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Konu : Malavi Sürdürülebilir Katı Atık Yönetimi Projesi

**TÜM ODA VE BORSALARA  
(Genel Sekreterlik)**

İlgi : Ticaret Bakanlığının 20.12.2022 tarihli ve 81108805 sayılı yazısı.

Ticaret Bakanlığından alınan ilgide kayıtlı yazıda, Zambiya'da mukim Malavi Cumhuriyeti Yüksek Komiserliği'nden gönderilen 12 Aralık 2022 tarihli nota ile Malavi'de 2023 yılı Ocak ayı içerisinde başlaması planlanan toplam 5.390.000,- ABD Doları bütçeli Sürdürülebilir Katı Atık Yönetimi Projesine ilişkin teklif çağrısının Büyükelçiliğimize iletiliği belirtilmiştir.

Mezkur nota ve söz konusu projeye ilişkin detaylar ekte gönderilmektedir.

Bilgilerinizi ve konunun ilgili üyelerinize duyurulmasını rica ederim.

Saygılarımla,

*e-imza*

Ali Emre YURDAKUL  
Genel Sekreter Yardımcısı

EK: Malavi Yüksek Komiserliği Proje Davet Yazısı (27 sayfa)





Note No. 32/2022

The High Commission of the Republic of Malawi presents its compliments to the Embassy of the Republic of Turkey and has the honour to forward herewith a copy of Note Verbale No. 617/2022, dated 30 November 2022, attaching a Project Proposal on Sustainable Solid Waste Management in Malawi, from the Ministry of Foreign Affairs of the Republic of Malawi.

The High Commission of the Republic of Malawi avails itself of this opportunity to renew to the Embassy of the Republic of Turkey, the assurances of its highest consideration.

LUSAKA.

12 December 2022

Embassy of the Republic of Turkey,

LUSAKA.

*[Faint handwritten notes and signatures on the right side of the page, including the name 'T. ...' and a signature]*



Note No. 617/2022

The Ministry of Foreign Affairs of the Republic of Malawi presents its complements to the Embassy of the Republic of Turkiye in Lusaka and has the honour to refer to a meeting between Her Excellency Istem Circirglu, Ambassador of the Republic of Turkiye and the Ministry of Natural Resources and Climate Change of the Republic of Malawi which, among other issues, discussed the possibility of Turkish Companies producing energy from city waste.

The Ministry wishes to submit a project proposal on Sustainable Solid Waste Management in Malawi which the Department of Environmental Affairs has prepared following the meeting.

The Ministry of Foreign Affairs avails itself of this opportunity to renew to the Embassy of the Republic of Turkiye in Lusaka the assurances of its highest consideration.

LILONGWE 3  
30<sup>th</sup> November, 2022

Embassy of the Republic of Turkiye  
LUSAKA





MALAWI GOVERNMENT  
MINISTRY OF NATURAL RESOURCES AND CLIMATE CHANGE  
*ENVIRONMENTAL AFFAIRS DEPARTMENT*

PROJECT PROPOSAL ON SUSTAINABLE WASTE MANAGEMENT IN MALAWI

SUBMITTED TO:

THE EMBASSY OF THE REPUBLIC OF TURKEY, LUSAKA, ZAMBIA

Submitted by: *[Faint text]*

PROJECT SUMMARY

PROJECT TITLE Sustainable Waste Management in Malawi

TOTAL PROJECT BUDGET 5,390,000.00 USD

PROJECT DURATION 5 years

STARTING DATE January 2023

ENDING DATE December 2028

IMPLEMENTING INSTITUTION Malawi Government, Ministry of Natural Resources and Climate Change (Environmental Department, Department of Fisheries, and Department of Forestry)

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## 1.0 Background and Problem Statement

Solid waste constitutes a major environmental problem in Malawi especially in cities of Lilongwe, Blantyre, Mzuzu and Zomba and major towns of the country. The cities of Malawi have developed significantly during the past decade in terms of commerce and industry. This has led to rapid growth in economic activities which have resulted in simultaneous increase in the generation of wastes. At the same time the population has increased tremendously over the years which have also resulted into the volume of solid waste generated by residents. This has been compounded by rapid urbanization, rising incomes in the cities and major towns and low private sector participation in the provision of sanitary facilities. The main drivers for waste generation have been therefore street trading, leisure centres, industry, carrier bags, tourism, health facilities amongst others.

