PLASTIC WASTE MANAGEMENT

A TRAINING MANUAL FOR WASTE MANAGERS AND RECYCLERS IN KENYA

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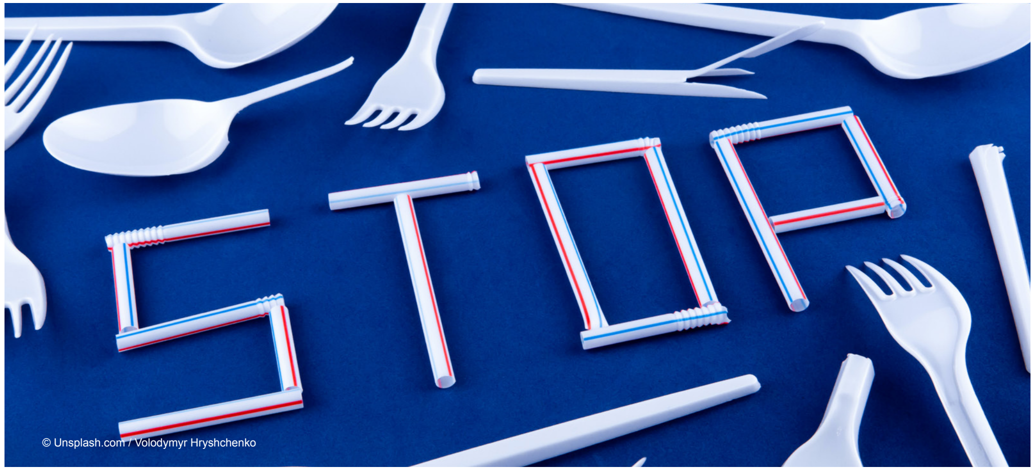

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This handbook was designed and co-developed in partnership with Elewa.

elewa

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INTRODUCTION

World Wide Fund for Nature Kenya **(WWF-Kenya)** is a Kenya registered non-governmental conservation organization, an affiliate of World Wide Fund for Nature International **(WWF)**. WWF has been active in Kenya since 1962 to contribute towards providing an enabling environment for the achievement of sustainable natural resource management. WWF Kenya is active across integrated fresh water resource management; Management of marine resources; Conservation and restoration of disappearing forests; Supporting equitable sharing of natural resources; Tackling of climate change and promotion of clean energy; Financing for conservation and Sustainable ecosystem management; Local and National environmental policy development; and Wildlife Conservation.

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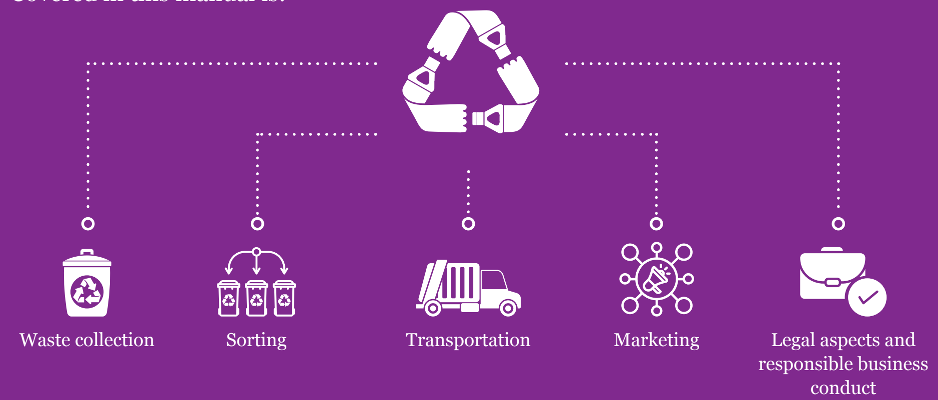
THE "WASTE TO VALUE" PROJECT

The **"Waste to Value"** project aims to transform plastic waste otherwise discarded in the natural environment into a valuable commodity and promote a **circular plastic economy**. The project works towards establishing an international plastic recycling value chain building on sustainable practices by connecting collectors, sorters and processors to high-end and innovative plastic recycling expertise and technology.To achieve the above, World Wild Fund (WWF) contracted the Department of Environment and Health Sciences, Technical University of Mombasa to compile this training manual to offer a complete guide for garbage collectors and all relevant stakeholders. This guide may be used as a training manual or as a reference. It contains everything the reader needs to start transforming plastic waste, otherwise discarded in the natural environment, into valuable commodities, which offer business value. This manual is your entry into the circular plastic economy.

Purpose of The Manual

The initiative strives to improve **livelihoods** for women, men and especially youth, by formalizing, improving logistics and skills around the business case on collecting, sorting and processing plastic waste in Kwale, Mombasa, Kilifi and Lamu counties along the coast of Kenya. Consequently, this will increase the number of employment opportunities around the area, it will increase the amount of plastics collected and recycled hence producing a higher quality granulate & replication and scalability of businesses hence improving the standards of living.

Covered in this manual is:



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UNDERSTANDING PLASTIC WASTE MANAGEMENT & RECYCLING

What are Plastics?

We are sure the term "plastic" covers a lot more than you think. Plastics refer to many different synthetic (man-made) manufactured materials that we use in our daily activities.

First, we divide the different plastic types into two main types of known as thermoplastic and thermosets. Thermoplastics are a type of plastic that is very malleable; i.e., they easily become soft when heated, so they can be molded into various shapes and forms. This means that they are easy to recycle. These can be softened and melt only once. They are mostly used in electrical appliances and car parts, which means that they have to be durable and heat resistant. After being shaped, thermosets cannot be reshaped-they remain permanently in the shape that was molded the first time.

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The History of Plastics

The use of plastic drastically started increasing after the World War II. It rose as metals, and other materials became scarcer and the world needed an alternative. Plastics proved a hit. Cheap and easy to produce, plastics have become an important part of the day-to-day economy. It is difficult to image that in the 1970s, plastic shopping bags were still a rare novelty as today, and they are globally produced at a rate of one trillion a year. Unfortunately, this heavy use has resulted in some major environmental challenges. Today, plastic waste shows up in the darkest depths of the oceans to the summit of Mount Everest, from the equator to the polar ice caps, and from the coast to the jungle.

1933

Polyethylene (polythene), the plastic most commonly used today, was created at a chemical plant in Northwich, England. It was used secretly by the British military during World War II.

1965

The Swedish Company Celloplast patented the one-piece polyethylene shopping bag. Today, similar bags are produced at a rate of one trillion bags a year.

1979

Already controlling 80% of the bag market in Europe and introduced to the United States of America. Plastic companies began aggressively marketing their product as superior to paper and reusable bags.

1982

Safeway and Kroger, two of the biggest supermarket chains in the United States, switched from paper to plastic bags. More stores followed suit and by the end of the decade, plastic bags replaced paper around the world.

1997

Charles Moore discovered the Great Pacific Garbage Patch, the largest of several gyres in the world's oceans where immense amounts of plastic waste have accumulated, threatening marine life. Plastic bags are notorious for killing sea turtles, which mistakenly think they are jellyfish and eat them.

2002

Bangladesh was the first country in the world to implement a ban on thin plastic bags, after it was found they played a key role in clogging drainage systems during disastrous flooding. Other countries begin to follow suit.

2011

Use of plastics is still increasing. Worldwide, the barrier is crossed of one million plastic bags consumed, every minute.

