THE UNITED REPUBLIC OF TANZANIA

PRIME MINISTER'S OFFICE

REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

KIGAMBONI MUNICIPAL COUNCIL

DAR ES SALAAM REGION

SOLID WASTE MANAGEMENT PLAN

2021/22

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1.0 Introduction

Kigamboni Municipal Council was established by subdividing Temeke MunicipalCouncil into two councils namely Temeke Municipal Council and Kigamboni Municipal Council. The Council was declared in 2015 by the Government notes (GN) Number 512 of 6th November 2015 and directed to start effectively from April, 2016. The establishment was executed under the local Government (UrbanAuthorities) Act. No. 8 Sections 8 and 9 of 1982.

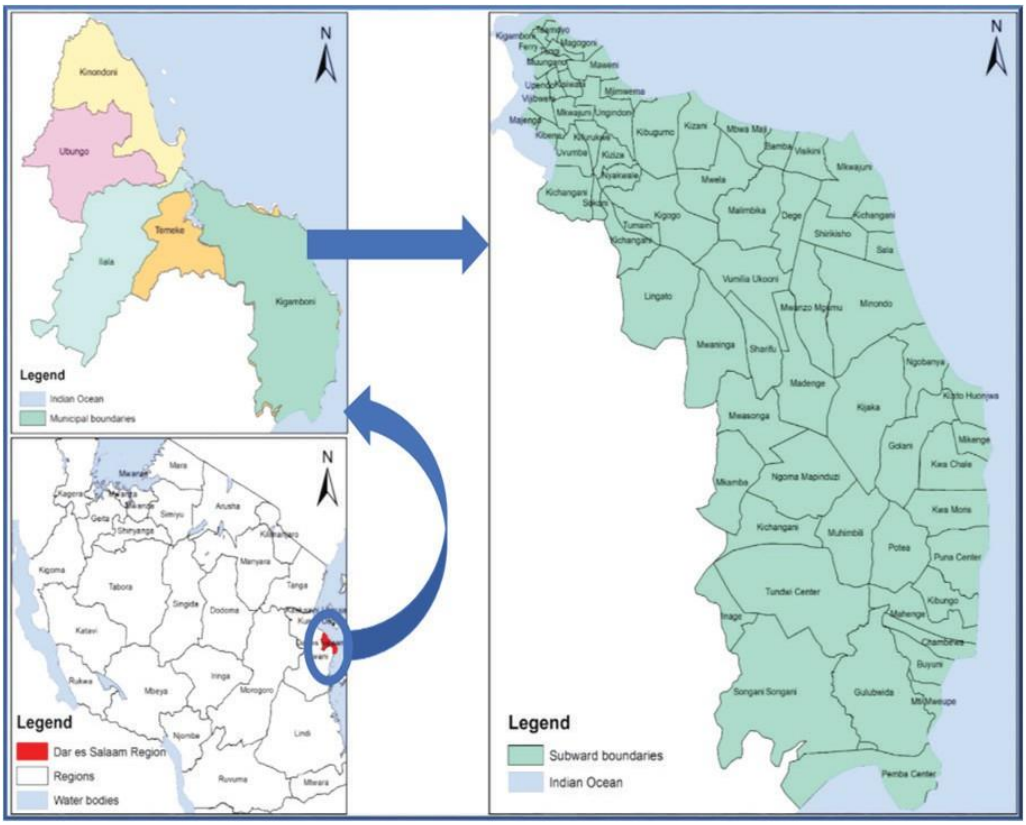
Kigamboni Municipal Council is among five Councils which form Dar es Salaam Region in Tanzania, other Municipalities are Kinondoni, Ilala, Temeke and Ubungo.

Admittedly, the establishment of this Council among other reasons was due to the population increase and to facilitate the aims of the Government to record comprehensively the major achievements in provision of social services. Likewise, to implement various interventions aimed at contributing to National strategies and policies for economic growth, improved quality of life as well as good governance and accountability at all administrative levels within the Government system.

1.1 Geographical Location

Kigamboni Municipal Council borders with Indian Ocean in the East, Mkuranga District in the South. In the Northern part Kigamboni Municipal Council borders with Indian Ocean and Temeke Municipal Council.

Location of Dar es Salaam Region and Kigamboni District in Tanzania



1.2 Demography - population and its dynamics

According to the Population and Housing Census of the year 2012 the Council had a total population of 162,932 where 81,199 were males and females were 81,733. The population projection for the year 2018 is 225,938 where males are 112,597 and females are 113,341 at 5.4% annual growth rate. Kigamboni, Vijibweni and Mjimwema wards have relatively large population sizes compared to other wards. Kisarawe II has the least population compared to

other wards. According to 2019 population projections, Kigamboni Municipal is expected to have a total population of 238,591 with 118,905 males and 119,686 females. The population density is 379.1 people per square kilometer and the area coverage of 596.3 km2 with 56,485 household.

1.3 Climatic Condition

The climatic condition of Kigamboni is tropical with high temperatures, modest winds, high humidity and absence of a cold season. The temperature of Kigamboni District ranges from a minimum of 18°C in July to a maximum of 32°C in February. The mean annual temperature is 26°C with a mean daily rangeof ± 4°C. Seasonal variations are slight with the mean seasonal range being ± 4°C. The humidity of air is related to the rainfall pattern and is higher during the long rains. Daily maximum humidity occurs at dawn, averaging 96 percent while minimum humidity is experienced in the afternoons, averaging 67 percent. Municipality receives moderate rainfall from November to December, and heavy rainfall between March and May. Rainfall patterns are however, extremely variable and unpredictable. The rainfall ranges over 1000 mm per year, and the temperature ranges from 18 to 32 centigrade. The peak temperatures occur during September/October and January/February prior to the onset of the rainy season; normally rains cease in early of June and the winds blow from east to west mostof the year.