In Malawi, the average daily waste generation is at 0.5 kilograms per capita per day (NCST, 2015). Blantyre and Lilongwe cities produce 450 and 500 metric tons of waste per day respectively (JICA, 2021); and 40% of this waste is from residential areas, 40% from commercial areas, 15% from industries and 20% from hospitals (GoM, 2019).

Waste in Malawi is regulated by a comprehensive policy and legal framework not limited to Malawi Vision 2063, Environmental Policy (2004), Environment Management Act (2017), Environment Management (Waste Management and Sanitation) Regulations 2008, Environment Management (Chemicals and Toxic Substances Management) Regulations 2008 and Malawi National Waste Management Strategy (2019). There are also sectoral legislation including sectors such as Water, Health, and Local Government amongst others.

Despite such legislation, Malawi is facing challenges in managing waste which is generated. This is due to many factors including inadequate human and financial resources which result into inadequate and poor infrastructure, inadequate treatment and disposal facilities and also low waste collection rates in the cities. For instance, waste collection rates range from 14-30 % in Lilongwe city, 19-28 % in Blantyre, 10-16% in Mzuzu and 8-14% in Zomba (NCST, 2014). The remaining is disposed of indiscriminately in inappropriate dump sites (e.g forest reserves and riverline) or are burnt. None of the cities have a conventional sanitary/engineered landfill. Other challenges include inadequate data on waste, insufficient awareness, poor coordination among stakeholders and ineffective enforcement.

The resultant effects of poor waste management is causing major threat to both public health and the environment as well as lakeshore areas. Accumulated waste result into breeding sites for vectors consequently resulting into the spread of malaria, cholera amongst other diseases. In addition, these wastes inhibit tree natural regeneration. Furthermore, wastes dumped in forests promote forest fires that greatly affect forest management. Uncontrolled dumpsites are a hazard to neighboring settlements including waste workers. Additionally, poorly managed waste can

pollute both surface and groundwater causing toxicity of drinking water and also contamination of the ecosystem (GoM, 2019).

In order to improve waste management in the country, Government produced a Waste Management Strategy which is aligned with the national waste management policies and legislation as well as 2030 Agenda for Sustainable Development. The National Waste Management Strategy (2019) outlines key priority areas to manage waste including capacity building, teach responsible public behaviour on waste management, promote waste segregation at source; promote public-private participation in waste management, reduce, reuse, recycle, and recover energy from the waste, promote waste treatment; and establish environmentally sound infrastructure and systems for waste management.

There are nevertheless some current efforts which are being implemented in the country to manage waste which include Sanitation Project for Nkhatabay district, Procurement of 2 Waste Incinerators by Ministry of Health at Kamuzu Central, Malawi Green Corps Project is a Malawi Government Project to rehabilitate degraded areas and waste hotspots while providing the youth with green entrepreneurship capacities.

Despite these interventions, the country is however far from managing waste to the expected minimum standards. The Ministry consequently wishes to implement the Waste management Programme through the following objectives:

## 2.0 Project goal

The overall goal of this project is to improve solid waste management and control pollution in general to protect human health as well as to enhance the quality of environment in Malawi.

## 3.0 Project objectives

The immediate objectives of the project are as follows.

- To reduce quantities of solid waste reaching the lakeshore areas and terrestrial environment and eventually have garbage free rivers and land-dwelling areas through establishment of suitable management practices including re-use and recycling.
- To establish efficient and effective solid waste collection and safe disposal system and facilities in selected urban areas;
- To build capacity and strengthen public awareness for maintenance and rehabilitation of solid waste treatment facilities at national, district and community levels.

## 4.0 Project duration

The project will be implemented for the period of five years from January 2023 to December 2028.



#### 5.0 Project sites and Project Beneficiaries

The project will be coordinated at national level and will be implemented in Zomba, Blantyre, Lilongwe and Mzuzu, Karonga, Salima and Mwanza. Malawians in the targeted sites will benefit through this programme.

#### 6.0 Project strategy and expected Outputs/ Results

The project will be implemented by Environmental Affairs Department in the Natural Resources and Climate Change in collaboration with Ministry of Local Government.

