REPUBLIC OF RWANDA

MINISTRY OF TRADE AND INDUSTRY

PACKAGING STRATEGY

November 2022

FOREWORD

Over the past years, Rwanda has had consistent challenges associated with packaging, which is understood to be affecting the general performance of the industrial sector. However, the Packaging industry was identified as one of the potential sectors in which Rwanda has comparative advantages for quick development and contribution to the domestic market recapturing and export promotion.

Globally, the packaging industry is an enormous economic generator and one of the key drivers for industrialization given its impact on the marketing of products. It is an all-encompassing industry term for the technology and design work going into protecting or encasing all sorts of products destined for storage, shipping, and sale. For leading manufacturers, the way they package their products signifies their brand. They view packaging as an essential part of their business model, alongside producing an excellent product.

The Ministry of Trade and Industry keenly takes note of these facts, in designing its sector specific strategy for packaging.

This strategy elaborated four pillars upon which the future of the packaging industry will be built. These pillars are Investment Promotion for Packaging Materials; Encouraging Environmental Friendly Packaging Materials; Promote Backward and Forward Linkage and Ensure Sustainable Packaging Technologies.

The Packaging strategy has taken into consideration the existing policies and regulations that cater to the packaging industry in Rwanda and focuses on how the sector of packaging can be developed to support the growing industry in general.

In designing this strategy, extensive stakeholder consultations were conducted with the active involvement of concerned Government Institutions, the Private Sector Federation (PSF), industries engaged in the production of different types of packaging materials and users of the packaging materials in Rwanda.

I thank all listed stakeholders for their valuable contribution, which led to the development of this outstanding and timely strategy document. I look forward to continuous and effective collaboration and support to successfully implement this Packaging Strategy.

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EXECUTIVE SUMMARY

This Packaging Strategy for a five-year period (2022-2027) is the first ever strategy for packaging sector. The strategy provides strategic direction and responses to the emerging issues and critical challenges in sector. The key issues and challenges identified include limited investment, lack of alternatives to plastic packaging materials, limited industries linkages for an integrated industrial development, lack of designs technologies for high-quality packaging materials and industrial technical skills shortage, among others.

The strategy is designed within the context of national development policies and strategies; the Vision 2050 aspirations, National Strategy for Transformation (NST1), Nationally Determined Contributions, Industrial Policy, Domestic Market Recapturing Strategy, Made in Rwanda Policy, Trade Policy, Entrepreneurship Development Policy, National Environment and Climate Change Policy, AfCFTA Strategy, etc.

It provides a strategic framework to tap into opportunities of environmentally friendly packaging as per the country's path of a green economy. The Packaging Strategy was developed through a consultative process involving all stakeholders. Consultations with sector players from both public and private sectors, which included domestic packaging manufacturers, Made in Rwanda products manufacturers, importers of packaging material and policymakers (Government Institutions) informed the development of strategy.

The strategy outlines strategic innervations to be undertaken in order to promote packaging to ensure the industrial sector is well backed by a vibrant packaging sector able to produce different types of packaging materials responding to the needs of growing demand, in matters of quantity, quality and diversified customized packaging.

The strategy has four main pillars, which are (1) Investment promotion for packaging materials (2) Encouraging environmental friendly packaging materials (3) Promote Backward and Forward Linkage (4) Ensure Sustainable Packaging Technologies. To implement these pillars, various strategic innervations have been identified.

The above pillars and strategic innervations can only be achieved with clear institutional arrangements. Roles and responsibilities of different stakeholders are described in the implementation framework of this strategy. MINICOM has the overall leading responsibility to coordinate the implementation of the strategy to ensure the promotion of the packaging sector to manufacture appropriate packaging materials for the economy. An implementation Matrix is provided to guide interventions and activities throughout the implementation of this strategy.

ABBREVIATIONS AND ACRONYMS

DMRS	:	Domestic Market Recapturing Strategy
EPR	:	Extended Producer responsibility
FDA	:	Food and Drugs Authority
GDP	:	Gross Domestic Product
GoR	:	Government of Rwanda
HDPE	:	High Density Polyethylene
IPRC	:	Integrated Polytechnic Regional College
KTP	:	Knowledge Transfer Partnership
MINECOFIN	:	Ministry of Finance and Economic Planning
MINICOM	:	Ministry of Trade and Industry
MoE	:	Ministry of Environment
MINEDUC	:	Ministry of Education
NAEB	:	National Agricultural Export Development Board
NDCs	:	Nationally Determined Contributions
NIRDA	:	National Industrial Research and Development Agency
NST1	:	National Strategy for Transformation
PET	:	Polyethylene Terephthalate
PSF	:	Private Sector Federation
RAM	:	Rwanda Manufacturing Association
RDB	:	Rwanda Development Board
REMA	:	Rwanda Environment Management Authority
RICA	:	Rwanda Inspectorate, Competition and Consumer Protection Authority
RSB	:	Rwanda Standards Board
TVET	:	Technical Vocational Education and Training

1 INTRODUCTION

1.1 Background and context

In the last two decades Rwanda made exceptional strides in economic performance. The country's GDP growth rate during the period 2010–2019 was over 7% per annum backed by a strong policy framework. The country's economic performance path was affected by the Global COVID-19 pandemic. The rapid growth of around 7 percent fell to -3.4% in 2020 due to domestic and global restrictions to contain the pandemic. After easing some of the restriction measures including the lockdown a glimpse of the economic recovery was observed with a 10.9% growth recorded at the end of 2021 compared to 2020 (National Institute of Statistics of Rwanda, 2022). Among key factors for Rwanda's economic development is the industrial sector, which is expected to continue playing a pivotal role in spearheading a private-led economic development and reduction of trade deficit.

Domestic Market Recapturing Strategy (DMRS) developed by MINICOM in 2015 recommended promoting production and consumption of locally made products in which the country has the potential for recapturing the domestic market. DMRS also indicated that the country had a consistent trade deficit, which contributed to a negative balance of payment.