2017

Kenya takes action and bans plastic bags. It joins two dozen other countries that have sought to reduce plastic bag use, through fees or bans.

2018

#BeatPlasticPollution is chosen as the theme of World Environment Day hosted by India in 2018.

How can we manage Plastic Waste?

To manage the sheer scale of plastic waste, we require a scalable and sustainable solution. Plastic waste recycling systems not only reduce and remove waste; they also support livelihoods as they create rewarding jobs.

However, the recycling sector is challenged by its current informal nature. Guidelines on organizational/company structure and on means of collection, identification, sorting, washing, and marketing of plastic products are currently hard to find. Yet these are important. Without proper organizational structure and business conduct, the sector remains susceptible to law harassment, police exploitation, indecent job engagement and low economic return.

To overcome these challenges, non-governmental organizations and private sector are now working together to reduce plastic waste pollution in the environment. Through the DANIDA Market Development Partnerships (DMDP), the following organizations are engaged in reducing plastic waste, while actively improving the livelihood of the coastal communities in Kenya through creation of decent jobs in the plastic recycling sector:


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TIP

Through this manual, we invite you to become a part of this movement in the remainder of this chapter, we go into what you need to know about plastics to join the recycling economy!

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What are Recycled Plastics?

The first thing you will need to know is which plastics hold which value. Varieties of plastic wastes find their way into the environment.

As a Plastics Waste Manager, your strength is your knowledge and skills to identify and categorize plastics.The first important factor to know is which plastics are recyclable & which ones are not. As explained previously on this manual. Thermostats, which include; nylon and polystyrene are recyclable while thermosets are not. Recyclable plastics account for the majority.

Recycled plastics are commonly classified into the following categories:


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Polyethylene Terephthalate (PET/PETE)


© Ssplastic.en.alibaba.com
High Density Polyethylene (HDPE)


© Indiamart.com
Low Density Polyethylene (LDPE)


© Indiamart.com
Polypropylene (PP)

Do We need Plastics?

The chemical and physical characteristics of plastic materials have widely contributed to their use.

Pros of Plastics

Plastic materials are light in terms of weight, can be molded and are flexible, act as good electrical insulators as well as heat insulators, are free from fungi and bacterial growth, and are less reactive to moisture and chemicals. As a result, there are numerous application of plastic use that may be almost not possible to get rid of them.

Cons of Plastics

Despite their good qualities, plastic products are harmful to both coastal and marine environments. Plastics are non-biodegradable thus take a long time to decompose. Yet some of them can be re-used. The more we can reuse plastics, the less they end up in the environment!

When they do end up in the environment, the results can be disastrous. Terrestrial and aquatic organisms mistakenly consume them, believing they are food. This causes gastrointestinal diseases and deaths in the environment. With such observed environmental impacts, plastic waste management is necessary. Plastic material can be re-used after recycling.

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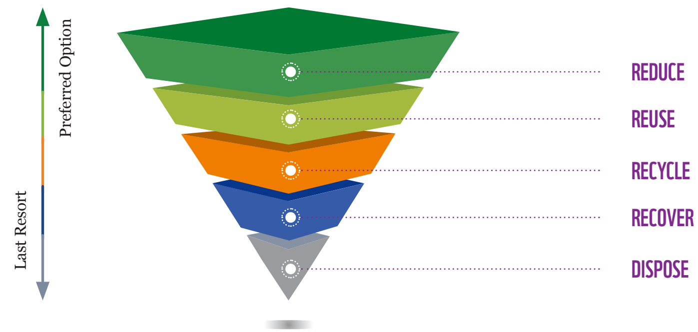
Plastic Waste Recycling

In simple terms, plastic waste is unwanted plastic products discarded in the environment.

Recycling is a process of reclaiming waste and making new products by using post-consumer packaging material as the raw material. Recycling may be the most sustainable strategy for removing plastic waste from the environment. This is the process where plastic waste are repossessed for further uses. The recycling process works under the principle of 3Rs.

Reduce - reduction of wastes at source | Re-use - using of the wastes for other purposes | Recycle - manufacturing of virgin products from the wastes collected.



The Value Chain - How Waste Collection & Recycling is Conducted Today

Legal & Illegal dumping sites

In most Kenyan cities, Mombasa, Ukunda and Malindi included, solid waste is poorly managed. For example, only about 50% (UNEP, 2010) and 52% (Palfreman, and Clark, 2015) of solid waste is collected in Nairobi and Mombasa respectively, the first and second biggest cities in Kenya.

Furthermore, the collected mixed waste (biodegradable and non-biodegradable) is transported to open dumpsites; a practice associated with adverse impacts on the environment and public health (Kumar et al., 2017).

What are illegal dumping sites?

Mombasa County is dotted by very many illegal dumpsites. Commonly known undesignated open grounds where solid waste is disposed include areas such as VOK, Kwa Karama, Kadongo, Junda, Saratoga, and Mcheleni (Mombasa County Government, 2019).

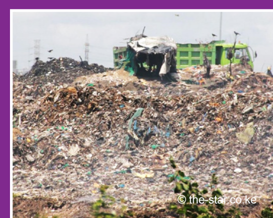
How is Waste Collection and Disposal Conducted in Mombasa County Today?

The collectors pick litter from households and businesses.

The collected waste is loaded to trucks or non-sophisticated means such as (push carts ot tuktuks). It is then taken to transfer stations.

Mombasa has several waste transfer stations in each sub county. There, solid waste collected from households and other public areas are stored temporary.

The County Government of Mombasa provides Refuse Trucks that transport the waste from the transfer stations to the designated dumpsites.



There are two designated dumpsites namely Mwakirunge in Kisauni and Shonda in Likoni. The dumpsites are poorly managed and do not meet the prescribed environment health standards.