The project offers a good opportunity to demonstrate strategies for proper waste management, control of pollution and protection of terrestrial and marine environments. This will be achieved through the development and operation on environmentally sound solid waste management facilities. In this respect the project will generate useful lessons for replication in other towns / districts both in rural and urban areas.

**Objective 1:** To reduce quantities of solid waste reaching the aquatic and terrestrial environment.

#### Planned Activities

- 1.1 Conduct surveys to determine the types and quantities of waste in selected pilot project areas and assess their potential for recycling and reuse. This should include assessment of briquette production from wastes to document product quality and cost, and the resulting ability to compete with firewood or charcoal.
- 1.2 Support development of briquette standards to help ensure consistent quality of production.
- 1.3 Provide fiscal incentives for market-oriented sustainable production of briquette.
- 1.4 Train private sectors and communities on how to collect and handle the waste in a safe way.
- 1.5 Train individuals and organization in methods for reuse and recycling of solid waste such as composting for farming and energy generation. This should include making briquettes from wastes
- 1.6 Establish waste transfer stations in all 4 cities as waste hoarding facilities to allow for segregation of solid waste for recycling and reuse.
- 1.7 Engage private sector to participate in waste management
- 1.8 Conduct monitoring and evaluation activities for the project.

#### Expected outputs/Results

- Quantities of solid waste from target areas to be disposed of significantly reduced.
- Recycling and reuse of solid waste materials increased.
- Waste collection from points of generation increased
- Private sector participation in solid waste collection, recycling and reuse increased.
- Mindset changed for communities to recycle waste
- Production and use of briquette as alternative source of energy

Objective 2: To put in place an efficient and effective solid waste collection and safe disposal system and facilities

#### Activities

- 2.1 Install garbage containers for citizens in residential and public areas for appropriate collection;
- 2.2 Establish sanitary landfill in Lilongwe; and
- 2.3 Install an efficient and effective solid waste collection and disposal system and facilities in the target areas.
- 2.4 Collect wastes in protected areas through youth engagement.

#### Expected Results

- It is expected that the achievement of objective 2 will lead to successful reduction in quantities of solid waste in the target areas;
- Facilities for solid waste collection and disposal provided and expanded in target areas;
- The aesthetic quality of urban and city areas improved; and
- Diseases related to poor solid waste managed and generally reduced.

Objective 3: To build capacities at national and local levels

#### Activities

- 3.1 Conduct awareness and education campaigns for the general public, industry and local authorities to properly site the waste disposal sites, reduce waste generation and the need for environmentally sound disposal and reuse;
- 3.2 Increase local planning and management capacity to avoid location of waste disposal sites within or near environmentally sensitive areas;

- 3.3 Provide technical assistance to enable the District/City Councils to set mechanisms to privatize the waste collection, sorting and recycling; and
- 3.4 Provide equipment to support information exchange and research into improved or new techniques for solid waste management and for monitoring of the effectiveness of project activities.
- 3.5 Develop capacity among the private sector including tourist developers, fish processors and lakeshore development committee in managing waste along lakeshore areas

#### Expected Results

- Public awareness for maintenance and rehabilitation of solid waste treatment facilities enhanced
- The capacity of institutions involved in solid waste management improved
- Public and stakeholders on the need for and its responsibility towards suitable management of waste informed.
- Management and information system for pollution control and planning in place.
- Participation of all stakeholders in solid waste management increased.

Objective 4: To rehabilitate and protect river lines from waste accumulation

#### Planned Activities

- 4.1 Conduct assessment to determine hot spots along the selected pilot rivers and assess their potential for rehabilitation.
- 4.2 Conduct awareness meetings
- 4.3 Conduct stakeholder meetings
- 4.4 Facilitate formulation and enforcement of by-laws for the river lines protection
- 4.5 Rehabilitate, protect and manage designated river lines through tree planting and natural regeneration
- 4.6 Promote natural regeneration management on customary estates through participatory demarcation and management of Village Forest Areas (VFAs)
- 4.7 Facilitate development and implementation of Participatory Forest Management Plans for the VFAs
- 4.8 Facilitate establishment of communal and individual woodlots to reduce pressure on natural forest for biomass fuel
- 4.9 Train communities on forest management
- 4.10 Train communities in income generating activities (IGAs)
- 4.11 Support establishment of IGAs

- 4.12 Rehabilitate selected fuelwood plantations in the project District to provide sustainable supply of fuel wood to the ever-increasing demand
- 4.13 Conduct monitoring and evaluation of project activities.