The packaging sector was identified as one of the potential sub-sectors of an industry that deserves special attention for policy intervention for domestic market recapturing. The packaging sector was selected due to its role in the marketing of manufactured products and its considerable import bill. In addition, Rwanda has committed to implementing global initiatives of environmental protection and climate change mitigation whereby plastic-based single-use packaging materials must be phased out in favour of alternative packaging materials that are friendly to the environment.

1.2 Purpose of the Strategy

This strategy provides guidance to the sustainable packaging industry in Rwanda. It outlines actions to be taken in order to promote this sector so that the local industrial sector is well backed by a vibrant packaging sector able to produce different types of packaging materials responding to the needs of growing demand, in matters of quantity, quality and diversified customized packaging. It shall give guidance on environmentally friendly packaging as per the country's path of a green economy.

Recycling has an important role to play in a more sustainable packaging system and there is increasing interest in recycling packaging materials as a potential solution to a circular economy. This strategy will provide strategic guidance on this.

The strategy provides a comparative analysis of international best practices of the different economies that have opted for sustainable packaging and those that have successfully implemented recycling.

1.3 Strategy Development Process

The packaging strategy development process involved comprehensive sector analysis combined with a discussion and stakeholders' consultations. A wide range of sector players from both public and private sectors were consulted, which included domestic packaging manufacturers, Made in Rwanda products manufacturers, importers of packaging materials, the largest retail supermarkets and policymakers (Government Institutions).

National policy-making institutions consultations included the Rwanda Development Board (RDB), Ministry of Environment (MOE), Rwanda Environment Management Authority (REMA), Ministry of Education (MINEDUC), Ministry of Finance and Economic Planning (MINECOFIN), Rwanda Standards Board (RSB), Rwanda Inspectorate, Competition and Consumer Protection Authority (RICA), Rwanda Food and Drugs Authority (Rwanda FDA), National Industrial Research and Development Agency (NIRDA) and National Agricultural Export Development Board (NAEB).

Additionally, other key stakeholders in the private sector included the Rwanda Association of Manufacturers (RAM) and the Private Sector Federation (PSF). Annex 1 contains a full list of stakeholder consultations undertaken for this strategy.

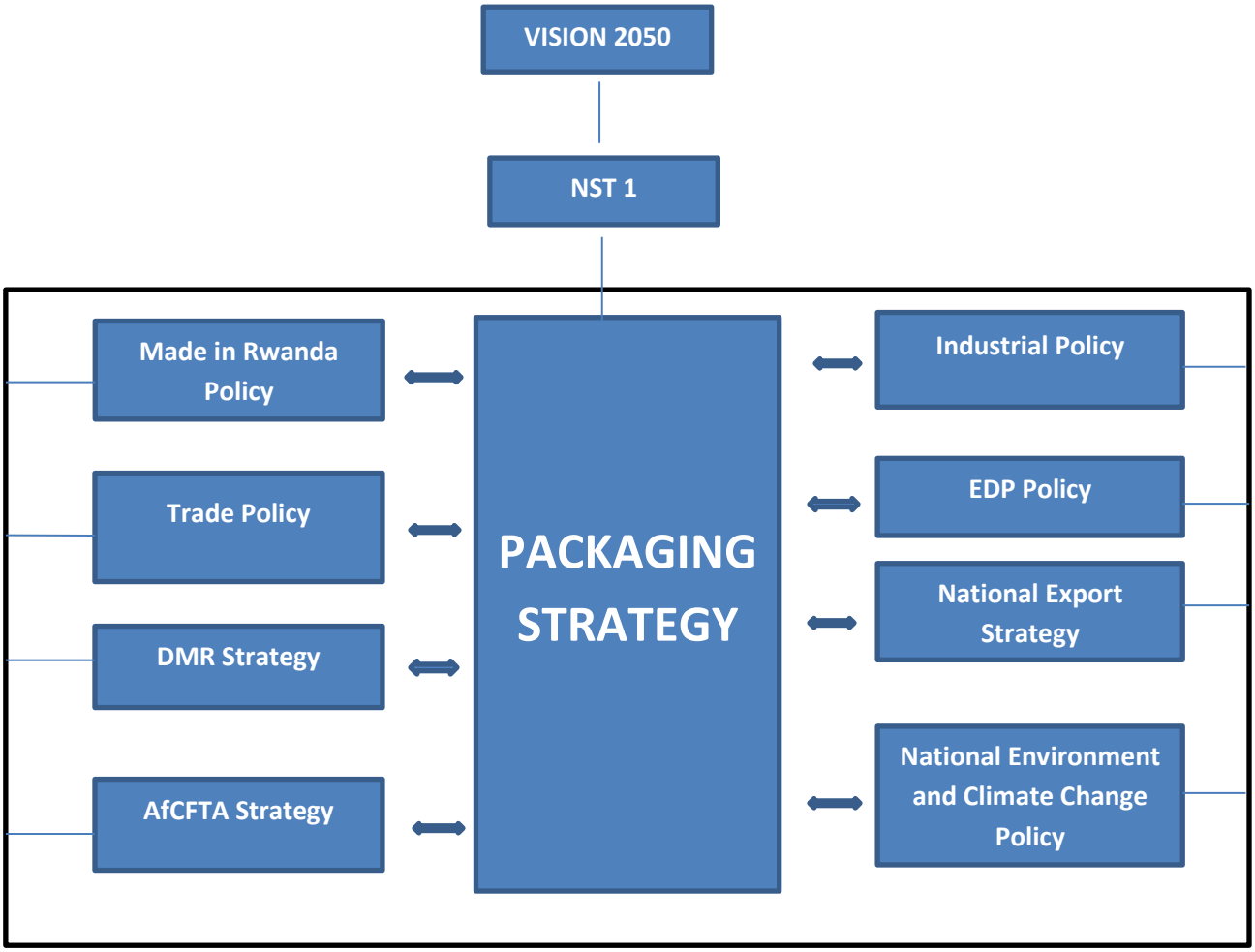
1.4 Strategy Structure

The strategy designed to guide the packaging sector is set out in the following sections. Section 1 and 2 present the background and rationale of the strategy as well as its linkages with national strategic orientations. Section 3 deals with situation analysis, issues and challenges as well as opportunities and recommendations that served as the basis of the strategy. Sections 4 and 5 present the vision, guiding principles and strategy pillars. The last section covers the implementation framework.