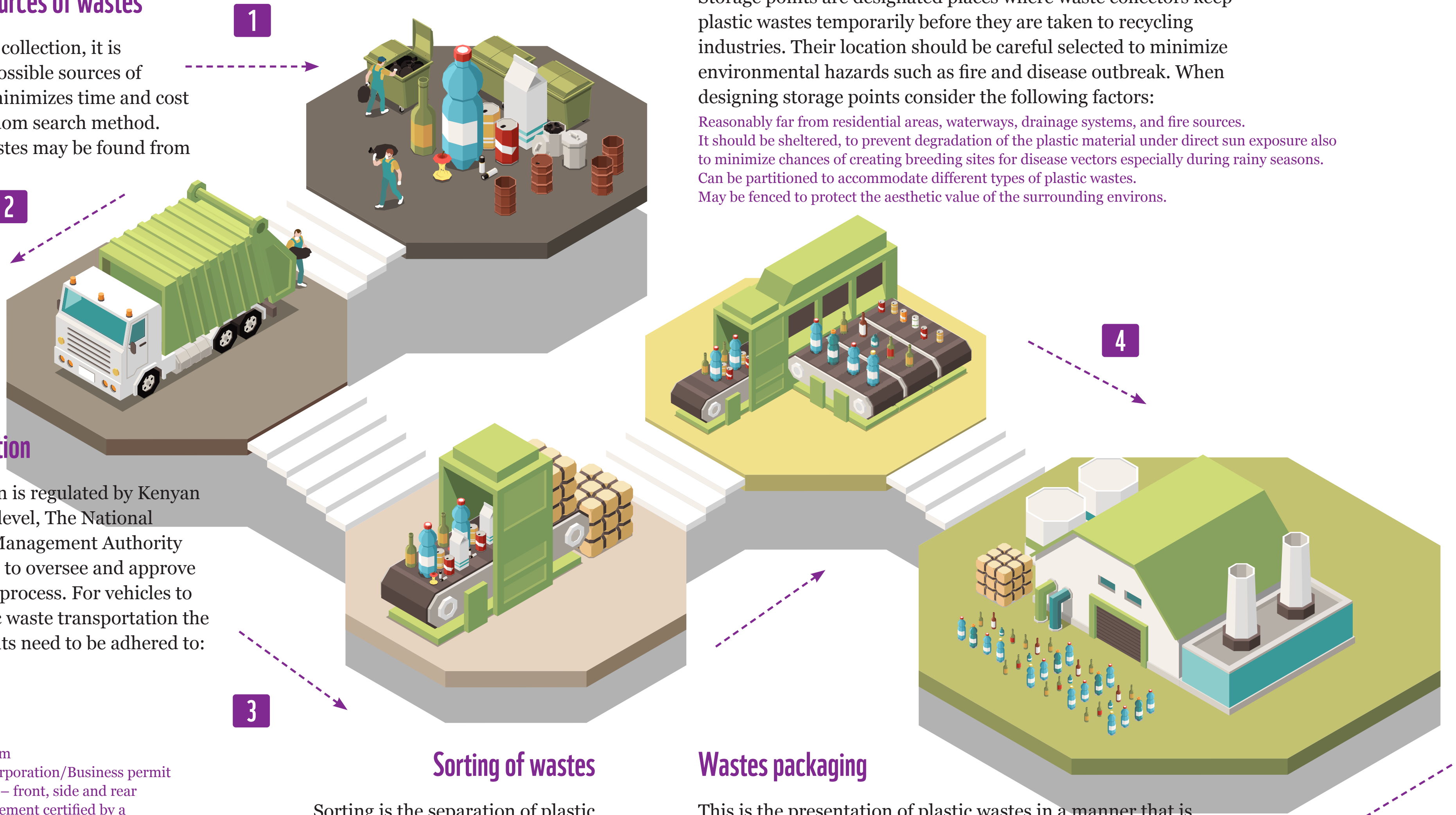
Recycling of plastic wastes can be conducted in five stages as follows:

Legal & Illegal dumping sites

Identification of sources of wastes

Prior to plastic waste collection, it is important to locate possible sources of plastic wastes. This minimizes time and cost compared to the random search method. Enormous plastic wastes may be found from the following areas:

Industrial areas
Market places
Hotels
Households
Commercial areas



Wastes transportation

Wastes transportation is regulated by Kenyan laws. At the national level, The National Environmental and Management Authority (NEMA) is mandated to oversee and approve waste transportation process. For vehicles to be licensed for plastic waste transportation the following requirements need to be adhered to:

KRA PIN Certificate
Driving license
Valid insurance certificate
Tracking document
Valid vehicle inspection form
Company certificate of incorporation/Business permit
Three photos of the vehicle – front, side and rear
Vehicle log book/lease agreement certified by a commissioner of oaths
A duly filled application form
A copy of MoU with the facility receiving waste
Application fee – 3000
License fee – 5000

Sorting of wastes

Sorting is the separation of plastic wastes into their different types, color, and density. Plastic may be sorted based on their identification codes i.e.

#1 for PET/PETE, #2 for HDPE, #3 PVC, #4 LDPE, #5 PP, #6 PS, and #7 others. Plastic wastes have different market values which varies with time. It is important to establish the current 12 market values of plastic wastes. The information is helpful in sorting the wastes as per their current market values.

Designing storage points

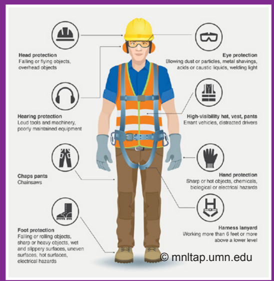
Storage points are designated places where waste collectors keep plastic wastes temporarily before they are taken to recycling industries. Their location should be careful selected to minimize environmental hazards such as fire and disease outbreak. When designing storage points consider the following factors:

Reasonably far from residential areas, waterways, drainage systems, and fire sources.
It should be sheltered, to prevent degradation of the plastic material under direct sun exposure also to minimize chances of creating breeding sites for disease vectors especially during rainy seasons.
Can be partitioned to accommodate different types of plastic wastes.
May be fenced to protect the aesthetic value of the surrounding environs.

Wastes packaging

This is the presentation of plastic wastes in a manner that is acceptable by recycling industries.
Packaging is critical considering the voluminous nature of plastics.

Having sorted into colors and washed, plastic wastes may be compacted together and compressed to occupy minimal volume. The plastic wastes can also be grinded into granules and packed into sacks for transportation. The aim of packaging is to lower the volume of plastics so as to transport as much plastic wastes as possible. This allows for better market values compared to plastic wastes that are transported in their original form.



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Personal Protective Equipment (PPE)

Solid waste management operations are hazardous in nature. It involves high risks in injury and getting into contact with disease causing pathogens. It is important to put safety first before any task is performed to ensure operations run smoothly and with minimal or absence of safety incidents or accidents.


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Safety hats / Helmets

Safety hats protect the employee's head from injury caused by falling or flying objects. Should be worn in places where construction work is going on or risk of objects falling or flying is high. Ought to be worn where equipment operation work is going on. They come in various types depending on the task being performed and risk involved.


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Respirators and dust

Respirators and dust masks protect employees from inhaling harmful substances that may pose a threat to their health thereby making them unproductive. They also minimize odors from especially decaying solid waste. Others protect the employee from inhaling dust that might cause respiratory problems.


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Safety Coveralls

Protect the employees from hazardous Chemicals that may be in the waste in the course of solid waste operations. Protect the employee from harmful disease causing Pathogens. Hinder the spread of disease causing pathogens from the waste by the employees.


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Safety Footwears

Safety footwear protect employees from foot injury as a result of Sharp objects piercing through the soles or from falling objects. They also protect the employee from water borne disease causing pathogens. They ought to have reinforced soles and toe caps to enhance the safety of the employee's feet.


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Eye Protection

Protect the eyes from sharp objects that may cause injury or lead to eyesight loss. Protect the eyes from harmful chemicals that might be in waste from spilling into the eyes. Protect the eyes from harmful Ultra-Violet sun rays. They come in various shapes, types and designs to suit different tasks and the safety risks involved. Choose one that fits your task and assures your safety.


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Safety Gloves

In Solid Waste Management operations, hand gloves are important to ensure the employee is protected from hand injury and diseases causing pathogens. Latex or rubber gloves are suitable for solid waste management operations. However, Leather gloves are used when dealing with sharps and sharp objects such as metal waste, glass among others.