#### Expected outputs/Results

- o Forest cover along the river lines increased.
- o Pollution and siltation of rivers significantly reduced.
- o Alternative sources of firewood increased
- o Mind-set changed for communities to manage and protect the river lines
- o Livelihood of surrounding communities improved

#### 7.0 Project Sustainability

The project sustainability will rest on the overall commitment of central and local governments and their institutions to protect the environment against pollution from disposal of solid waste. In addition, sustainability will also be influenced by the communities' acceptance and to pay for the services rendered by city councils and the private sector. It is also assumed that adequate markets will be found for products to be recycled or reused and the private sector will generate sufficient profits to justify their continued involvement in solid waste processes. Furthermore, trainings as well as awareness campaigns are critical for ensuring sustainability of this project. However, to increase the level of sustainability, regulatory measures to control pollution and monitoring of both compliance and enforcement coupled with institutional co-ordination need to be put in place.

#### 8.0 Monitoring and Evaluation

This project will be implemented over a period of 5 years and will require regular monitoring and evaluation. Monitoring and evaluation will play a significant role during implementation to ensure that experiences gained informs project management and decision-making. EAD shall be the lead agency responsible for monitoring implementation of the project. For effective monitoring and evaluation of programmes under the project, a comprehensive Monitoring and Evaluation framework will be developed and will form a basis for periodic reviews to establish progress made.

9.0 Budget

SN	Objective 1: To reduce quantities of solid waste reaching the aquatic and terrestrial environment.	Requested Funds (MK)	Requested Funds (US\$)
<b>Component 1: Reduction of waste generation</b>			
A1.1	Conduct solid waste studies in Zomba City, Mzuzu City, Karonga, Salima and Mwanza districts to determine the types and quantities of waste in selected pilot project areas and assess their potential for recycling and reuse	205,000,000.00	200,000
A1.2	Support development of briquette standards to help ensure consistent quality of production.	205,000,000.00	200,000
A1.3	Provide fiscal incentives for market-oriented sustainable production of briquette.	51,250,000.00	50,000
A1.4	Train private sectors and communities on how to collect and handle the waste in a safe way.	51,250,000.00	50,000
A1.5	Train individuals, organizations and private sector in methods for reuse and recycling of solid waste such as composting for farming and energy generation.	205,000,000.00	200,000
A1.6	Establish waste transfer stations in all 4 cities as waste hoarding facilities to allow for segregation of solid waste for recycling and reuse.	601,000,000.00	600,000
A1.7	Engage private sector to participate in waste management	51,250,000.00	50,000
A1.8	Undertake monitoring and	51,250,000	50,000

	evaluation of the project on a regular and consistent basis to ensure that the expected results are delivered as well as initiating corrective action where incorrect course of actions have developed		
Sub-total for component 1		1,421,000,000	1,400,000
<b>Component 2: Installation of effective and efficient solid waste systems and facilities</b>			
A2.1	Install refuse skips and bins for citizens in residential and public areas for appropriate collection.	410,000,000.00	400,000
A2.2	Promote private sector businesses in environmentally – sound waste collection, separation, transport, disposal and reuse or recycling.	51,250,000.00	50,000
A2.3	Establish a new sanitary landfill in Lilongwe City	1,027,000,000	1,000,000
A2.4	Procure equipment for managing solid waste landfill	512,500,000.00	500,000
Sub-total for component 2		2,000,750,000.00	1,950,000.00
<b>Component 3: Capacity building at national and local levels and awareness creation for sustainable waste management</b>			
A3.1	Implementation of awareness and education campaigns for the general public, industry, and local authorities on the need to reduce waste generation and the need for environmentally sound disposal and reuse	307,500,000.00	300,000
A3.2	Technical assistance to enable the District/City Councils to set mechanisms to privatize the waste collection, sorting and recycling	51,250,000.00	50,000
A3.3	Procure computers and printers to support information exchange and research into improved or new techniques for solid waste management and for monitoring of	205,000,000.00	200,000