2 POLICY CONTEXT

Rwanda has a number of interlinked development policies and strategies, which aim to increase the competitiveness of the economy. At the apex is Vision 2050, which looks at long-term development focusing on the transformation of the entire economy and society. The National Strategy for Transformation (NST1)/7-Year Government Program (7YGP) lays the foundation for decades of sustained growth and transformation. Several other national and sector policies and strategies were developed with different actions to ensure the private sector takes lead in the development of the country as summarized below:

Figure 1: Linkages with National Strategic Orientation



2.1 Vision 2050

Vision 2050 stresses on Rwanda we want in 2050 that is prosperity and high quality of life for all Rwandans. It aspires to attain upper middle-income country status by 2035 and high-income status by 2050, which means realizing a GDP per capita of $4,036 by 2035 and a GDP per capita of $12,476 by 2050. To reach

these targets, GDP annual growth rates are projected at 12% from 2018 to 2035 and 10% from 2035 to 2050. Economic Growth and Prosperity are reflected in key priority areas as follows:

- A diversified economy built upon industries
- Competitive manufacturing
- Access to financial services
- Export Competitiveness and trade connectivity

Rwanda's ambition to realize these targets hinges on improved productivity and competitiveness through quality infrastructure, diversified tourism, manufacturing driven by competitive local industries, business and financial services, science and technology innovation, construction and extractive industries. The industrial sector contribution to GDP is projected at 24% in 2035 and 33% by 2050 from 19% in 2029. To achieve this aspiration, Rwanda will require high-sustained economic growth over a long term.

2.2 National Strategy for Transformation

The National Strategy for Transformation (NST1)/Seven Years Government Program (2017-2024) is a medium term development strategy, which lays foundation for achieving Vision 2050. It sets out the priority for industrialization in its Economic Transformation pillar that promotes industrialization and attaining a structural shift in the export base to High-value goods and services with the aim of growing exports by 17% annually.

NST1 targets establishing and expanding industries to promote locally produced materials like pharmaceuticals, mosquito nets, chemical fertilizers, constructions materials and packaging materials.
All targeted products require packaging materials for safe handling, transportation, storage, marketing and distribution; the packaging strategy is a matter of urgency.

2.3 Nationally Determined Contributions

The current Rwanda's Nationally Determined Contributions (NDCs) for climate change mitigation and adaptation document is for the period to 2030. The document is built on the Green Growth and Climate Resilience Strategy and focuses on adaptation and mitigation. Like most African nations, Rwanda's contribution to climate change in the form of greenhouse gas emissions is relatively small (NDCs, page 18), however Government of Rwanda is committed to taking urgent actions to mitigate and adapt to the effects of climate change. The key sectors identified and prioritized under NDCs include agriculture, forestry, tourism, water, land use, disaster management, climate data and projections, energy, transport, industry and waste. Emissions from industrial processes and products use represent around 2% of total emissions by the entire Rwandan economy. Industries are required to work together in innovative collaborations to efficiently use resources and reduce waste and associated costs.

2.4 Sectoral Policies and Strategies

This strategy is in line with other sectoral policies and strategies that are related to industrialization, environmental protection and climate change. These include but not limited to:

- **National Industrial Policy 2011** (under review)**:** stressed on creating a competitive industrial and advanced services sectors producing over $1.5 billion of exports by 2020 and has three main objectives; increase domestic production for local consumption, improve Rwanda's export competitiveness and create an enabling environment for Rwanda's industrialisation.
- **National Environment and Climate Change Policy (2019):** addresses key environmental and climate change issues including land degradation, deforestation, dependency on biomass for fuel, soil, water and air pollution, a lack of environment-friendly transport systems, vulnerability of natural ecosystems, lack of low-carbon materials for housing and green infrastructure development, inadequate waste treatment, electronic and industrial waste among others and calls for the circular economy, which forms the backbone of this strategy.
- **Domestic Market Recapturing Strategy (2015):** identified priority sectors that can quickly contribute to Rwanda's domestic market recapturing. The aim was to reduce the trade deficit gap by promoting the production and consumption of locally made products and lowering imports, which demands promotion of the packaging sector.
- **Made in Rwanda Policy (2017):** The policy aims to increase economic competitiveness by enhancing Rwanda's domestic market through addressing bottlenecks in the value chains and improving quality and boosting cost competitiveness. Among the objectives of the policy is a mind-set change to adjust the perception among consumers that imported products are superior in quality or price, reducing demand for locally made products. Made in Rwanda products require a vibrant and innovative packaging sector.
- **Trade Policy (2010):** Rwanda's Trade Policy focuses on growing sustainable and diversified quality products and services for trading locally, regionally and internationally, to create jobs, increase incomes and improving the living standards of Rwanda. Among the key hindering challenges to address is packaging for the proper marketing of Rwandan products.
- **National Export Strategy II (2015):** The vision of the National Export Strategy is to transform Rwanda into a globally competitive export economy to identify prioritized actions that respond to Rwanda's international competitiveness. One of the pillars of the National Export Strategy is to improve packaging facilities for value addition to respond to the challenge of the lack of a developed packaging sector in Rwanda. Exporters import packaging materials before they export. This supply dilemma is further complicated by the ban on the importation and use of single-use plastic packaging materials.
- **Entrepreneurship Development Policy (2020):** EDP vision is to develop an effective entrepreneurship support ecosystem that creates the necessary conditions and enablers for Rwandan entrepreneurs to unleash their entrepreneurial potential and grow dynamic and competitive enterprises that will drive economic growth and job creation.