The micro climate in the Planning Area is highly influenced by monsoon winds. The wind system of the area is typical of the wind regime of the Western Indian Ocean, which is characterized by the south-easterly winds (SE monsoons) during the months of June to October, and the north-easterly winds (NE monsoons) from November to March. Winds in the region are quite weak, with a range of 1.4m/s to 7.8m/s. The SSE and SE monsoons are usually strong, the peak speeds occur in April and July. The northern monsoons are lighter and peak speed occurs in

February. This wind system is coupled with an almost complete clockwise currentsystem that changes character with the changing wind.

In the course of northeast monsoons, wind speed varies between 1.4 to 7.8 m/s. During the southeast monsoons, the wind speed increases to approximately 8 m/s. The predominant wind direction in both the seasons is from south, a typical wind direction the East African Region.

2.0 WASTE QUANTITY AND COMPOSITION

2.1 Waste quantity and composition and major waste generators

Kigamboni Municipality generates 228 tones of solid waste per day with different composition where 68.9% are biodegradable from markets, hotels and household. It is estimated that 80% of waste are generated at household level and 20% from industries, commercial areas and institutions. The table 1. below.

Table:1. Solid waste quality and composition

Composition	Quantity (tons per day)	% (wet weight)
Organic waste	156.2	68.5
Paper	9.04	4.0
Glass	3.9	1.7
Electronic wastes	0.3	0.1
Metals	7.06	3.1
Grass/Wood	15.02	6.6
Plastic	19.2	8.4
Construction and Demolition	7.8	3.4
Lether and rubber	3.3	1.4
Textiles	4	1.8
Others	2.2	1.0
TOTAL	**228**	**100**

2.2 Solid waste management and treatment

About 44% of households handle the waste at the household level by collecting and storing waste using available facilities such as bags, buckets, pail, boxes, bins and others which later are collected by private companies, Community based organizations contracted by the Municipal to collect waste and individual persons (waste pickers). No sorting/separation of solid waste at source.

Currently the Municipality manages to collect and transfer 33.7% of solid waste generated. Different treatment methods to dispose the waste are applied including composting (11.9%), incineration 0.02%, recycling 6.78% and Open burning 37.6% which contribute to high risk of polluting the air with Persistent Organic Pollutants (POPs).Table 2 shows different methods and quantity of solid waste disposal.

Table 2: Methods of solid waste disposal per day

Method of management	%
Compost	11.9
Incineration	0.02
Open burn	37.6
Municipal collection (formal)	33.7
Recyclable	6.78
Open dumping	10.0

2.3 Costs and financing of the waste management system (WMS) including its challenges;

According to Environmental management Act, 2004, it is the duty of local government to minimize solid waste by setting mechanisms to be put in place to involve the private sector and Non-Governmental.

According to the Kigamboni Municipality By-law on Health and Environement of 2018, every premises (Household, institution, business, industry etc) are responsible to pay monthly fee for refuse collection as per sect. 27. (Attach schedule of By-law). The rate of payment differs according to categories as described in schedule number two of the Bylaw.

Organizations on planning, raising awareness among producers, vendors, transporters, manufacturers and others on the need to have appropriate containers and enhance separation of waste at source.

However waste collection costs are covered by Municipality for lower income communities whom many times do not pay – sometimes unable to pay or sometimes for the influence of political leaders.

The Municipal has contracted private companies in five urban wards, namely Kigamboni, Tungi, Vijibweni, Mjimwema and Kibada. The remaining wards dispose their solid waste onsite or hire local waste collectors to dispose them elsewhere at the cost of Tzs. 1000 - 2000 per bag.

At the moment all unsorted waste collected by contractors are transferred to the proposed site for Dump site at Lingato.

3.0 POLICY, ADMINISTRATIVE AND LEGAL FRAME WORK

3.1 National Environmental Policy (NEP) of 2021

Tanzania currently aims to achieve sustainable development through the rational and sustainable use of natural resources and to incorporate measures that safeguard the environment in any development activities. The environmental policy document seeks to provide the framework for making the fundamental changes that are needed to bring consideration of the environment into the mainstream of the decision making processes in the country. The National Environmental Policy, 1997 stresses that for a framework law to be effective, environmental standards and procedures have to be in place. For example, Chapter 4 of the policy (Instruments for Environmental; Policy), Section 61, states that *"As part of the (National Environmental Policy) strategy in the implementation of the National Environmental Guidelines, specific criteria for EIA conduct will be formulated"*.

The National Environmental Policy as a national framework for environmental management emphasized that the transport sector shall focus on the following environmental objectives:

- Ensuring sustainability, security and the equitable use of resources for meeting the basic needs of the present and future generations without degrading the environment or risking health or safety.
- To prevent and control degradation of land, water, vegetation and air which

constitute our life support system.

- To conserve and enhance our natural and man-made heritage, including the biological diversity of the unique ecosystem of Tanzania.
- To improve the condition and productivity of degraded areas including rural and urban settlement in order that all Tanzanians may live in safe, healthful, productive and aesthetically pleasing surroundings.
- To raise public awareness and understanding of the essential linkages between environment and development and to promote individual and community participation in the environmental action.
- To promote international co-operation on the environment and expand our participation and contribution to relevant bilateral, sub-regional, regional, and global organizations and programs, including implementation of treaties.

On addressing the issues of poverty alleviation, the policy recognizes its impact to the environment. The policy focuses on the satisfaction of basic needs of citizens with due cognizance to protecting the environment. This project will ensure that the above policy objectives are met. The NEP advocates the adoption of Environmental Impact Assessment (EIA) as a tool for screening development projects which are likely to cause adverse environmental impacts.