	the effectiveness of project activities.		
A3.4	Building local planning and management capacity to avoid location of waste-dump sites near environmentally sensitive areas	51,250,000.00	50,000
A3.5	Develop appropriate legal instruments to reduce and control the generation, collection, transportation, and disposal of solid waste	205,000,000.00	200,000
<b>Sub-total for component 3</b>		<b>820,000,000.00</b>	<b>800,000</b>
<b>Component 4: Rehabilitation of river lines and provision of alternative sources of fuelwood</b>			
A4.1	Conduct assessment to determine hot spots along the selected pilot rivers and assess their potential for rehabilitation. This should include assessment of causes of degradation and possible solutions not forgetting sustainable livelihood analysis.	82,000,000.00	80,000
A4.2	Rehabilitate, protect and manage designated river lines on customary estates through afforestation and reforestation	205,000,000.00	200,000
A4.3	Promote natural regeneration management on customary estates through participatory demarcation and management of Village Forest Areas (VFAs)	51,250,000.00	50,000
A4.4	Facilitate development and implementation of Participatory Forest Management Plans for the VFAs	20,500,000.00	20,000
A4.5	Facilitate establishment of	102,500,000.00	100,000

	communal and individual woodlots to reduce pressure on natural forest for biomass fuel.		
A4.6	Train communities on forest management	61,500,000.00	60,000
A4.7	Train communities in small scale business and Forest based (FBEs)	82,000,000.00	80,000
A4.8	Facilitate introduction of FBE and other small businesses	30,750,000	30,000
A4.9	Rehabilitate selected fuelwood plantations in the project District to provide sustainable supply of fuel wood to the ever-increasing demand	410,000,000.00	400,000
A4.10	Formulate clubs (youth and women) to provide labour in the management of plantations as an IGA	20,500,000.00	20,000
A4.11	Conduct monitoring and evaluation activities for the project.	102,500,000.00	100,000
A4.12	Sensitize the public on waste management in relation to river lines protection	51,250,000.00	50,000
A4.13	Facilitate formulation and enforcement of by-laws for river lines protection	51,250,000.00	50,000
<b>Sub-total for component 4</b>		<b>1,271,000,000.00</b>	<b>1,240,000</b>
<b>GRAND TOTAL</b>		<b>5,512,750,000.00</b>	<b>5,390,000</b>



**10.0 Time schedule**

ACTIVITY	YEAR 1				YEAR 2				YEAR 3				YEAR 4				YEAR 5			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Component 1</b>	<b>Reduction of waste generation</b>																			
Conduct solid waste studies in Mzuzu City, Zomba City, Karonga, Salima and Mwanza districts	X	X																		
Support development of briquette standards to help ensure consistent quality of production					X	X	X	X												
Provide fiscal incentives for market-oriented sustainable production of briquette					X	X	X	X	X	X	X	X								
Train private and communities on how to collect and handle the waste in																	X	X	X	X

ACTIVITY	YEAR 1				YEAR 2				YEAR 3				YEAR 4				YEAR 5				
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
a safe way																					
Train individuals and organizations in methods for reuse and recycling of solid waste such as composting for farming and energy generation.				X	X	X	X	X	X	X	X	X	X	X	X	X					
Establish waste transfer stations in all 4 cities as waste hoarding facilities to allow for segregation of solid waste for recycling and reuse					X	X	X		X	X	X		X	X	X	X	X	X	X	X	X
Engage private sector to participate in waste management																					
Monitoring and evaluation of the		X		X		X		X		X		X		X		X		X		X	X

ACTIVITY	YEAR 1				YEAR 2				YEAR 3				YEAR 4				YEAR 5				
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
project on a regular and consistent basis to ensure that the expected results are delivered as well as initiating corrective action where incorrect course of actions have developed																					
Component 2	Installation of effective and efficient solid waste systems and facilities																				
Procure and install refuse skips and bins for citizens in residential and public areas for appropriate collection.				X			X		X		X		X		X		X		X		X
Promote private sector businesses in environmentally – sound waste collection, separation, transport, disposal and reuse or					X		X		X		X		X		X		X		X		X