- **AfCFTA Strategy (2022):** The strategy is based on the review of relevant national development strategies, trade-related policies, Rwanda's commitments and other trade relations in regional communities and bilateral arrangements as well as national consultations with various relevant stakeholders including private sector players. All for the sake of promoting Rwanda's trade relations with the rest of Africa, especially for export promotion. AfCFTA Strategy supports establishing an environmental levy to level the playing field for domestic producers, among them packaging industries producing materials for domestic production for local consumption and export.

3 SECTOR REVIEW

3.1 Situation Analysis

Packaging is a necessity of every product. Without packaging, the product cannot be stored or moved from one location to another. Packaging provides an identity to the product. It provides a protective and informative covering to the product in such a way that it protects the product during material handling, storage and transportation and provides useful information to all concerned about the content of the package. In summary, the packaging contains, protects, preserves, transports, informs and sells. The Local Packaging Manufacturing Industry in Rwanda has undergone both qualitative and quantitative transformation and growth during the last decade. From total reliance on imports for the past years, today the Industry boasts 21 local manufacturers of different types of packaging materials.

Most of the packaging industries were established post-2010; corrugated boxes, paper bags, woven sacks and other types of plastic packaging cater for the need for packaging materials of local industries as part of their input.

3.1.1 Overview of domestic packaging materials manufacturing

The diversity of locally produced packaging products is growing and promising from a significant focus on inexpensive packaging materials –paper bags to corrugated boxes; Pet Bottles, woven sacks, plastic packaging materials and labels. The introduction of local production of corrugated boxes in 2016, which was one of the most sought-after packaging requirements by Rwanda's manufacturing industry, presented great support to the growth of the packaging industry in Rwanda in the last period of five (5) years. This sub-sector is currently dominated by two major factories (Jabbar & V-Plus) all operating in Kigali Special Economic Zone.

The establishment and growth of the local packaging industry have been possible thanks to Rwanda's good investor-friendly laws and policies, a growing economy that is increasingly integrating with regional, continental and global economics through economic integration programs. These factors have been and will continue to be instrumental in boosting local production of different types of packaging products.

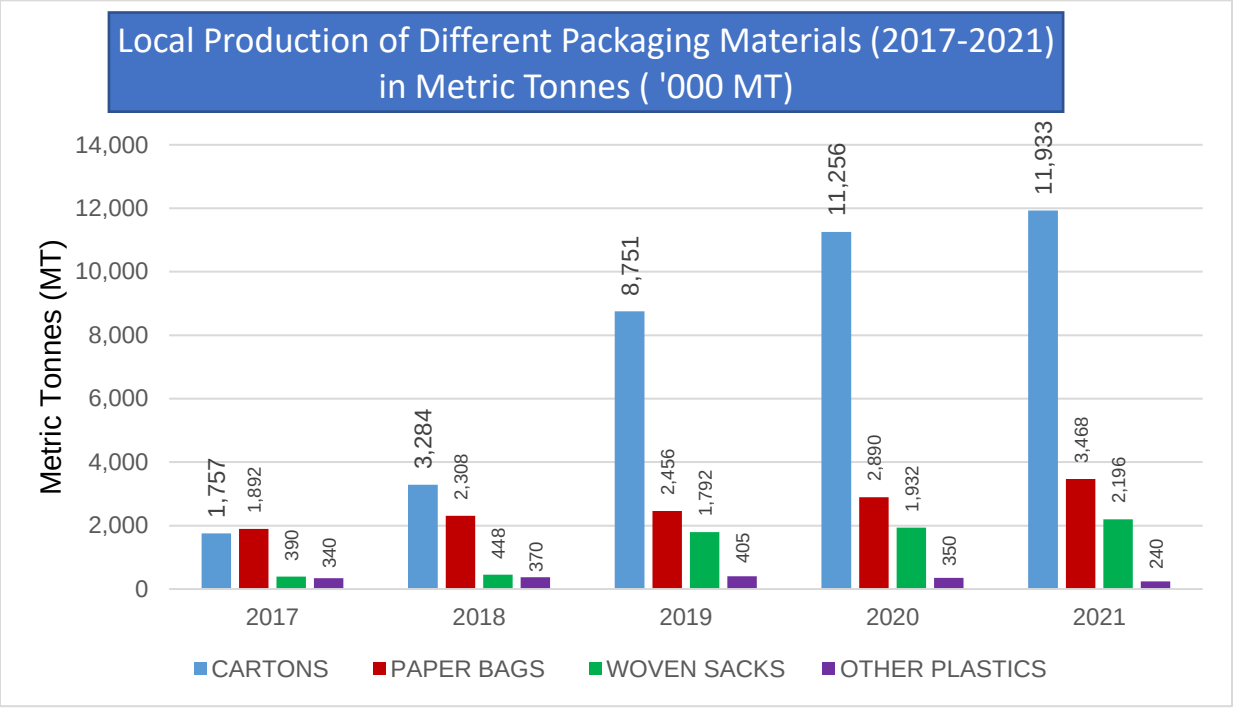
Table 1: Domestic Packaging Industries

S/N	NAME OF INDUSTRY	LOCATION	PRODUCT
1	JABBAR DEVELOPMNENT	Gasabo (KSEZ)	Corrugated boxes
2	V-PLUS PACKAGING INDUSTRIES	Gasabo (KSEZ)	Corrugated boxes
3	NEW FINEST TRADERS	Gasabo (KSEZ)	Woven sacks
4	SOFT PACKAGING	Gasabo District	Woven sacks
5	POLYBAGS	Kicukiro	Woven sacks
6	SKY WAY PACKAGING	Kayonza	Woven sacks
7	BONUS INDUSTRIES	Kicukiro District	Paper bags
8	MITHRA INTERNATIONAL	Kayonza District	Paper bags
9	CRANE PAPER	Bugesera SEZ	Paper bags
10	ALPHA MEDIA	Gasabo (KSEZ)	Paper bags
11	PRIMO BAGS	Gasabo (KSEZ)	Paper bags
12	SAWA PAPER RWANDA LTD	Gasabo (KSEZ)	Paper bags
13	MULTIPLE PACKAGING	Kicukiro	Paper bags
14	SHAYONA INTERNATIONAL	Rwamagana	Paper bags
15	N&T BOTTLES	Kamonyi	Plastic packaging
16	ECO PLASTICS	Nyarugenge	Plastic packaging
17	AGROPLAST	Kicukiro	Plastic Packaging
18	ELECTROMAX INDUSTRY	Huye	Plastic packaging
19	RWANDA PLASTIC INDUSTRIES	Kicukiro	Plastic Packaging
20	RWACOM	Gasabo	Plastic Packaging
21	ASHTON	KSEZ	Woven synthetic bags