STARTING & RUNNING A WASTE MANAGEMENT BUSINESS


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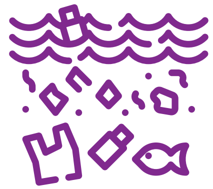
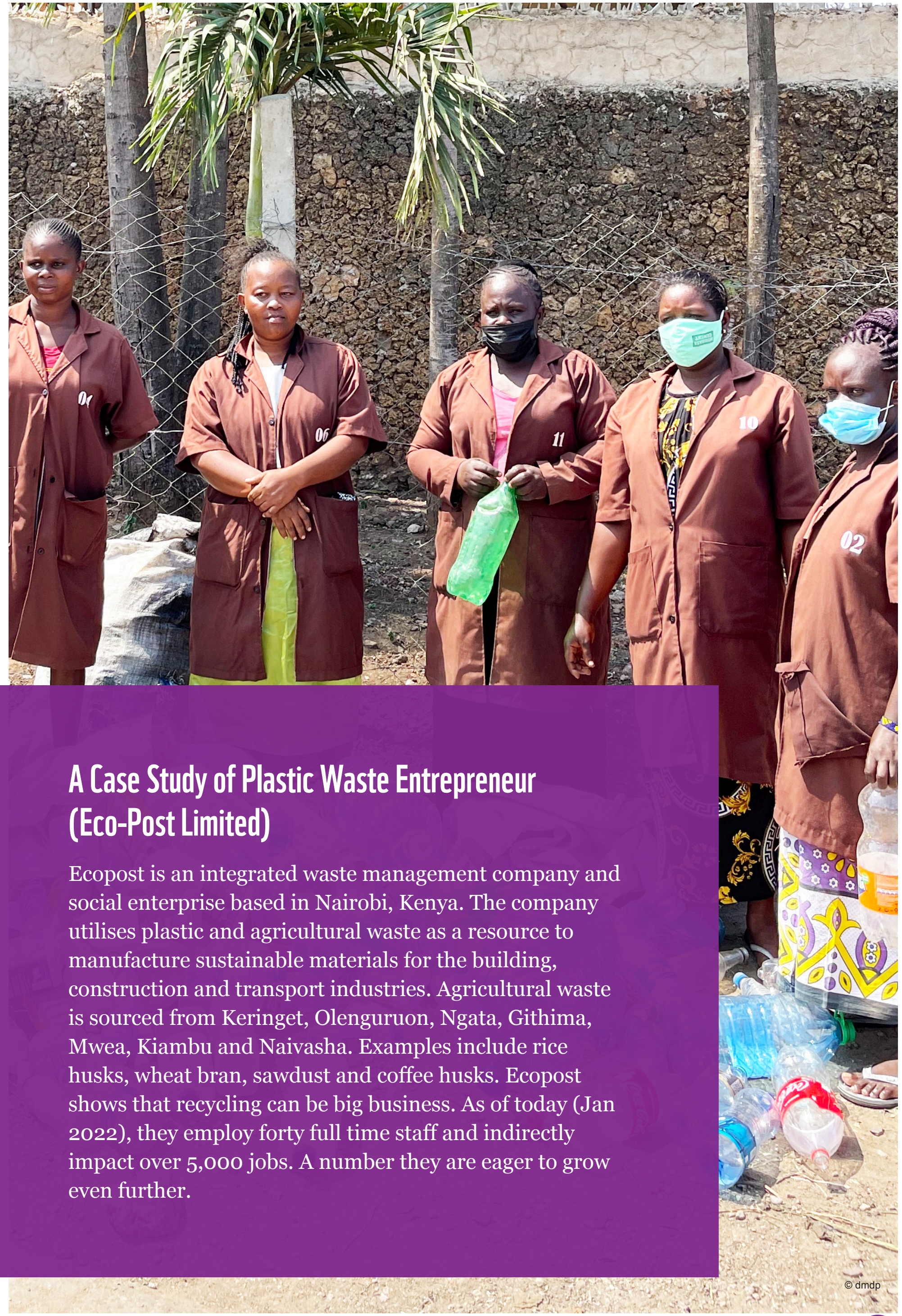
If we do not act today, then in 2050 plastic waste will make up to 90% of marine debris. That is the future, but the truth is that plastic waste is already choking our oceans. In 2016 alone, the world generated 242 million tons of plastic waste.



This is equivalent to about 24 trillion plastic bottles, 500 millimeter and 10-gram each. About 90% of the waste generated in Africa is disposed on land, typically on (un-)controlled dumpsites. Of the waste generated in Africa, only 50% is collected. Of that 50%, informal actors recycle only about 4% of the waste generated in Africa. With so much waste not yet collected, recycling offers a huge untapped business opportunity.

DID YOU KNOW?

The global waste management market is growing significantly. It is aimed to reach a value of USD 484.9 billion in the year 2024. With such a growing market, the opportunity for Africa and Kenya in particular, is immense. Proper recycling turns waste into a very valuable asset for others.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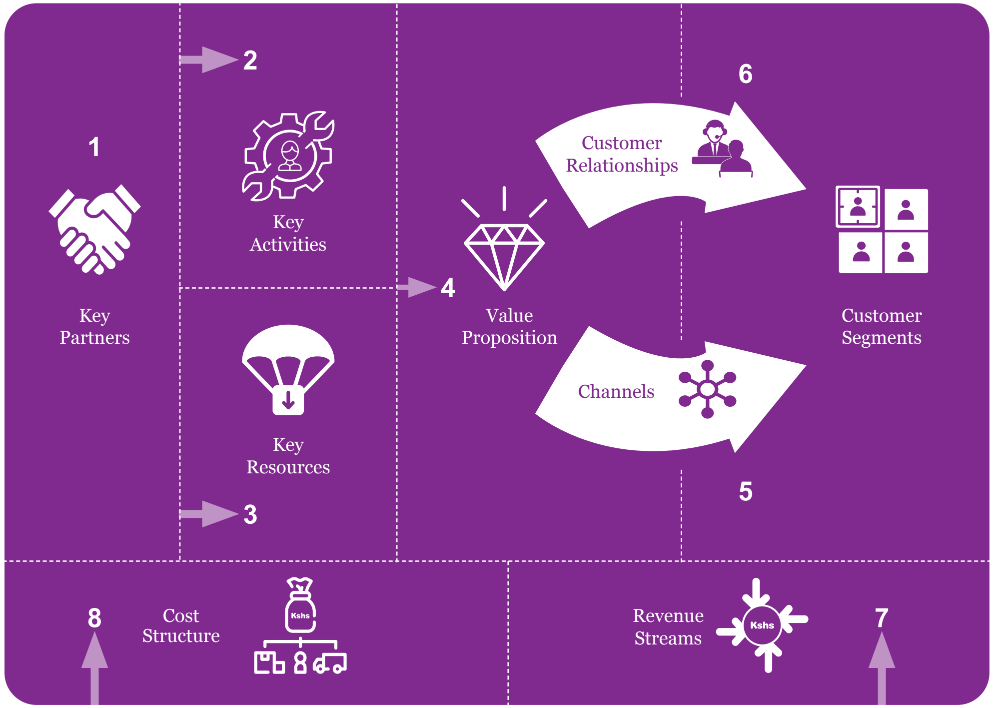
A Case Study of Plastic Waste Entrepreneur (Eco-Post Limited)

Ecopost is an integrated waste management company and social enterprise based in Nairobi, Kenya. The company utilises plastic and agricultural waste as a resource to manufacture sustainable materials for the building, construction and transport industries. Agricultural waste is sourced from Keringet, Olenguruon, Ngata, Githima, Mwea, Kiambu and Naivasha. Examples include rice husks, wheat bran, sawdust and coffee husks. Ecopost shows that recycling can be big business. As of today (Jan 2022), they employ forty full time staff and indirectly impact over 5,000 jobs. A number they are eager to grow even further.