ACTIVITY	YEAR 1				YEAR 2				YEAR 3				YEAR 4				YEAR 5				
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
recycling.																					
Establish sanitary landfill for Lilongwe City					X	X	X	X	X	X	X	X	X	X	X	X					
Procure equipment for landfill management											X	X	X	X	X	X					
Component 3	Capacity building at national and local levels and awareness creation for sustainable waste management																				
Conduct awareness and education campaigns for the general public, industry and local authorities on the need to reduce waste generation and the need for environmentally sound disposal and reuse					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Build technical assistance to enable the District/City Councils to set mechanisms to privatize the waste collection, sorting and recycling					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

ACTIVITY	YEAR 1				YEAR 2				YEAR 3				YEAR 4				YEAR 5				
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Provide equipment to support information exchange and research into improved or new techniques for solid waste management and for monitoring of the effectiveness of project activities.													X	X	X	X					
Build local planning and management capacity to avoid location of waste-dump sites near environmentally sensitive areas				X		X		X		X		X		X		X					
<b>Component 4: Rehabilitation of river lines and provision of alternative sources of fuelwood</b>																					
Conduct assessment to determine hot spots along the selected pilot rivers and assess their potential for	X	X	X	X																	

ACTIVITY	YEAR 1				YEAR 2				YEAR 3				YEAR 4				YEAR 5				
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
rehabilitation. This should include assessment of causes of degradation and possible solutions not forgetting sustainable livelihood analysis																					
Rehabilitate, protect and manage designated river lines on customary estates through afforestation and reforestation		X			X	X	X			X	X	X								X	X
Promote natural regeneration management on customary estates through participatory demarcation and management of Village Forest Areas (VFAs)	X	X							X	X							X	X			X
Facilitate development and	X	X						X								X	X				

ACTIVITY	YEAR 1				YEAR 2				YEAR 3				YEAR 4				YEAR 5				
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
implementation of Participatory Forest Management Plans for the VFAs																					
Facilitate establishment of communal and individual woodlots to reduce pressure on natural forest for biomass fuel					X	X	X	X					X	X	X	X					
Train communities on forest management					X	X						X								X	
Train communities in small scale business and Forest based (FBEs)	X	X		X					X	X	X										
Facilitate introduction of FBE and other small businesses	X								X	X	X	X									
Rehabilitate selected fuelwood plantations in the project District to provide sustainable supply of fuel					X	X	X	X					X	X	X						

ACTIVITY	YEAR 1				YEAR 2				YEAR 3				YEAR 4				YEAR 5			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	wood to the ever-increasing demand																			
Formulate clubs (youth and women) to provide labour in the management of plantations as an IGA	X	X	X	X																
Conduct monitoring and evaluation activities for the project	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sensitize the public on waste management in relation to river lines protection																				
Facilitate formulation and enforcement of by-laws for river lines protection	X	X	X	X																



## 11.0 Logical Framework Matrix

Objectives/ outputs	Objectively Indicators	Verifiable	Means of Verification	Critical Assumptions and Risks
<b>Component 1: Reduction of waste generation</b>				
1.1 Quantities of solid waste to be disposed of significantly reduced.	<ul style="list-style-type: none"> <li>• Change in quantities of solid waste for final disposal</li> <li>• Change in quantities of solid waste reused or recycled</li> </ul>		<ul style="list-style-type: none"> <li>• Project records and reports</li> <li>• Monitoring and evaluation reports</li> </ul>	Adequate human and financial resources committed by Government / donors
1.2 Reuse and recycling of materials increased	<ul style="list-style-type: none"> <li>• Demonstration sites for reuse and recycling in place.</li> <li>• Companies, organizations and individuals embrace waste recycling</li> </ul>		<ul style="list-style-type: none"> <li>• Number of demo sites constructed</li> <li>• Increase in number of individuals and companies undertaking recycling</li> </ul>	Markets for recycled products in place
1.3 Participation of all stakeholders in solid waste management increased	<ul style="list-style-type: none"> <li>• Reduced dumping of solid waste</li> <li>• Number of environmentally acceptable sites constructed and used.</li> </ul>		<ul style="list-style-type: none"> <li>• Survey and field visits</li> </ul>	Acceptance and cooperation by local communities.
<b>Component 2: Provide / expand facilities for collection and safe disposal of solid waste</b>				
2.1 Facilities for solid waste collection and disposal provided/ expanded	<ul style="list-style-type: none"> <li>• Number of facilities provided or expanded</li> <li>• Number of equipment for management of solid waste procured</li> <li>• Number of private sector agencies involved</li> </ul>		<ul style="list-style-type: none"> <li>• Field surveys</li> <li>• Site inspections</li> </ul>	Sustained change in public attitude
2.2 Aesthetic quality of environment improved	<ul style="list-style-type: none"> <li>• Number of diseases related to poor solid waste disposal reduced</li> </ul>		<ul style="list-style-type: none"> <li>• Project reports</li> <li>• Site inspections</li> </ul>	Adequate human and financial resources committed by government / donors