Source: MINICOM

Rwanda's domestic packaging industry records 21 industries, of which two (2) make corrugated boxes industries with a combined installed production capacity of about 21,000 MT per year, four (4) industries producing woven sacks with capacity to produce 210,000 sacks per day, eight (8) industries producing paper bags with combined production capacity of about 9,200 MT per year, six industries producing different types of plastic packaging materials, with installed production capacity of about 7,000 MT per year.

Figure 2: Packaging Materials Produced Locally



Source: MINICOM

In the chart above, it is shown that four types of packaging dominate local production: corrugated boxes, paper bags, woven sacks and other types of plastic packaging. The most increasing is the paper based because of the encouragement to shift to plant-based packaging that are environmental friendly. For the past couple of years, local production of paper bags has helped fill the void created by the ban on the use of plastic carry bags. Today, there are eight (8) companies engaged in production of paper bags, all established post 2009 after the introduction of a ban on the use of plastic carry bags in Rwanda. In all the companies, brown bags with a single layer of paper is the main product since it commands about 80% of the demand for carriers (bags) of fast consumer goods sold in shops, supermarkets and restaurants. Wax-coated paper for packaging bread with a single layer of paper account for 20% of the demand on the market. There are four (4) local producers of woven sacks mainly targeting cereal processors-maize, rice and wheat. This sub-sector witnessed a dramatic increase starting in 2019 as result of slowed importation from regional market and therefore domestic production contributed in recapturing the local market.

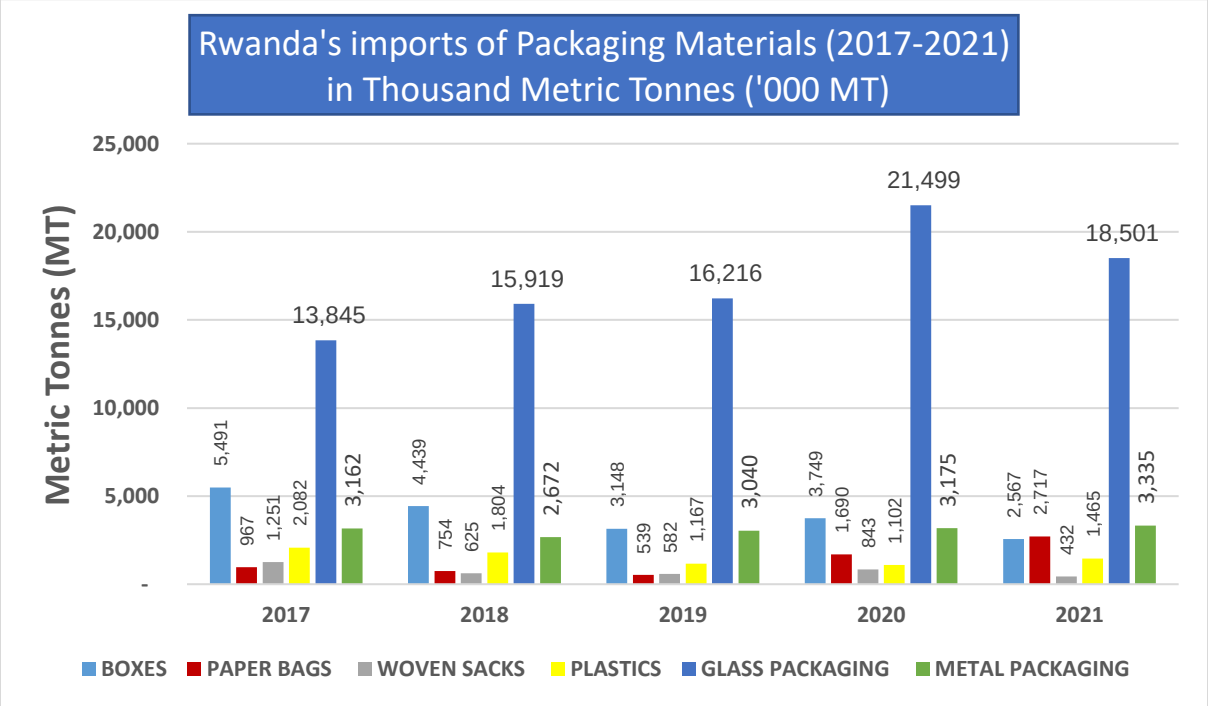
However, the local packaging manufacturing industry is still small in size and level of sophistication, incapable of catering for the needs of key sectors of the economy. Some of the big players in the agro-processing sector, for example, continue to rely on expensive imported packaging materials, making their products pricier and less competitive than those of their counterparts in the East African region.

Heavy reliance on imported packaging materials is in part owing to the lack of specific customized high-quality packaging, and low economies of scale of putting up several local manufacturing units to serve the different needs of the players in the industry since they significantly vary. For example, the specifications of a roasted or grinded coffee packaging bag/container differ from those of blended tea.

3.1.2 Overview of Rwanda's imports of packaging materials

Although the packaging manufacturing industry in Rwanda has made tremendous achievement and has undergone incredible growth during the last decade, there are massive imports that come to support local demand due to insufficient local installed production capacity and lack of manufacturers of certain types of packaging therefore depending sorely on importation such as glass and metal-based packaging.

Figure 3: Trends in Importation of Packaging Materials



Source: RRA Customs

The analysis of the importation trends of packaging materials over the last five (5) years shows that the importation of corrugated boxes and paper bags has been declining over the last five (5) years because of the increasing local production. In 2016 and 2017, Rwanda received investments in the production of corrugated boxes, which helped the country to curb imports of finished cartons.