Their Business Model

The company employs a point-based reward system for suppliers and a micro-franchise model for the agents, similar to that used by mobile money agents in Kenya. The agents receive the waste. They measure the weight (kg) and moisture content (%). Then they log the information into a developed app. The supplier then receives a text message confirmation of the delivery and are paid in points, based on the prevalent market value of the waste delivered. These points can then be redeemed for airtime, shopping vouchers or cash mobile money.



1. Which partners do you need and/ or which can be useful to replace activities and resources to create and deliver your value proposition?

2. What will you have to do to create and deliver your value preposition?

3. Which assets are required to create the value and deliver the value proposition?

4. Which customer problems do you solve and/or needs do you satisfy?

5. How do you bring your value proposition to your customers?

6. Which relationship will you maintain with your customers?

7. What kind of a customer do you serve?

8. For which value are cutomers willing to pay and which payment mechanism is possible and useful?

How can I set-up a Business in Kenya

Will you be the next company to make it big in the plastic waste recycling industry? With a well-considered and well-planned approach, you will be there in no time.This guide will take you through some of the things you need to start and run your business.

How to create a Business Plan

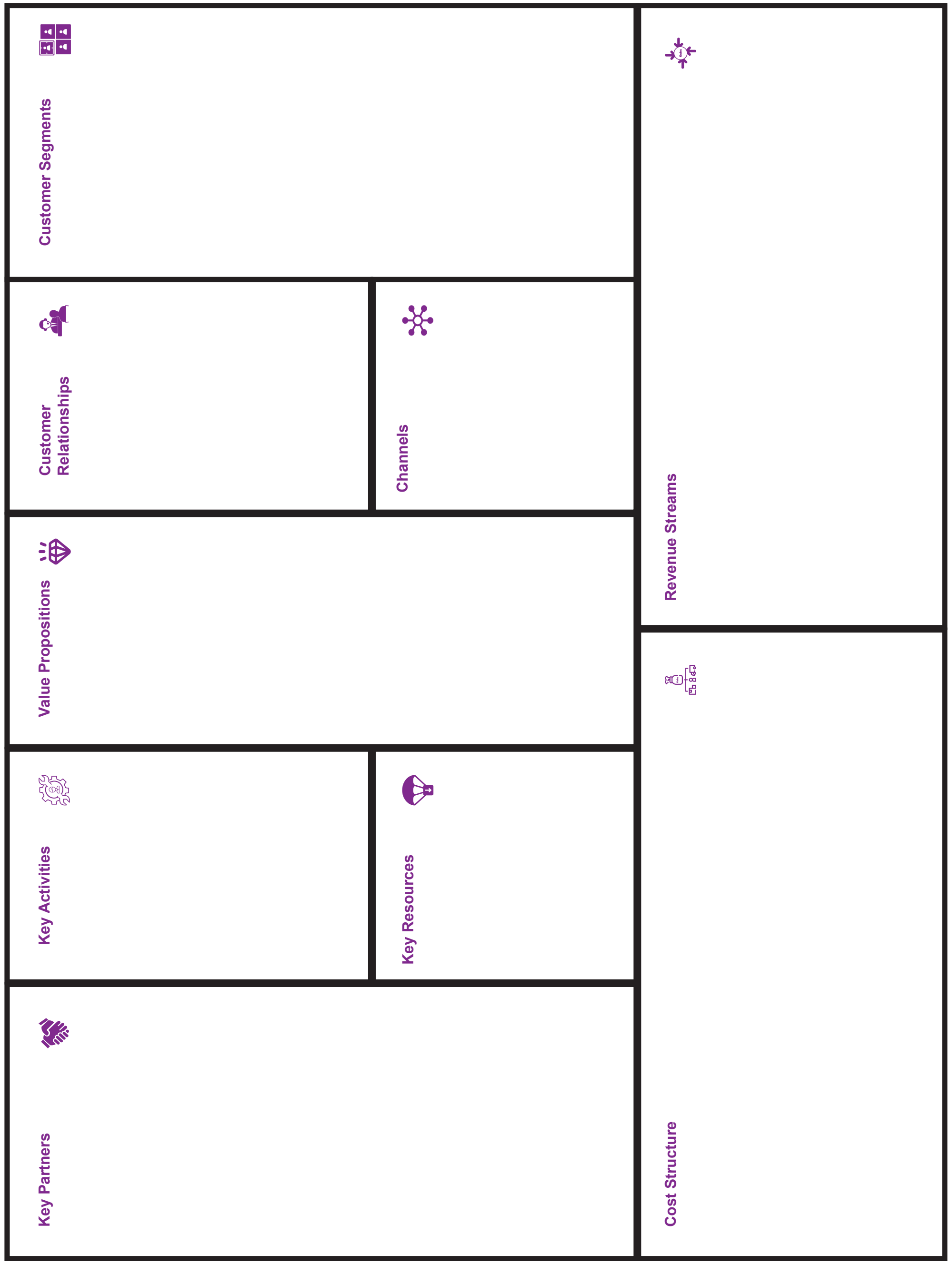
The first thing you will want to do, is work out a business plan. A business plan is a written document giving in detail all relevant internal and external elements that affect business and strategies for starting a new venture or for existing businesses to work as a road map in achieving its business goals.

It answers the questions:

As you might notice right about now; These questions, simple as they may be, can be tricky to answer. To help us structure our plan, we use a tool called the Business Model Canvas (below). The Business Model Canvas helps you develop a “bird’s eye” view on your business. The Canvas will assist you in:

- Aligning your product / service offering to the needs of your customers;
- Aligning resources and key activities to generating such products / services; and
- Taking perspective of the viability of your business.

The Business Canvas Model



Top 5 Innovative Business Skills

As you fill out the Business Model Canvas, it is important to think about the five key skills that are vital for a successful business:

Strategy

How you approach different business challenges and plan to overcome these challenges is crucial. You need to be able to devise strategies that will produce the desired results for your company. However, the strategies you produce need to have some foundation and should be based on facts and the advice of other experts.

Strong Leadership

It is easy to manage a business when you know what to expect and when things are running smoothly. However, the decision makers in the leading innovative companies in any industry excel when they go out of their comfort zone. You have to keep control and remain organized, even when your judgment and ability to do your job are questioned.

Decision Making

If you and the people in your business believe you can achieve great things, you need to trust your instincts and become a decisive decision maker. The decisions you make have the potential to bring a lot of success to your organization and lead to a wide range of business breakthroughs. However, making the wrong decisions can have the opposite effect and damage your business in many different ways.

Teamwork & Communication Skills

The most innovative businesses in the world pride themselves on how well they work as a team and the superior level of communication. More ideas develop when people interact and cooperate with each other. People are born with excellent communication skills, but these skills can also be developed through training.

Experimentation & Tracking Results

Innovative businesses people are not afraid to fail. However, they do manage the risks they take and then learn from these mistakes. Testing, tracking and analyzing are all key skills that allow a business to find out what works and what does not. When you find out what does work you can focus more on these activities and disregard the tasks that produce poor results.

The Creation of a Company

In Kenya, this is done through the Registrar of Companies. The registrar can issue you with a “Certificate of Incorporation”, which represents the birth for your local companies, as either a sole proprietorship, partnerships, or limited liability Company amongst others.

What is a Sole Proprietorship?

This is the simplest form of business. It is a form of business organization, wherein a single person owns, manages and controls all the business activities. A sole proprietor may also be referred to as a sole trader.