Objectives/ outputs	Objectively Indicators	Verifiable	Means of Verification	Critical Assumptions and Risks
<b>Component 3: Capacity building of Institutions and awareness creation in solid waste management</b>				
3.1 Public informed on suitable waste management practices	<ul style="list-style-type: none"> <li>Number of individuals or groups involved in solid waste reuse / recycling activities</li> </ul>		<ul style="list-style-type: none"> <li>Training reports</li> <li>Site inspections</li> </ul>	
3.2 Planning capacities for pollution control in place and technical assistance provided	<ul style="list-style-type: none"> <li>Pollution control and management plans in place.</li> </ul>		<ul style="list-style-type: none"> <li>Monitoring and evaluation reports</li> </ul>	Adequate human and financial support committed by government / donors.
3.3 Management information systems on solid waste management developed and implemented	<ul style="list-style-type: none"> <li>Number of equipment and facilities for information processing and exchange</li> </ul>		<ul style="list-style-type: none"> <li>National reports</li> </ul>	
3.4 Policies, regulations and laws on solid waste collection, disposal and management enacted and enforced	<ul style="list-style-type: none"> <li>Adequate regulations enacted or enforced</li> </ul>		<ul style="list-style-type: none"> <li>Documents review</li> <li>Inspection reports</li> </ul>	
<b>Component 4: Rehabilitation of river lines and provision of alternative sources of fuelwood</b>				
4.1 Hot spots identified for rehabilitation	<ul style="list-style-type: none"> <li>Number of hot spots rivers identified for rehabilitation</li> </ul>		<ul style="list-style-type: none"> <li>National reports</li> </ul>	Adequate human and financial support committed by government / donors.
4.2 By-laws for river lines protection developed and enforced	<ul style="list-style-type: none"> <li>Number of by-laws developed and enforced</li> </ul>		<ul style="list-style-type: none"> <li>By-laws</li> <li>Enforcement reports</li> </ul>	
4.3 Designated / prioritized river	<ul style="list-style-type: none"> <li>Number of river lines rehabilitated</li> </ul>		<ul style="list-style-type: none"> <li>Progress reports</li> </ul>	Adequate human and financial

Objectives/ outputs	Objectively Indicators	Verifiable	Means of Verification	Critical Assumptions and Risks
lines hot spots rehabilitated, protected and managed				support committed by government / donors.
4.4 Communal and individual woodlots established	<ul style="list-style-type: none"> <li>• Number of communal and individual woodlots established</li> </ul>		<ul style="list-style-type: none"> <li>• Reports</li> </ul>	
4.5 Income generating activities established	<ul style="list-style-type: none"> <li>• Number of income generating activities</li> </ul>		<ul style="list-style-type: none"> <li>• Reports</li> </ul>	
4.5 Communities trained in income generating activities	<ul style="list-style-type: none"> <li>• Number of communities trained</li> </ul>		<ul style="list-style-type: none"> <li>• Training reports</li> </ul>	
4.6 Communities trained on forest management	<ul style="list-style-type: none"> <li>• Number of communities trained</li> </ul>		<ul style="list-style-type: none"> <li>• Training Reports</li> </ul>	
4.7 Project activities monitored and evaluated	<ul style="list-style-type: none"> <li>• Number of inspections</li> </ul>		<ul style="list-style-type: none"> <li>• Monitoring and evaluation reports.</li> </ul>	

## 12.0

### References

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- ii. Challenges and Opportunities in solid Waste Management. The case of Malawian Cities, NCST/ Ministry of Agriculture, irrigation and water Development, 2014
- iii. Environmental Policy, 2004
- iv. Malawi Vision 2063
- v. National Waste Management Strategy ,2019
- vi. Solid waste composition and Greenhouse Gases Emissions Baseline Study in Lilongwe City, Malawi EAD, 2015