The fast-moving consumer goods, literally rely on paper bags packaging, followed by food processing (cereals-maize, rice and wheat), which rely on woven plastic bags for packaging.

However, in the case of glass bottles, there is an observable steady increasing rate of importation because of the high demand for this type of packaging among beverage industries especially alcoholic industries that have been obliged by the Standards Board to pack in glass or metal based packaging materials on the grounds of standards requirements.

Plastic packaging is one of the preferred packaging models around the world, but has been causing environmental concerns, which compelled the Government of Rwanda to start discouraging this type of packaging by enacting environmental laws banning some types of it. A typical example is the Environmental Law of 2019, which prohibits single-plastic packaging in Rwanda. These regulations have resulted in a slowdown in importation of the plastic-based packaging materials.

3.1.3 Overview of Rwanda's exports of packaging materials

The exports and re-exports of packaging materials for the last five years are presented in the table below:

Table 2: Exports and Re-Exports of Packaging Materials in MT (2017-2021)

MATERIAL	2017	2018	2019	2020	2021
BOXES	79	246	126	62	213
PAPER BAGS	2	7	13	24	14
WOVEN SACKS	18	170	27	274	338
PLASTICS	69	422	369	438	592
GLASS PACKAGING	1,075	3,854	683	45	136
METAL PACKAGING	0	1	0	3	0

Source: RRA Customs

3.1.4 Overview of demand of packaging materials in Rwanda

The tables below highlight the assessment of the demand for different packaging mostly used in Rwanda from 2017 to 2021. The analysis shows that there has been a growing demand for all different packaging except plastic packaging due to regulatory restrictions limiting the use of plastic packaging in Rwanda.

Demand = Locally manufactured packaging materials + Imports – (Exports + Re-exports)

Table 3: Total Packaging Materials Demand in MT (2017-2021)

MATERIAL	2017	2018	2019	2020	2021
BOXES	7,169	7,477	11,774	14,943	14,288
PAPER BAGS	2,857	3,055	2,982	4,556	6,171
WOVEN SACKS	1,623	903	2,347	2,501	2,290
PLASTICS	2,353	1,752	1,203	1,014	1,113
GLASS PACKAGING	12,770	12,066	15,533	21,454	18,365
METAL PACKAGING	3,162	2,671	3,040	3,172	3,335

The analysis of the national demand for five packaging materials for 2021 shows a gap of varying percentages as summarized in the table below:

Table 4: Domestic Production vs. Demand for 2021

Packaging material	Domestic production	National demand	Gap against supplied by imports
BOXES	11,933	14,288	16%
PAPER BAGS	3,468	6,171	44%
WOVEN SACKS	2,196	2,290	4%
PLASTICS	240	1,113	78%
GLASS PACKAGING	0	18,365	100%
METAL PACKAGING	0	3,335	100%

The gap for both glass and metal packaging materials is 100% since there is no domestic production of such type of packaging materials, which calls for investment promotion of the two. For woven sacks with gap of 4%, the country is almost self-reliant. Plastics packaging materials gap is at 78% as domestic production has been prohibited for single use plastics while REMA gives special authorization to imports this type of packaging materials.

3.1.5 Commonly used packaging materials in Rwanda

The most widely used packaging materials in Rwanda are Paper and Boxes products, Woven sacks Plastics, Glass, and Aluminum.

Table 5: Packaging Materials used in Rwanda.

S/N	Packaging materials	Use	Sources
1	Paper Bags	– Retail (Goods sold in Shops and Supermarkets) – Tea and Coffee factories – Cement factories	Domestic Supply and Imports
2	Corrugated Boxes	Beverages (Beer, Wine, water, juice cereals and dairy products)	Domestic Supply and Imports
3	Woven sacks	Food processing (Maize, Rice and Wheat)	Domestic Supply and Imports
4	Glass	Distillers (Beer, wine and liquor)	Imports
5	Aluminum cans	Distillers (Beer, wine and liquor)	Imports
6	Plastics*	Various	Domestic Supply and Imports

*Plastics packaging materials used in Rwanda include PE, LDPE, HDPE, PS, EPS and PP.

There are many types of plastic packaging materials used in Rwanda, the following table outlines their types and use.

Table 6: Plastic packaging materials used in Rwanda

S/N	Polymer name	Abbreviation	Use
1	Polyethylene Terephthalate	PET	Carbonated soft drink bottles, water bottles and food jars.
2	Low Density Polyethylene	LDPE	Bags for food like bread and pastries meat and poultry, inner liners, wrapping film and laminates. Polybags for garments and apparels.
3	High Density Polyethylene	HDPE	Milk bottles and jerry cans, paint jerry cans and cosmetics bottles. Household products include detergent, bleach.
4	Polypropylene	PP	Takeaway food containers, margarine and yoghurt tubs, potatoes chip bags, bottle caps.
5	Polystyrene	PS	Bottles for tablets and capsules and packing peanuts
6	Expanded Polystyrene	EPS	Hot drink cups.

Rwanda banned and controlled the use of non-biodegradable plastic bags since 2008. In 2008, the country passed Law No 57/2008 of 10/09/2008 relating to the prohibiting manufacturing, importation, use and sale of polythene carry bags was adopted and made the country reap many benefits. A positive impact of the 2008 ban is that plastic bags are almost nonexistent in Rwanda and cleanliness is evident throughout the country.

Since other types of plastics (other than polythene bags) pose harmful effects to the environment, a new law to extend the scope was introduced in 2019 with Law No 17/2019 of 10/08/2019 relating to the prohibiting of manufacturing, importation, use and sale of plastic bags and single-use plastic items was adopted. Despite the effort made, plastic waste is still observed due to limited recycling and reprocessing of plastic.