Most of existing national policies related to environment underscore the need to apply Environmental Impact Assessment before implementation of projects. The current Environmental Management Act (2004) necessitates undertaking EIA for development projects. Other national laws relevant for environmental management as far as this project is concerned include:

3.2 Legal Framework

3.2.1 Environmental Management Regulation in Tanzania

A clean and safe environment is the constitutional right of every Tanzania citizen. Regulation on environmental management in the country is mainly vested on two public institutions, the National Environment Management Council (NEMC) and the Division of Environment (DoE) in the office of the Vice President. NEMC undertakes enforcement, compliance, and review of environmental impact statements whereas the DoE provides the policy formulations and technical back-up and executes the overall mandate for environmental management in the country. The EIA certificate is issued by the Minister responsible for environment. There are many policies and pieces of legislation on environmental management in Tanzania, the relevant ones to this project briefly discussed below.

3.2.2 Solid waste management policy

Recycling policy

3.2.3 Legal Framework

3.3.1 Environmental Management Act No. 20 of (2004), Cap. 191

The Environmental Management Act (EMA) is a piece of legislation that forms an umbrella law on environmental management in Tanzania. Its enactment has repealed the National Environment Management Council Act. 19 of (1983) while providing for the continued existence of the National Environment Management Council (NEMC). Among the major purposes of the EMA are to provide the legal and institutional framework for sustainable management of the environment in Tanzania; to outline principles for management, impact and risk assessment, the prevention and control of pollution, waste management, environmental quality standards, public participation, compliance and enforcement; to provide the basis for implementation of international instruments on the environment; to provide for implementation of the National Environmental Policy; to provide for establishment of the National Environmental Fund and to provide for other related matters.

Part III, Section 15(a) states that in matters pertaining to the environment, the Director of Environment shall coordinate various environment management activities being undertaken by other agencies to promote the integration of environment considerations into development policies, plans, programmes, strategies projects and undertake strategic environmental assessments with a view to ensuring the proper management and rational utilization of environmental resources on a sustainable basis for the improvement of the quality of human life in Tanzania.

Part VI of the EMA deals with Environmental Impact Assessments (EIA) and other Assessments and directs that an EIA is mandatory for all development projects. Section 81(2) states that "An Environmental Impact Assessment study shall be carried out prior to the commencement or financing of a project or undertaking", while Section 81(3) states "a permit or licence for the carrying out of any project or undertaking in accordance with any written law shall not entitle the proponent or developer to undertake or to cause to be undertaken a project or activity without an environmental impact assessment certificate issued under this Act".

LEGISLATION (Legal Framework)

Area: Waste reduction

Legislation	Remarks	Recommendations
Environmental Management Act, 2004;	**Duty of Local Government to manage and minimize Solid.** **Section 114(1)(a-c):** Emphases different types or kinds of waste or refuse or garbage to be to be separated at the source, uses different types, size, shape color with recommends stand specification container to store solid waste. **Section 114(2)(b&c)**: Emphases the management of solid waste generated in accordance with sustainable plans produced by respective local government authority; and ensure the appropriate sorting of waste is made right at the source and in accordance with standards or specifications prescribed by the local government authority concerned	This section should continue to be applied since it emphasize management and control solid waste at source to reduce quantity of solid waste transferred to sanitary landfill for disposal

Public Health Act, 2009;	**Management of solid and liquid waste** **Section 75 (1) (a&b):** For ensuring minimization of solid wastes, the Authority shall prescribe for the separation at source, of different types or kinds of waste or garbage; and standards to guide the type, size, shape, colour and other specifications for waste containers used	This section should continue to be applied since it emphasize management and control solid waste at source to reduce quantity of solid waste transferred to sanitary landfill for disposal
Solid Waste regulations, 2009;	**Duty of local government to minimize solid waste at source** **Section 13 (a&b):** Local government authorities shall ensure that every occupier of premises, business, industry or any activity generating solid waste minimizes the waste at its source by ensuring that different types or kinds of solid waste are separated at the source; and different types or kinds of solid waste are collected into waste storage receptacles of specified standards, types, sizes, shapes, colours, easy to carry or move of waste containers, comply with and other specifications as the case may	This section should continue to be applied since it emphasize management and control solid waste at source to reduce quantity of solid waste transferred to sanitary landfill for disposal

Area: Waste segregation and sorting

Legislation	Remarks	Recommendations
Environmental Management Act, 2004;	**Disposal of solid waste from market, business areas and institution** **Section 115 (1):** Each local government authority shall undertake periodic studies to determine the type of solid wastes generated from markets, business areas and institution and determine appropriate method for sorting, storage or disposal of the waste. **Section 115 (2):** In the determination of the appropriate storage or disposal for solid waste generated by different types of markets, business centres or areas and institutions within their respective areas, local government authorities shall ensure that the solid waste is classified and appropriately stored depending on whether it is organic waste, plastics, glass or metals.	This section should continue to be applied since it emphasize management and control solid waste generated and reduce the waste to be transferred on sanitary landfill for disposal.
Public Health Act, 2009	Management of solid waste and liquid waste **Section 75 (3) (a&b)**: The Authority shall manage solid and	This section should continue to be applied since it

	liquid wastes generated in accordance with sustainable plans prepared by respective Authority; and ensure appropriate sorting of wastes is made at the source and is in accordance with standards or specifications prescribed by the Authority.	emphasize management and control solid waste at source to reduce quantity of solid waste transferred to sanitary landfill for disposal
Solid Waste regulations, 2009	**Duty to segregate waste** **Section 13 (a&b)**: Local government authorities shall ensure that every occupier of premises, business, industry or any activity generating solid waste minimizes the waste at its source by ensuring that: different types or kinds of solid waste are separated at the source; and different types or kinds of solid waste are collected into waste storage receptacles of specified standards, types, sizes, shapes, colours, easy to carry or move of waste containers, comply with and other specifications **Section 14 (a&b):** Each local government authority shall with respect to solid wastes generated in its own area of jurisdiction	This section should continue to be applied since it emphasize management and control solid waste from point of generation to transfer station.

	designate specific areas where segregated solid wastes is removed from point of generation of waste to areas designated by the local government authority as solid waste transfer stations; and prescribe measures to prevent the mixing up of solid wastes emanating from point of generation with wastes for the time being placed at solid waste transfer station.	
Hazardous waste regulations, 2021	**Segregation of health care waste** **Section 52:** A person who generates health care waste at the point of generation and at all stages thereafter shall segregate the waste in accordance with the categories provided under the Sixth Schedule.	This section should continue to be applied since it emphasize management and control solid waste from point of generation to transfer station.

