseline	Target FY 24/25	Data Source	Frequency
Reduction in illegal dumping	[Baseline]	10%	Public health records	Monthly

9.2 Enforcement and Compliance

Environmental Inspectors will conduct routine patrols to:

- Curb illegal dumping in undesignated areas like roadsides and open plots.
- Ensure businesses and institutions have proper waste storage and disposal arrangements.
- Enforce compliance with municipal by-laws and the conditions of trade licenses related to sanitation.

9.3 Periodic Review

The solid waste management plan will be reviewed on a need basis.

10. IMPLEMENTATION SCHEDULE

Daily solid waste collection schedule: This involves daily cleaning of our streets, Bus Park, markets, residential areas and the County Government Office compounds. There is also collection of waste from waste bins within the Municipality to receptacles/collection Centres and transportation by tractors/truck from receptacles to the dumpsite. Solid waste collecting is done by municipality conservancy staff.

Table 5: Solid waste collection schedule

Days	Cleaning of Streets, Markets, Bus Park, Taxi Park	Collection to transfer station and skip container from litter Bins and Streets	Collection to Iten Dumpsite
Monday	✓	✓	✓
Tuesday	✓	✓	✓
Wednesday	✓	✓	✓
Thursday	✓	✓	✓
Friday	✓	✓	✓
Sunday	✓	✓	✓

10.1 Implementation timeline;

This strategy will be implemented in phases and the strategies will be categorized into, short-term, mid-term and long-term strategies as indicated in Table below.

Strategic Action	0-3 Years	3-5 Years	5 and above
Review of solid waste management policy, 2021	✓		
Capacity Building, Environmental Planning Environmental Awareness	✓	✓	✓
Waste Recycling and Composting	✓	✓	✓

Planning of Sustainable Solid waste Management Systems (Sustainable storage, Collection, Transportation and Disposal Systems)	✓	✓	✓
Public Private Partnerships	✓	✓	✓
Fundraising and Financing Reforms	✓	✓	✓