However, single use plastics played an integral role in the packaging for the industrial sector due to its durability, safety, hygiene, lightweight, and affordability. The law banning single-use plastics in Rwanda hampered the competitiveness and growth of Rwandan-made products, the food and beverages sector was hard hit especially the following due to lacks of alternatives to plastic packaging:

- **Meat value chain:** Meat and poultry need plastic packaging safety, hygiene and protection from contamination**.**
- **Breads and Pastry (breads, muffins, madeleines, donuts/mandazi):** International standards require that the products be well visible to the customers. The wax-coated paper for packaging

bread, apparently, speeds the rate at which bread goes bad, because of its low dump-proof qualities. Biodegradable polythene bags are instead sought for packing bread but are not readily available. Since there is no alternative to plastic some small sellers of pastry have resorted to using old newspapers and papers for packaging.

- **Dairy products (Chees and yoghurts):** Chees and yoghurts are generally packed in plastics for food safety purposes.
- **Frozen food:** Frozen products need plastics bags as primary packaging material and corrugated boxes for secondary packaging materials. Plastic is necessary to contain water content; this is a universal practice.

Article 4 of Law No 17/2019 of 10/08/2019 provides exceptional reasons where the prohibited plastics may be given special authorization for use in accordance to guideline issued by REMA. The guidelines provide procedures and conditions for eligibility to grant exceptional permission. Upon discussions of MINICOM, REMA, Private Sector Federation and other stakeholder institutions, it was agreed granting special authorization to the processors of meat and other industrial sectors that have not yet identified alternative to plastic packaging.

3.1.6 Availability of raw materials for glass manufacturing and fibre-based packaging

Availability of Glass Manufacturing raw materials

According to the feasibility study for a Glass Manufacturing Plant in Rwanda done by RDB, the production of glass requires sufficient availability of the following raw materials:

1) Quartz sand
2) Dolomite
3) Limestone
4) Soda-ash
5) Feldspar
6) Saltcake

The study shows that Rwanda has vast reserves of quartz sand, dolomite and limestone for developing a glass industry. Total quartz sand reserves are estimated at over 73 million tons these reserves are enough for more than roughly 700 years of both productions. Its available in the Kirehe district with very high-quality of sands deposits suitable for glass production.

The deposits of limestone in Rwanda are scattered in Northern and Western provinces with more concentration in the Northern region. Total limestone resources are estimated at 7.2 million tons, which is enough for 475 years of the project's operation. Rwanda also has significant reserves of dolomite estimated at 2.4 million tons, which is sufficient for roughly 80 years of operation.

Soda ash, feldspar and salt cake will have to be imported to Rwanda. A potential origin is Tanzania; it is one of the largest world soda ash producers as well as feldspar and salt cake reserves.

Table 7: Summary of Glass production raw materials

S/N	Type	Quantity available	Reserves sufficiency (years)
1	Quartz sand	73 million tons	700
2	Dolomite	7.2 million tons	475
3	Limestone	2.4 million tons	80
4	Soda-ash	To be imported from Tanzania	
5	Feldspar	To be imported from Tanzania	
6	Saltcake	To be imported from Tanzania	

Source: Feasibility Study for Glass Manufacturing in Rwanda

Availability of fiber based Packaging materials production

Sisal for fiber raw material is abundantly available in Bugesera District with sisal plantation on over 50 hectares of land.

3.1.7 State of single use plastics in Rwanda

Rwanda's Environmental Law of 2019 prohibit use of single use plastic packaging materials for locally made products while imported goods continue to come to Rwanda packed with single use plastic packaging materials.

Rwanda is a net importer of plastics. Plastics can be seen from every corner of a supermarket to a very small shop in a remote village and there is no doubt that plastic packaging is still widely used in different sectors especially in food and beverage industries.

Single use plastics waste management

Plastics waste are found in various areas including residential, commercial (shops, markets, restaurants, bars) and industrial (small scale businesses and agro-processing). Overall, waste including single use plastic waste generated by household and commercial entities is collected and disposed to landfill with little formal recycling of in-organic waste, and with little waste reprocessing of organic waste.

The market for recyclables and reprocessed waste is also nascent, with little waste being reprocessed and returned to the material cycle. It should be noted that the recycling include reuse at home and other informal burning to light charcoal stoves.

Although the plastics waste is increasing, it should be noted that the recycling rate at national level is also increasing where a combination of high density and low density plastics are turned into household objects and industrial agriculture materials re-use (Jerry-can). Another recent local initiative is to recycle the single use plastic bottles into construction materials such as floor tiles, roof tiles, and pavers of various colors.

An example of the local recycling company, ECOPLASTIC Ltd, that recycle plastic waste which through the process result in raw material for production of new plastics. Produced plastic products types are garbage bags, sheeting & roofing, and tubing.

To ensure that the needed plastic items will not end up as waste in the environment, adequate measures should be put in place and consumers should be informed about proper waste treatment.

The Private Sector Federation (PSF) and REMA have already started collecting a levy of 90 FRW per kilogram of imported plastic pellets in order to support plastics waste management through collecting, transportation, disposal and recycling of single-use plastics. This levy will also be part of the Extended Producer Responsibility (EPR) as a policy to promote private sector investment in waste management. A pilot project started with 3 companies: Inyange Industries, Bralirwa and SULFO.

Segregation at source as best practice and waste collection

Segregation at source and the respective waste collection is a central part of sustainable waste management and recycling. Generally, there is no waste segregation, collection of waste is done by dumping all types of waste in garbage collection trucks in Rwanda.