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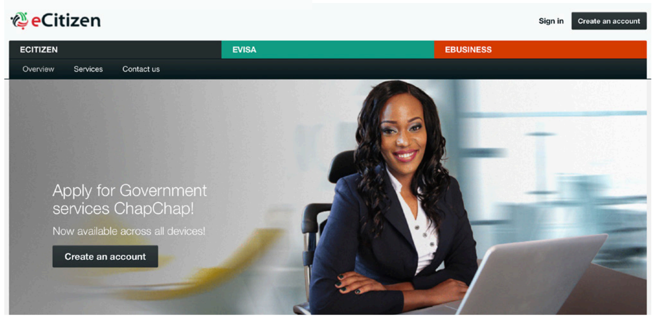

What is a Partnership?

This is a single business in which two or more people share ownership. Each partner contributes to all aspects of the business, including money, property, labor, or skill. In return, each partner shares in the profits and losses of the business equally. To register a business as a partnership a partnership deed is required.

What is a Company Limited?

This is a type of business structure whereby a company is considered a legal distinct body. In this type of business, the owners are not personally liable for the debts and liabilities of the company. It is normally referred to as a hybrid of sole proprietorship and partnership form of business. The basic documents and details to be presented for registration of businesses are as follows: ID/Passport Copy, PIN Certificate, Passport Photo, Physical location of the business, Nature of business or Business to be undertaken.

The registrar can be reached online. All company and business registrations are done through the e-citizen online platform. One needs to have registered in the Ecitizen portal to access these services. Once you have given birth to your company, you are almost done!

Next, you need a business permit. This is acquired through the County Government Offices.

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Running the Business

Now that you have a business, the real work starts. To help you “run” the business, we dive into some aspects here that you will need to manage.

Managing Finances in the Business

One of the most common pitfalls in business has to do with finances. Without proper financial management, no business can function. It is important to keep track of income and expenditure, to learn whether your business is viable and where you can optimize or even invest to ensure further growth. Proper financial management leads to opportunity.

What is Financial Management?

Financial management is the set of activities concerned with planning, organizing, directing and controlling the financial activities of a business. Financial management acts like a guidance, where more investment opportunities are available.

Objectives of Financial Management

The objectives of financial management include:

Budgeting

A budget depicts what you expect to spend (expenses) and earn (revenue) over a time-period. Amounts are categorized according to the type of business activities, or accounts (for example telephone costs, sales of catalogues, etc.). Budgets are useful for planning your finances and then tracking if you are operating according to plan. They are also useful for projecting how much money you will need for a major initiative for example, buying a facility, hiring a new employee, etc. There are yearly (operating) budgets, project budgets, cash budgets, etc.

TIP

Entrepreneurs should realize they are not the business. Personal budgets and that of the business should be kept separate.

Profit Maximization

Profit maximization is the capability of a business or company to earn the maximum profit with low cost. This is considered as the chief target of any business. According to financial management, profit maximization is the approach or process, which increases the profit or Earnings per Share (EPS) of the business.Profit maximization can occur through; increasing your sales-revenue, diversifying into new business streams, by analyzing and cutting costs, Each of these decisions need to be carefully planned, to ensure venturing into them does not hurt other parts of the business.

Sound Capital Structure

Capital structure means a combination of all long-term sources of finance. It includes Equity Share Capital, Reserves and Surplus, Preference Share capital, Loan, Debentures and other such long-term sources of finance. A company has to decide the proportion in which it should have its own finance and outsider's finance particularly debt finance.

Record-Keeping

Depending on the nature of business one may keep different records. Below are some examples of the basic types of records that are kept at most businesses:

Cash transactions: This is a record of the money that your business receives and disburses every day and the total amount of money in your cash box. We had many customers today, but there is very little money in the cash box. You paid some suppliers today.
Details of debtors: This record shows how much your customers owe you.
Sales: This is a record of daily, monthly and yearly sales.
Costs: This record shows how much money is spent and where your business spends the money. It is useful for calculating the cost of your goods or services.

The Basic Record Book should be filled at the end of each day. It is compulsory to keep proof of every transaction, even for small transactions such as the purchase of water for office use. Some examples of written proof are:

- Copies of receipts you give to customers who buy your goods or services.
- Receipts or invoices you receive when you buy goods or raw materials, or pay rent and electricity.

DID YOU KNOW?

The overall format of a budget is a record of planned income and planned expenses for a fixed period. The budget helps your decision-makers keep adequate control of the finances and provides adequate funding to the highest-priority areas of the business.

The operating budget may be a separate document, but it should be compatible with your utility's long-range financial plans.

How will Record Keeping Help

Keeping clear and accurate records will contribute to the success of your business in the following ways:

- Assists you in preparing your financial statements quickly and accurately.
- Provides information to enable the control of cash in the business.
- Provides management information to base business decisions on.
- Contributes promptly to assessing the financial situation of the business at any time.
- Saves a lot of time and effort.
- Keeps a good track of the costs of staff and their performance.
- Measures the business performance against the projections that were originally set down in the business plan.
- Highlights quickly areas where problems could arise and enable remedies to be put in place.
- Fulfils the obligations as to taxation law.
- Assists in providing information required by your bankers.
- Helps in detecting thefts within the business itself.
- Provides valuable information and details for the future sale of your business where that is required.
- Increases the chances of the business operating and achieving success.

Waste Manager's Record Book Sample

BAHARINI CO. WASTE MANAGERS' RECORD BOOK										
ITEMS		CARTON (KSH 5/KG)		QUINCHA (PET) (KSH 10/KG)		METAL (KSH 15/KG)		PLASTIC (KSH 20/KG)		
DATE	NAME	QUANTITY (KG)	VALUE (KSH)	QUANTITY (KG)	VALUE (KSH)	QUANTITY (KG)	VALUE (KSH)	QUANTITY (KG)	VALUE (KSH)	TOTAL
01/01/2022	MR. GREEN	50	250	-	-	20	300	40	800	1,350/-
	ALI	20	100	5	50	20	300	15	300	750/-

Group Dynamics

A group is a collection of two or more people who work with one another regularly to achieve common goals.

Groups help organizations/ businesses in accomplishing important tasks. Groups are important to improve organizational/business outputs and to influence the attitudes and behavior of members of the organization. A business group creates a bridge between cultures and helps build mutual trust and confidence, and encourages commercial collaboration between different stakeholders.

Group Properties

Status: A socially defined position or rank given to groups or group members by others

Cohesiveness: This is the degree to which group members, are attracted to each other and are motivated to stay in the group.

What are the characteristics of a mature group?

- Members are aware of each other's assets and liabilities.
- Individual differences are accepted.
- Authority and interpersonal relationships are recognized.
- Decisions are made through rational discussion.
- Conflict is over group issues, not emotional issues.
- Members are aware of the group's processes and their own roles in them.

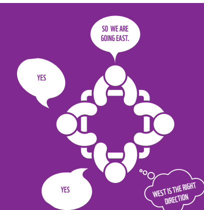
How do groups make decision?

- By rule of authority
- By rule of minority
- By rule of majority
- By consensus
- By unanimity

Common problems within a group

Social Loafing: Occurs when an under motivated person shirks individual responsibility and tries to squeeze by without contributing a fair share of the work.

Groupthink: Occurs when strong group cohesiveness creates an extreme form of consensus and interferes with effective decision-making.