Area: Waste storage

Legislation	Remarks	Recommendations
Environmental Management Act, 2004	**Storage of solid waste from industries** **Section 116 (1):** The local government authorities shall ensure that industries located within their respective areas of jurisdiction provide adequate space and facilities for managing all solid waste generated from such industries before they are collected for disposal at designated places.	This section should continue to be applied since it emphasizes the proper waste storage by segregation of solid waste and also provides the awareness of separation of waste according to source.
Public Health Act, 2009	**The duty of Authority to undertake studies** **Section 76 (1)(a&b):** Every Authority shall undertake periodic studies to determine the type of solid and liquid wastes generated from markets, institutions and industries; and determine appropriate methods for sorting and storage of the wastes **Section 76 (2)(a&b):** In determining appropriate storage for solid	This section should continue to be applied since it emphasize the innovations of new technologies of management of waste and

	and liquid wastes generated by different types of markets, institutions and industries within their areas, the Authority in collaboration with the Minister responsible for health, environmental management and local government ensure that the solid and liquid wastes are classified and appropriately stored depending on whether they are organic, plastic, glass or metal waste; or prescribe appropriate methods for storage of different categories of solid and liquid wastes	facilitates its implication to community level (waste generation at source)
Solid Waste regulations, 2009	**Use of approved receptacles** **Section 15 (1):** The occupier of any premises shall be obliged to use approved receptacles by Council or local government authority and without prejudice to sub-regulation (1), approved 12 receptacles shall include standard metal dustbin, plastic standard dustbin, plastic bags, papers bags, standard litter bins, standard containers or skips and any other recommended receptacles ideal for the locality	This section should continue to be applied since it emphasize on proper methods of waste storage which reduces spreading of waste

Municipal By-laws	**Responsibility of having refuse bin** **Section 29:** it's a responsibility of business owners, household owner or tenant to should have a storage container which is suitable and has a lid for storage of solid waste before the transferred for disposal. **Proper site for waste Disposal** **Section 30:** It should be a responsibility of each community member to ensure the waste generated at source is stored in approved receptacles and at the waste collection point approved.	These sections should continue to be applied since it emphasize management and control solid waste in environment.
Hazardous waste regulations, 2021	**Storage of health care waste** **Section 55:** A person who generates health care waste shall treat or cause to be treated all health care waste in the manner set out in the Eighth Schedule, before such health care waste is stored or disposed of.	This section should continue to be applied since it emphasizes the proper storage of hazardous waste at source which will control the outbreak of infections or diseases and hazards due to poor storage

		practice.

Area: Primary collection

Legislation	Remarks	Recommendations
Environmental Management Act, 2004	**Solid waste collection in urban and rural areas** **Section 117(a&b):** The local government authorities shall, with respect to urban and rural areas, prescribe the best ways possible for the collection of various classifications of solid waste from generation sources and shall on its own or with any commercial or private sector arrange ways to recover the cost incurred in collection of the solid waste and appropriate equipment, times and routes for solid waste collection.	This section should continue to be applied since it emphasize management and control solid waste generation at source, collection routes and guidelines on how to choose appropriate incurring cost charges for collection process.
Hazardous waste	**Disposal of hazardous waste for generator of waste**	This regulation lacks a

regulations, 2021	**Section 71(a&b):** Any person who generates hazardous waste shall ensure that the hazardous waste generated is disposed in environmentally sound manner or taken by persons with collection and transportation permits issued under these Regulations.	specific section which concern with primary collection and management of hazardous waste in environment.
Solid Waste regulations, 2009	**Duty to respect waste collection times** **Section 16(a&f):** An occupier of premises shall comply with the such days and approximate times for collection of waste specified by the local government authority having jurisdiction over the premises, ensure that waste not collected as does not remain in the public place and ensure that an approved receptacle complies with the maximum weight limitations prescribed by the local government authority also ensure sufficient approved receptacles are provided to serve all of the occupants of that premises and ensure that no undue accumulation of waste is permitted to remain in or about that premises and not permit any accumulation of waste	This section should continue to be applied since it emphasize and enhance management and control solid waste by ensuring proper primary collection of waste at source also the reduce the odor and harmful pathogens from waste.

	to be unsightly, offensive, a nuisance or injurious to health.	
Public Health Act, 2009	**Collection of solid and liquid waste** **Section 77(a-c):** The Authority after consultation with the Ministers responsible for environmental management and local government shall prescribe the best ways possible for the collection of various categories of solid and liquid wastes from generation sources on its own or in collaboration with any commercial entity or private sector, mode of recovery of costs incurred in collection of the solid and liquid wastes and approved equipment, solid and liquid wastes collection times and routes.	This act have shallow emphasis on the primary collection of solid and liquid waste, more details should be added.
Environmental Management Act, 2004	**Transportation and disposal of liquid waste** **Section 124:** The local governments' authorities shall with respect to their areas of jurisdictions prescribe, issue guidelines and standards on how sewage from cesspool and sludge from septic tanks is to be collected and transported by specified vehicles for disposal.	This act lack the methods, recommendation guideline on how to handle liquid waste from primary collection to the transfer