Group Polarization: Shifts in member attitudes to more or less risky positions, which, in turn, reduces intragroup cohesion.

Factors affecting Group Performance

Norms
These are acceptable standards of behavior, which are shared by group members. They define what ought/ought not to be done by members. When accepted and agreed upon by members, norms act as behavior influencing parameters for conduct without outside control. Norms differ group to group and could be formally or informally laid down.

Composition
Groups should be heterogeneous in terms of gender, personality, opinions, skills and perspective for them to be most effective. Cultural diversity is useful when different viewpoints are required. However, culturally diverse groups are more difficult to handle.

Size
Size has a major effect on group performance. Smaller groups tend to be more effective than larger groups.

LEGAL FRAMEWORK ON WASTE MANAGEMENT:

What you need to know

Whether you're an individual (a natural person) or business (a legal person), you're bound to the laws and regulations of the country (ies) you are registered and active in. Breaking the law or regulation can be expensive, and it is therefore crucial that you understand the laws applicable in your industry (ies) of service. Apart from general laws applicable to every (citizen or resident in Kenya, it is prudent that Waste Collectors understand the laws applicable with regard to waste disposal as well as labour laws considering that waste collection may at times require the services of more than one employee.

The Government of Kenya has put in place legislative framework for waste disposal to ensure clean and safe environment for healthy living. In this manual, we introduce 3 key legislative frameworks that manage all wastes including plastic wastes. These are:

The Constitution of Kenya 2010

The Constitution of Kenya 2010 article 42 gives right to every Kenya to a clean and healthy environment. In article 70, the constitution provides obligation for individuals and organisations to prevent, stop, and discontinue any act that is harmful to the environment.

Environmental Management and Coordination (EMCA) Act of 1999

The EMCA Act of 1999 provide clear regulations on solid waste management. It also provides environmental monitoring tools such as Environmental Impact Assessment (EIA), and environmental Audit (EA).

The Public Health Act Part IX on Housing and Sanitation

This protects every Kenyan from any kind of nuisance or condition that is injurious and dangerous to health. On defining, what constitute a nuisance the Act included the soil pipes and waste pipes thus classifying plastic wastes as nuisance. The Act mandated local authorities to maintain cleanness and enforcing regulations where necessary.

The laws and regulations of Kenya are there to protect any person in Kenya engaged in any kind of waste management. Furthermore, respective individuals and organisations who intend to run Plastic Waste Management Business need to apply for licenses from local and national authorities prior to their engagement. Regulation might differ from city to city.

TIP

In this manual, we attempt to summarize some of the key things to know and consider. However, when going into business you need to be aware of the full law. Copies of all of the Acts discussed in this manual can be accessed online at the Kenya Law Reports

Website: www.kenyalaw.org

Environmental Management and Coordination (EMCA) Act of 1999

The National Environmental Management Authority (NEMA) is mandated to monitor, regulate, and coordinate all environmental matters in Kenya. It is established in the Act in Section 7. It is therefore important for Waste Collectors to know that the regulatory body with regard to waste management is NEMA.

The following are the key takeaways for waste collectors from the Act:

1. Waste Collectors should understand that NEMA recommends to the Cabinet Secretary the guidelines on waste disposal. Waste Collectors should thus be conversant with the standards and the guidelines prescribed by the Cabinet Secretary.
2. The Act in section 87 specifies that Waste Collectors are required to have licenses to transport waste and the disposal site should be in accordance with the license issued. It is a criminal offence to operate as a Waste Collector or have a waste disposal site without the requisite licenses. The penalty is a fine of Ksh 1,000,000 and imprisonment of a term of two years or both.
3. Waste Collectors should be aware of the provision on the application for licensing in section 88 of the Act and that the application does not guarantee a license as NEMA has the power to reject your application.
4. Waste Collectors should note that should they violate the provisions of the Act where the generation, handling, transportation, storage or disposal of waste presents an imminent and substantial danger to public health, the environment or natural resources, NEMA can serve them with a Court Order stopping them from continuing with their services.
5. Waste Collectors are required to familiarize themselves with the provisions of disposal with regard to pesticides, toxic substances and hazardous types of waste as they could not only be hazardous to the environment but to the collectors themselves.
6. Waste Collectors should understand that the Environmental Inspectors as mentioned in section 117 could prosecute noncompliance with the Act. The Environmental Inspectors are required to identify themselves in the course of duty.
7. Waste collectors should note the consequences of non-compliance when it comes to disposal of hazardous waste, pollution, and environmental standards as outlined in section 140, 141, and 142 of the Act.

The Environmental management and Coordination (Waste Management) Regulations, 2006

The regulations define waste management as the activities either administrative or operational that are used in handling, packaging, Treatment, condition, storage and disposal of waste. It therefore also applies to the disposal of waste, which is applicable to Waste Collectors. Waste Generators are defined as any person whose activities or activities under his or her direction produces waste or if that person is not known, the person who is in possession or control of that waste. This mainly are the clients of the Waste Collectors.

The Waste Transportation License

Section 7 of the regulations provide the Qualification for the Waste Transportation License applicable to Waste Collectors:

1. No person shall be granted a licence under the Act to transport waste unless such person operates a transportation vehicle approved by the Authority upon the recommendation of the relevant lead agency.
2. Any vehicle used for transportation of waste or any other means of conveyance shall be labelled in such a manner as may be directed by the Authority.
3. The Authority in consultation with the relevant lead agency may designate particular geographical areas to be the areas for operation for licensed waste transporters.
4. An application for a licence to transport waste shall be submitted in Form I set out in the First Schedule to these Regulations and shall be accompanied by the prescribed fees set out in the Second Schedule.
5. A licence issued under the Act for the transportation of waste shall be in Form II set out in the First Schedule to these Regulations and shall be valid for one year from the date of issue.

As provided above that transportation of waste must be done in a labelled transportation vehicle approved by the authority.

DID YOU KNOW?

Environmental Inspectors can come to inspect your waste collection service. However, before inspection they are required to identify themselves by law.

The Responsibilities of a Waste Transporter

The responsibilities of a Waste transporter are as provided in Section 8 of the regulations as follows:

Any person granted a license to transport waste should ensure that:

1. The collection and transportation of such waste is conducted in such a manner that will not cause scattering of the waste;
2. The vehicles and equipment for the transportation of waste are in such a state that shall not cause scattering of, or flowing out of waste or emission of noxious smells from such waste;
3. The vehicles for transportation and other means of conveyance of waste follow the scheduled routes approved by the Authority from the point of collection to the disposal site or plant; and
4. He or his agent(s) possess at all times during transportation of the waste, a duly filled tracking document as set out in Form III in the First Schedule to these
5. Regulations and shall produce the same such tracking document on demand to any law enforcement officer.

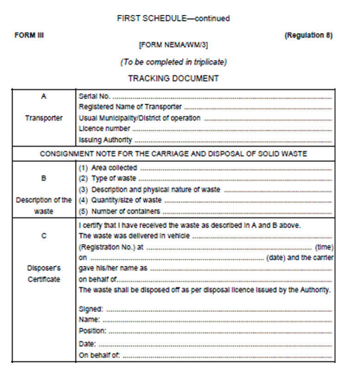
Waste Collectors should ensure that they take measures to prevent the spillage of wastes during transportation as well ensure that they have the tracking documents at all times during the transportation of waste.