	Movement of hazardous waste **Section 135 (1-3):** The Minister shall ensure that any movement of hazardous waste within and through Tanzania shall be conducted in a manner that prevents or minimizes adverse effects to human health and the environment and shall conform to movement procedures as Movement of hazardous waste may be prescribed in the Regulations. Any generator of hazardous waste shall take measures to minimize the generation of such waste and any generator of hazardous waste shall be responsible for its disposal and shall be liable for any damage to human health, living beings and the environment	station
Public Health Act, 2009	**Transportation and disposal of liquid waste** **Section 81:** The Authority shall transportation and ensure that sewage from cesspool and sludge from septic disposal of tanks are collected and transported by specified vehicles for liquid waste disposal, ensure that before sewage is appropriately treated and	This act lack the transportation of solid waste in which it's important in waste management

	prior to its discharge into water bodies or open land, the sewage will not increase the risk of infections or ecological disturbance and environmental degradation, also designate and ensure compliance with designated disposal ponds, sewage treatment facilities and sewer points, after the construction of the sewerage system, facilitate the carrying out of initial and subsequently periodic approved tests to ascertain that the sewage effluents for final disposal meet the national standards required and make by-laws prescribing the treatment of hazardous and non-hazardous liquid wastes from industries, prescribe guidelines on standard gradient for storm water drains in order to prevent water stagnation on periodic cleaning of storm water drains to remove deposits and to allow the inspection and removal of deposits in covered storm water drain covers and appropriate trap chambers.	
Hazardous waste regulations, 2021	**Transportation of health care waste** **Section 56:** A person shall not transport health care waste without a	This section should continue to be applied since

	permit issued by the Ministry responsible for health or the relevant local government authority.	it emphasize management and control hazardous waste in environment and prevent and shortcomings likely to be occurred if precautions are not addressed and controlled.
Solid Waste regulations, 2009	**Permits to operate solid waste disposal sites** **Section 9 (1):** Any person wishes to deal in solid waste as collector, transporter, depositor or manager of transfer station shall apply to local government authority for a permit **Section 9 (2) (a-d):** Local government authorities may, in their relation to their areas of jurisdiction and on application, issue permits for solid waste collection, solid waste transportation, solid waste disposal and solid waste transfers **Section 9(3):** An individual or company may apply for permits referred to in sub regulation (1) as a single permit or collective	This section should continue to be applied since it emphasize management and control solid waste by ensuring proper transportation of wastes to transfer stations, also it provides guideline on permits applications mode

	permits; **Section 9 (4)(1) (a-c):** An applications for a permit pursuant to sub regulation (1) shall accompanied by a payment of application fee, proof of the means and facilities available to the applicant to undertake the tasks and description of the activities to be undertaken	by encouraging proper methods and techniques for transporting wastes to transfer stations.

Area: Transportation

Legislation	**Remarks**	**Recommendations**
Environmental Management Act, 2004	**Transportation and disposal of liquid waste** **Section 124:** The local government authorities shall, with respect to their areas of jurisdictions prescribe, issue guidelines and standards on how sewage from cesspool and sludge from septic tanks is to be collected and transported by specified vehicles for disposal.	This section should continue to be applied since it emphasize management and control solid waste by ensuring proper transportation of

	Movement of hazardous waste **Section 135(1-3):** The Minister shall ensure that any movement of hazardous waste within and through Tanzania shall be conducted in a manner that prevents or minimizes adverse effects to human health and the environment and shall conform to movement procedures as Movement of hazardous waste may be prescribed in the Regulations. Any generator of hazardous waste shall take measures to minimize the generation of such waste, and any generator of hazardous waste shall be responsible for its disposal and shall be liable for any damage to human health, living beings and the environment	wastes to transfer stations, but it lacks the guideline on handling the hazardous waste from the source to the disposal site.
Public Health Act, 2009	**Transportation and disposal of liquid waste** **Section 81(a-f):** The Authority shall ensure that sewage from cesspool and sludge from septic disposal of tanks are collected and transported by specified vehicles for liquid waste disposal, ensure that before sewage is appropriately treated and prior to its	This section should continue to be applied since it emphasize management of liquid waste as its control the

	discharge into water bodies or open land, the sewage will not increase the risk of infections or ecological disturbance and environmental degradation, designate and ensure compliance with designated disposal ponds, sewage treatment facilities and sewer points, after the construction of the sewerage system, facilitate the carrying out of initial and subsequently periodic approved tests to ascertain that the sewage effluents for final disposal meet the national standards required, make by-laws prescribing the treatment of hazardous and non-hazardous liquid wastes from industries, and provides prescribe guidelines as, on standard gradient for storm water drains in order to prevent water stagnation, on periodic cleaning of storm water drains to remove deposits and to allow the inspection and removal of deposits in covered storm water drain covers and appropriate trap chambers	outbreak of pandemic diseases, but this act lack the transportation of solid waste in which it's important in waste management
Hazardous waste regulations, 2021	**Transportation of health care waste** **Section 56:** A person shall not transport health care waste without	This section should continue to be applied

	a permit issued by the Ministry responsible for health or the relevant local government authority.	since it emphasize management and control hazardous waste in environment.
Solid Waste regulations, 2009	**Permits to operate solid waste disposal sites** **Section 9(1):** Any person wishes to deal in solid waste as collector, transporter, depositor or manager of transfer station shall apply to local government authority for a permit **Section 9 (2) b:** Local government authorities may, in their relation to the solid waste collection, solid waste transportation, solid waste disposal and solid waste transfer station. **Vehicle for transport of solid waste:** **Section 10 (a-d):** Vehicles for purposes of transportation of solid waste shall have a prescribed cover to prevent exposure of the contents except during loading and unloading of waste, also be watertight in construction and preferably metal to prevent leakage	This section should continue to be applied since it encourages good methods and techniques for proper wastes transportation of waste to transfer stations.

	and facilitate thorough cleaning, and be self-tipping mechanism to ensure fast tipping, and have a loading height of the range from 1.4m to 1.6m in the case of manual loading vehicles.	

Area: Treatment

Legislation	**Remarks**	**Recommendations**
Environmental Management Act, 2004	**Treatment of liquid wastes** **Section 125** The local government authorities shall ensure that sewage is appropriately treated before it is finally discharged into water bodies or open land, and that it does not increase the risk of infections or ecological disturbance and environmental degradation of liquid wastes.	This act have shallow emphasis on the treatment of waste, more details should be added.
Hazardous waste regulations, 2021	**Treatment of health care waste** **Section 54**: A person who generates health care waste shall treat or cause to be treated all health care waste in the manner set out in the	This section should continue to be applied since it emphasize

	Eighth Schedule, before such health care waste is stored or disposed of.	management and control hazardous waste in environment.
Public Health Act, 2009;	**Management of hazardous waste** **Section 90(d):**Subject to the provisions of section 92, the Authority shall ensure that standards prescribed for the hazardous wastes management are in place and operational, premises producing hazardous wastes are adequately ventilated and in compliance with prescribed standards, waste effluents are treated or modified so as to comply with prescribed standards before their final disposition and hazardous liquid wastes are treated in accordance with appropriate methods at a factory or on site before their discharge into public sewers, open land or receiving water bodies.	This section should continue to be applied since it emphasizes management and controlling wastes with provided guidelines and standards under this section.
Solid Waste regulations, 2009	**Solid waste processing and treatment** **Section 28**-The local government authorities may prescribe	Local government authorities should continue advice

	appropriate processes and treatment methods to reduce or minimize adverse effects of solid waste to human health and the environment.	appropriate processes and treatment methods to reduce or minimize adverse effects of solid waste to human health and the environment.

Area: Collection of refuse charges

Legislation	Remarks	Recommendations
Municipal By-laws	**Collection of refuse charges** **Section 279(1-3):** The council the waste collection fee to each household or business building owner at the rate specified by the second table of by-laws. The monthly fee shall be paid every 30th of each month within relevant month and shall be paid to authorized officer who shall issue a receipt for	There should be review and amendments on a provided section based on Collection of Refuse charges; for example charging fee is not feasible to work done.

	the payment to be paid and shall fill the register of waste producers. If the waste producer fails to pay the cost of waste collection services for period of two months council will take legal actions if it is as well as been brought to court.	

Area: Establishment of waste transfer stations

Legislation	Remarks	Recommendations
Environmental Management Act, 2004	**Waste transfer station** **Section 118(1):** The local government authorities may designate transfer stations to serve as collection centres of solid wastes to serve cities, or municipalities, or towns or other areas where large amounts of solid waste are generated. **Section 118(2):** Before a local government authority designates an area to be a waste transfer station for the purposes of collection of solid waste it shall carry out social, health and environmental impact assessment, ensure that the selected area is adequate in size	This section should continue to be applied since it emphasize management and control solid and liquid waste

	and situated away from residential area, ensure regular removal of solid waste to avoid any possible nuisance and ensure the area is fenced off and secured to prevent unauthorized persons from entering.	
Hazardous waste regulations, 2021	**Transfer stations** **Section 57:** The provisions of these Regulations relating to storage and transportation of health care waste shall apply to owners or operators of transfer stations	This section should continue to be applied since it emphasize management and control hazardous waste in environment.
Public Health Act, 2009	**Designation of transfer station** **Section 78(1) (a-d):** Prior to designation of a transfer station the Authority shall carry out Environmental Health impact Assessment as may be provided for under the Environmental	This section should continue to be applied since it emphasize management and control

	Management Act, ensure that the designated area is adequate in size and is situated away from residential area ensure regular removal of solid and liquid wastes to avoid any possible nuisance and ensure the designated area is fenced off and secured to prevent unauthorized persons from entering. **Section 78 (2):** The Authority shall designate transfer stations to serve as collection centers of solid and liquid wastes where large amount of solid and liquid wastes are generated.	solid and liquid waste
Solid Waste regulations, 2009	**Designation areas as waste transfer stations** **Section 20 (a&b):** Each local government authority shall designate solid waste transfer stations which is capable to prevent release of waste to the environment until appropriate recovery, recycling, treatment or disposal facilities are provided and guarantee adequate storage space and appropriate solid waste receptacles or containers.	This section should continue to be applied since it emphasize management and control solid waste by ensuring every local government authorities establish waste transfer station.

Conditions for solid waste transfer stations

Section 21(1): Where appropriate, each local government authority shall designate adequate areas to be used as a solid waste transfer station, away from residential areas taking into accounts social and environmental impact assessment.

Section 21(2): Where solid waste transfer station is designated, waste shall be removed regularly to avoid any nuisance which may result into public and environmental objections or affect health.

Section 21(3) (a&b): Every solid waste transfer station shall be on an elevated platform at least five meters high, with apertures through which waste is directly discharged in bulk transporters beneath, and in addition the elevated platform shall be large enough to store waste discharged from collection vehicle before being pushed through the apertures by bulldozer or mechanical shovel and be fenced to prevent entrance of unauthorized persons,

	animals and also prevent scattering of waste by wind.

Area: Waste management studies

Legislation	Remarks	Recommendations
Environmental Management Act, 2004	**Environmental education and awareness** **Section 176(1):** The Director of Environment shall, in consultation with the relevant Sector Ministries, take appropriate measures for the integration of environment matters in schools, colleges and mental education and institutions of higher learning. **Section 176 (2):** The Director of Environment shall plan and conduct programmes aimed at raising awareness of the people on sustainable development and environmental management. **Environmental research** **Section 177 (1):** The Council shall conduct surveys on the state of	This section should continue to be applied since it emphasize management and control hazardous waste through the raising of awareness to the community who are the primary generators of waste.

	the environment and may research and make forecast on environmental changes and other studies that may contribute to the formulation of policies and preparation of action plans and strategies with regard to environmental conservation and management.	
Public Health Act, 2009	**The duty of Authority to undertake studies** **Section 76(1) (a&b):** Every Authority shall undertake periodic studies to determine the type of solid and liquid wastes generated from markets, institutions and industries and determine appropriate methods for sorting and storage of the wastes	This act have shallow emphasis on the waste management studies, more guidelines and recommendations should be added.