The fees payable for transporting waste are also provided in the second schedule as follows:

(Regulations 7,10 & 20)

	Kshs
1. Application for licence / permit:	
a) for transportation of waste	3,000
b) to own/operate a waste processing plant/site	3,000
c) to own/operate a waste disposal plant/site	3,000
d) to export/transite a waste	3,000
2. Licence / Permit:	
a) to transport waste	3,000
b) own/operate a waste processing plant/site	40,000
c) to own/operate a waste disposal plant/site	75,000
d) to export/transite a waste	30,000

Tracking document sample for transporters



FIRST SCHEDULE—continued

FORM III (Regulation 8)

[FORM NEMA/WM/3]

(To be completed in triplicate)

TRACKING DOCUMENT

A Transporter	Serial No. ... Registered Name of Transporter ... Usual Municipality/District of operation ... Licence number ... Issuing Authority ...
CONSIGNMENT NOTE FOR THE CARRIAGE AND DISPOSAL OF SOLID WASTE	
B Description of the waste	(1) Area collected ... (2) Type of waste ... (3) Description and physical nature of waste ... (4) Quantity/size of waste ... (5) Number of containers ...
C Disposer's Certificate	I certify that I have received the waste as described in A and B above. The waste was delivered in vehicle ... (Registration No.) at ... (time) on ... (date) and the carrier gave his/her name as ... on behalf of... The waste shall be disposed off as per disposal licence issued by the Authority. Signed: ... Name: ... Position: ... Date: ... On behalf of: ...

Labor: The Constitution of Kenya 2010

Article 27 of the Constitution of Kenya provides Waste Collectors with the basic right to undertake work in waste management without discrimination. The foundation of the provision is that any person can undertake work regardless of their gender, race, pregnancy, marital status, heath status, ethnic or social origin, colour, age, disability, religion conscience, belief, culture, dress, language or birth. Article 41 provides the fundamental rights for all employers and workers in any industry to access fair labour practices. It further enables the Waste Managers to form and join a union and as employers to form and join an employers' organization relevant to them and their work.

The Employment Act, 2007 (Revised 2012) Cap 226

This Act defines the fundamental rights of employees, provides the basic conditions of employment of employees, regulates employment of children, and sets the relationship between an employer and a worker.

For Waste Collectors it is important to note the following:

1. Collectors may need to enlist the services of casuals to aid in the waste collection activities. The Act provides for conversion of casual employees to regular employees once they have worked with an employer for two (2) continuous months. Casual employees are also not supposed to be paid less than the prescribed minimum wage, which is reviewed by the Government annually.

2. Collectors may also be aware that when they enlist the services of casuals, they should note that the Act forbids forced labour as well as child labour. According to the Act, a Child is anyone below the age of 18 years. According 43 to section 56 there is a strict prohibition of employment of children between the ages of thirteen and sixteen years. Where children are employed in relation to the Act a register must be kept with the details of the Child. The Act provides penalties for those who employ children to a fine of not exceeding two hundred thousand shillings or to imprisonment for a term not exceeding twelve months or both.

3. Collectors must also be aware that when they take on full time employees they must adhere fully to the provision of the Employment Act such as ensuring contracts of service are issued, having a policy with regard to sexual harassment, procedure to be followed on termination of employees among others.

The Work Injury Benefits Act of 2007

The Act provides for compensation to employees for work related injuries and diseases contracted in the course of their employment and for connected purposes. It further requires all employers to have insurance that protects their employees against injuries. For Waste Collectors who plan to have regular employees as well as casuals they are required to familiarize themselves with the provision of this Act. Should employees be injured while undertaking their duties, this Act provides the modalities of calculating compensation due to the injured employee. It also imposes strict penalties for employers who fail to comply with the Act. The Act is also applicable to workers who die in the course of duty. The Act provides compensation if the employee was negligent or responsible for the accident. An employer is required to compensate a worker for any disease or ailment acquired in the course of duty. Waste Collectors are exposed to dangerous substances as well as opportunities where they may be injured in the course of duty. It is therefore important to consider the implications of the injuries and diseases exposed to so that you can put in place mechanisms to mitigate the dangers exposed to. This could be in the form of taking up health insurance as well as a worker's injury cover, which is mandatory when you have employees working for you.

The Occupational Health and Safety Act of 2007

The Act provides for the safety, health and welfare of workers and all persons lawfully present at the workplaces and provides for the establishment of the National Council for Occupational Safety and Health. The main objective is on the maintenance of healthy working conditions and environment. The Act makes provisions for the safety and health of all workers in the workplaces.

According to the law workers are categorised as:

Permanent Workers; this is a person who is a permanent employee until attainment of the specified retirement age.
Casual Workers; this is a day worker who is not undertaking his duties for a continuous period for more than two months.
Fixed-term employment Workers; This a contract employment done for a specific duration of time. It is usually a written contract specifying the terms of engagement.

DID YOU KNOW?

All employers are required to have insurance that protects their employees. This is vital because waste collectors are exposed to dangerous substances and opportunities where they may be injured in the course of duty.

What are the legal duties of workers?

Every worker must adhere to the following rules failure to which may lead to dismissal:

1. Arrival at work on time and undertaking duties as specified;
2. Ensure that the tasks undertaken are lawful;
3. Not drink alcohol or other intoxicating and illicit drugs during working hours;
4. Not use abusive language or behaviour at the workplace among others

What does the law say about payment of wages?

Under the law, every worker is entitled to receive full payment for work done. Full pay includes wages, which are payments made on an hourly, daily, weekly or piecemeal basis. Full pay may also be in the form of a salary, which is a fixed payment made on a monthly basis for professional or office work. The amount of full pay cannot be less than the standard minimum rate, which is set forth in the Employment Act and prevailing laws. Therefore, when paying casuals and employees make sure you are aware of the standard minimum wages applicable.

What are the provisions for health and safety concerning workers?

1. Employers must provide a clean and safe working environment for workers. This means as Collectors you require the appropriate working gear to enhance the safety of yourself and your workers as you undertake waste collection. This can include masks as well as overalls and gumboots;
2. The equipment you use should be of sound quality so as not to endanger yourself or your employees;

1. There should be detailed and clear rules on how to handle dangerous substances and the rules should be in a language that all your employees understand.
2. As waste collectors, it's important to have a designated place for yourself and your employees to wash and clean up to ensure that they are adequately protected from exposure to diseases through handling of waste materials.

The Law of Contracts

As a prudent and efficient way of doing business, it is important that Waste Collectors enter into written agreements with their clients that set out the terms of engagement. The basic elements required for the agreement to be a legally enforceable contract are mutual assent, expressed by a valid offer and acceptance; adequate consideration; capacity; and legality. Contracts are promises that the law will enforce.

Therefore, it is advisable that Waste Collectors have a written contract with their clients setting out the terms of engagement, the scope of the services to be offered, the consideration that is payable to the Collector and the consequences of the breach of contract. This will help each of the parties enforce a claim where one party breaches the agreement. Sample contracts can be provided for customisation.

Reflection Activity

Based on the information above, how compliant are you and your business? Which laws were you not aware of? How do you ensure compliance in your business?

DID YOU KNOW?

All workers should be paid an amount that is more than the standard minimum rate set in the Employment Act and prevailing laws. Always check to ensure that you are aware of the standard minimum wages applicable when paying casuals and employees.

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