Area: Waste recycling and composting

Legislation	**Remarks**	**Recommendations**
Solid Waste regulations, 2009	**Integrated solid waste management** **Section 25 (1):** The local government authorities shall commission	This section should continue to be applied since

	studies and prescribe best ways of recovery and recycling of wastes as part of integrated solid waste management. **Section 25 (2):** In order to enhance integrated solid waste management, local government authorities shall ensure that generators and collectors sort out at their source of generation paper and paper box, various categories of plastics, aluminum, metal scrap, glass waste, pure organic waste, battery materials, and any other materials that may be from time to time be designated by the local governments, and ensure that generators and collectors recover heavy metals from waste electrical and electronic equipment, such as computers, phones in order to reduce contamination of the environment with toxic substances. Also require local generators and collectors of any specified recyclable waste to be liable for recycling or taking back their waste materials to the manufacturers, and register collectors and issue permits to persons and companies who are allowed to recover, recycle waste	it prescribes best ways of recovery and recycling of wastes.

Area: Contract management

Legislation	Remarks	Recommendations
Solid Waste regulations, 2009	**Contract out work of segregation of solid wastes** **Section 19:** local government authorities may with respect to their areas of jurisdiction contract out to licensed and qualified solid waste collection contractors such as Community Based Organizations, private companies, and Non Governmental Organizations to assist in separation of solid waste at source, and operation of solid waste transfer stations.	This section have shallow emphasis on the waste management studies, more details should be added concerning contract management

4.0 INSTITUTIONS

Focusing on integrated and functional solid waste management system, different institutions has been involving in the system by either contributing sanitation facilities and mobilizing sanitation campaign. Table 3 below should institutions and area of involvement.

Name of institution	**Involved in Mgt of SW**	**Influence in SWM**	**Contributing resources**	**Available opportunities**
Lake Cement			V	
NMB		V	V	
Suma JKT	V	V	V	
Afroil		V	V	
	V	V	V	
CBOs	V	V	V	
School clubs	V	V		
Beach Mgt Unit	V	V		
UMAWA	V	V		
RUIDA Co	V			
Prisons Force	V	V		
LEAT	V	V	V	
JWTZ	V	V		
Water Com		V	V	
Regional Commissioner		V		
District Commissioner	V	V		
Informal waste collectors	V	V		

4.1 COST AND FINANCING

Cost type	**Funder**	**Source**
Capital	Municipal	Own source
		Development partners
		Central government

	Contractors	Waste collection fee
		Own source
Operational cost	Municipal	Own source
		Waste collection fee
		Other Stakeholders

4.2 TECHNOLOGY IN USE

Storage	**Collection**	**Transportation**	**Recycling**	**Disposal**
Dustbins	Skip buckets	Skip buckets		Controlled Dumping
Sacks	Carts	Carts		
Boxes	Trucks (compactor trucks, Lorries)	Trucks (compactor trucks, Lorries)		
Skip buckets	Tricycle	Tricycle		
Buckets	Hand/Head carrying	Hand/Head carrying		

5.0 STAKEHOLDER IDENTIFICATION AND PARTICIPATION

According to Environmental Management Act, 2004 it is the responsibility Authority to manage Municipal solid waste by ensuring that solid waste are stored, collected and transported to dispose in appropriate manner. At this juncture, the Authority involves different stakeholders to participate in solid waste management services provision. The mentioned below in table … are categories of different stakeholders who participate Municipal solid waste management.

Table ….. Identified stakeholder in municipal solid waste management

Category	Name	Roles
Individual	UMAWA, EBUNE	Solid waste collection at household and Business premises Provision of Waste Management Education to public
Groups/ CBO's	TUINUANE, EBUNE, AMOA, KIWATA	Solid waste collection at household and Business premises, Education
Companies	SUMAJK, EDNOX	Solid waste collection - Contractor , street cleansing
NGO's	NipeFagio	Beach cleaning (Plastic waste Management)

6.0 THE GOAL AND OBJECTIVES OF THE PLAN

6.1 Main Objective

The main objective of Kigamboni Municipal Council is to to enhance waste management services to ensure protection of environment and human health

6.1.1 Specific Objectives

To achieve this purpose, the Kigamboni Municipal Council has set down the following specific objectives:-

1. Enhancement of Solid Waste Management infrastructure;
2. Promotion and adoption of waste minimization approaches;
3. Formalization of informal solid waste collection service providers
4. Establishment of waste management information system
5. Enhancement of solid waste management financing

TARGETS

1. **Enhancement of Solid Waste Management infrastructure;**
    - Establish at least three (3) Material Recovery Facilities by 2025;
    - Construct one (1) Sanitary landfill by 2025;
    - Promote establishment of E-waste recycling infrastructure by 2025;
    - Establish at least one (1) transfer station by 2025; and
    - Enhance availability of waste management equipment by 2025.

2. **Promotion and adoption of waste minimization approaches;**
    - Develop and implement plan for public awareness and participation on source reduction and recycling initiatives to at least 50% of households by 2025;
    - Establish at least one source reduction and reuse project by 2025; and
    - Promote implementation of Reduce, Reuse, and recycling (3Rs) approach in at least 50% of the households, industries, institutions and commercial areas by 2025;
3. **Formalization of informal solid waste collection service providers**
    - Develop and implement plan on awareness to 20% of householders and waste collectors on health and environmental impact of improper hazardous waste management by 2025.
    - Conduct assessment and mapping informal waste collectors by 2024; and

- Establish legal framework recognising informal waste collection service and waste picking as formal livelihoods by 2025;

4. **Establishment of waste management information system**
    - To build capacity for collection, analysis and access of solid waste management data and statistics for at least 50% by 2025;
    - Conduct an inventory of hazardous waste generation by 2024; and
    - To establish a central information waste management system by 2024.

5. **Enhancement of solid waste management financing**
    - Conduct an assessment of the existing financing and waste collection charges systems by 2024; and
    - Adopt and implement best option waste management financing systems by 2025.

7.0 AN OVERVIEW OF THE EXISTING SOLID WASTE MANAGEMENT PROGRAM.

1. **Waste Reduction**
2. **Community outreach through health officers**
3. **LEAT**
4. **Segregation and Sorting Practice**
5. **EDNOX**
6. **Waste Storage**
7. **Nipe Fagio Project (Name)**
8. **Waste Generators**
9. **Collection**
10. **Municipal council**
11. **Contractors**
12. **CBOs**
13. **Informal services providers**
14. **Individual waste generators**
15. **Recycling and Reuse**
16. **RUIDA**
17. **Transportation**
18. **Municipal council**
19. **Contractors**

8.0 SOLID WASTE MANAGEMENT ALTENATIVES

To achieve the goal, the Municipality has to use two main alternatives approaches. The community participation where the community , and Public Private Partisanship (PPP) both apply either one of the mentioned options for Municipal solid waste management.

i. Collection from source - Disposal
ii. Collection - Transfer Station – Disposal
iii. Collection – Collection Point – Disposal
iv. Collection – MRF – Disposal
v. Collection – Recycling Facilities

Area applied	**Existing Collection Option**	**Challenges**	**Recommended Option**
Formal Settlement (High, medium, low)	Collection from source - Disposal	-High consumption of fuel -Time consuming -High Manpower	-Collection - Transfer Station – Disposal
	Collection – Collection Point – Disposal	-Highly polluting in existing area -Difficult to collect solid waste charges -Highly dependence on skip loader technology which increases risk of pollution in case of breakdown	-Collection – MRF – Disposal
Informal Settlement (eg. Kibanebane – Kigamboni ward)	Collection – Collection Point – Disposal	-Highly polluting in existing area -Difficult to collect solid waste charges -Highly dependence on skip loader technology which increases risk of pollution in case of	-Collection – MRF – Disposal

		breakdown - High running cost of skip loader which carry small amount of waste.	
	Collection from source - Disposal	-High consumption of fuel -Time consuming -High Manpower	
Commercial	Collection from source - Disposal	-High consumption of fuel -Time consuming -High Manpower -It works on specific time	-Collection – Collection Point – Disposal
Markets	Collection – Collection Point – Disposal	-Highly polluting in existing area -Difficult to collect solid waste charges -Highly dependence on skip loader technology which increases risk of pollution in case of breakdown	-Collection – Collection Point – Disposal

		-Space for establishment of collecting point	
Institutional and Offices	Collection from source - Disposal	-High consumption of fuel -Time consuming -High Manpower -It works on specific time	-Collection – Collection Point – Disposal

9.0 THE SELECTED ALTERNATIVES

Refer recommended options in the matrix above

10.0 SOLID WASTE MANAGEMENT LEGISLATION TO BE DEVELOPED OR REVIEWED

10.1 Municipal By-Laws to incorporate informal waste service providers

10.2 Public Procurement Act, 2014 as amended in 2016 on duration of service provision i.e. from 12 months to more than 12 months

10. IMPLEMENTATION PLAN

Objective 1: Enhancement of Solid Waste Management infrastructure					
Target	**Activity**	**Output**	**Input**	**Timeframe**	**Budget**
Establish at least three (3) Material Recovery Facilities by 2025	Acquire Land	Land acquired	6,000,000	6 months	67,500,000
	Designing of MRF	Approved MRF drawings	2,500,000		
	EIA	Secured EIA certificate	14,000,000		
	Construction of MRF	Constructed MRF	45,000,000		
Construct one (1) Sanitary landfill by 2025	Securing Land	Secured land	3,000,000	3 yrs	9,042,000,000
	Designing of sanitary landfill	Approved sanitary landfill drawings	25,000,000		
	EIA	Secured EIA certificate	14,000,000		
	Construction of Sanitary landfill	Constructed sanitary landfill	9,000,000,000		

Promote establishment of E-waste recycling infrastructure by 2025	Sensitization campaign (outreach)	Number of people/groups sensitized	10,000,000	1 yr	10,000,000
Establish at least one (1) transfer station by 2025	Acquire Land	Land acquired	6,000,000	3yrs	1,870,500,000
	Designing of transfer station	Approved TS drawings	5,500,000		
	EIA	Secured EIA certificate	14,000,000		
	Construction of transfer station	Constructed TS	1,845,000,000		
Enhance availability of waste management equipment by 2025	Purchase Vehicles for collection and transportation and Plants (Wheel loader, compactor)	Vehicles and Machine purchased	2,500,000,000	3yrs	2,620,000,000
	Supervision vehicle	Supervision vehicle purchased	120,000,000		
Sub total					**13,610,000,000**

Objective 2: Promotion and adoption of waste minimization approaches					
Develop and implement plan for public awareness and participation on source reduction and recycling initiatives to at least 50% of households by 2025	Conduct weekly radio and TV program on Municipal solid waste minimization campaign	Number of radio and TV campaign conducted	26,500,000		26,500,000
Promote implementation of Reduce, Reuse, and recycling (3Rs) approach in at least 50% of the households, industries, institutions and commercial areas by 2025	Conduct sensitization meetings at community level on important of applying 3Rs approaches	Conduct sensitization meetings at community level conducted	20,000,000	1yr	20,000,000
Sub total					**46,500,000**
Objective 3: Formalization of informal solid waste collection service providers					
Develop and implement plan on awareness to 20% of householders and waste collectors on health and environmental impact of improper hazardous waste	Conduct health education on impact of improper management	Number of residents and waste collectors/pickers sensitized	8,000,000	1yr	8,000,000

management by 2025.	of hazardous waste management to health and environment household and waste collectors				
Establish legal framework recognizing informal waste collection service and waste picking as formal livelihoods by 2025	Identify and register informal waste collectors and waste pickers	Number of informal waste collectors and waste pickers registered	6,000,000	1yr	6,000,000
Sub total					**14,000,000**
Objective 4: Establishment of waste management information system					
Conduct an inventory of hazardous waste generation by 2024	Identify and register hazardous waste generators in 9 wards	Register of hazardous waste generators	6,000,000		6,000,000
Sub total					**6,000,000**
Grand total					**13,676,500,000**