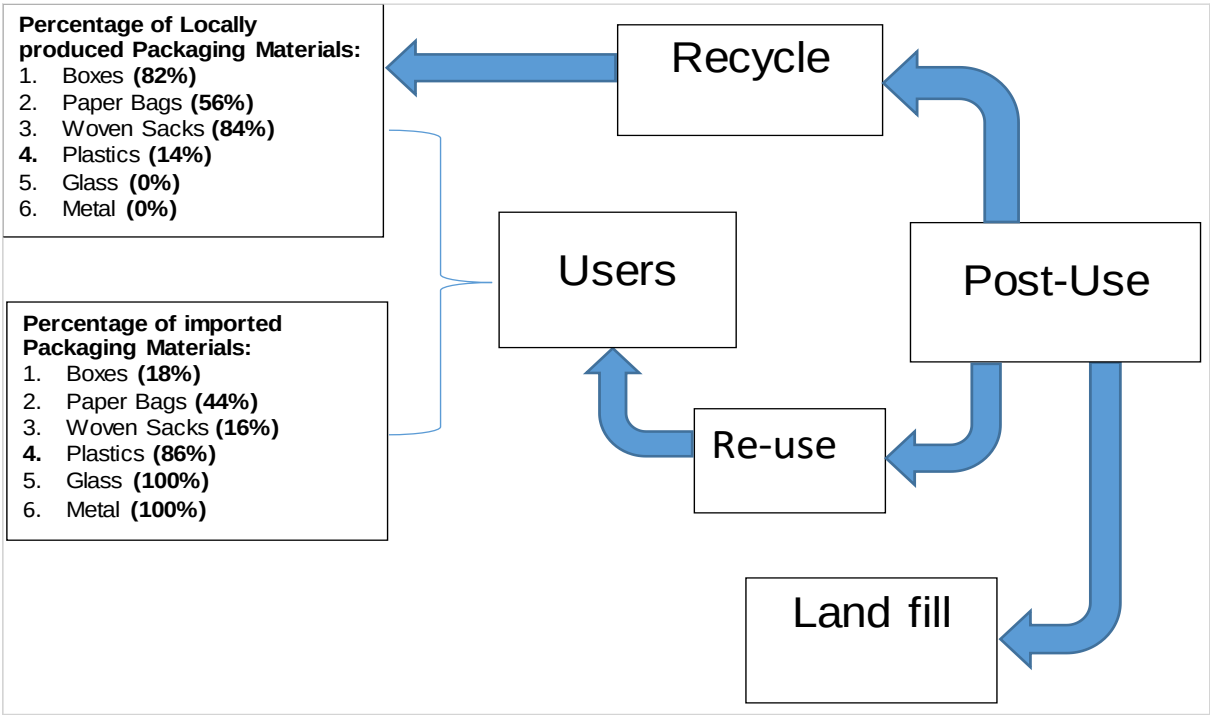
In **German** recycling system uses six different bins classified according to a color system, which tells users what kind of waste they can put into each of them. The yellow is for plastics, the blue for paper and cardboard, the red for clear glass, the brown for colored glass, the green for green glass and a black bin for food waste and organic matter.

German waste segregation bins

3.1.8 Packaging materials end of life options in Rwanda

The End of Life (EoL) options for packaging materials waste are landfill, limited re-use and little recycling.

Figure 4: Schematic Packaging Materials Mass Flow in Rwanda



End of Life options for packaging materials waste in Rwanda cast data gap as which percentage are recycled, re-used and land filling.

3.2 Issues and Challenges

Based on the sector overview and status quo presented above, major challenges and key opportunities can be identified in the packaging sector to inform the strategic approach.

i. **Unfair treatment of Made in Rwanda products:** Despite tremendous effort to promote Made in Rwanda products, some goods are unfairly treated compared to imported goods posed by the implementation of the new law N° 17/2019 of 10/08/2019 related to the prohibition of manufacturing, importation, use and sale of plastic carry bags and single-use plastic items. Made in Rwanda goods like bar soaps are prohibited to wrap in plastic, and authorities enforcing the law have told manufacturers to sell them unwrapped/naked. According to the manufacturers unwrapped soap loose moisture easily and loses quality in a very short time period; hence buyers prefer soap imported from neighboring countries, which come wrapped and because of moisture preservation they keep their original quality for a long time. This is a similar case to garments like shirts, which are prohibited from plastic packaging while similar shirts from imported from the rest of the world come with plastic packaging. The current regulatory framework promotes imported goods at the expense of Made in Rwanda goods and it weakens the packaging sector of Rwanda and the industrial sector in general since it favors imported goods using plastic-based packaging.

ii. **Disjointed sectoral policies:** Some of our sectoral strategies and policies are not aligned with each other. One case is that RFDA requires a maize flour producer to package the flour in a plastic inner-liner of the woven sack while plastic packaging is prohibited. There is a need to harmonise sectoral policies and strategies.

iii. **Duplication of institutional responsibilities:** The institutional framework for the sector has overlapping roles and responsibilities of the various institutions involved in the inspection. As such, there is a general uncertainty regarding mandates and which functions fall under which institutions. Industries complain of the fatigue caused by different government institutions doing inspections of the same thing. Currently inspection is done by three government institutions, which are RSB, RICA and RFDA.

iv. **Limited investment:** The sector of packaging is still enfant with little investment in the sector lacking different types of packaging materials especially for customized special packaging materials like UHT milk, grinded roasted coffee packaging, tea bags, glass bottles for packaging alcoholic beverages and Aluminum cans.

v. **Limited industries linkages for an integrated industrial development:** Exports like the agro-processing sector continue to rely on expensive imported secondary packaging materials, making their products pricier and less competitive on international markets while some of locally made corrugated boxes could be improved to meet the export standards. The current corrugated boxes produced locally do not meet export standards of companies like Africa Improved Foods and other agro-processing exporters.

vi. **Lack of designs technologies for high-quality packaging materials:** The industry needs a research and high-quality design and aesthetic technologies to serve exports need and other small business vendors. Small shop owners use old newspapers and used waste papers from offices to do the packaging of sold goods including foodstuff, which is unhygienic and can cause healthy problem to buyers.

vii. **Limited alternatives to plastic packaging materials:** The industry is still very small incapable of catering for the needs of key sectors of the economy, it manufactures only two types of environmentally friendly materials namely papers and corrugated boxes. Imports of non-plastic packaging materials are growing due to the growth of economy and the manufacturing sector in particular.

viii. **Lack of raw materials:** Rwanda's domestic packaging industry faces a big challenge of lack of raw materials. Production heavily relies on importation from the global market.

ix. **Industrial technical skills shortage:** Industries have capacity constraints including industrial skills, craftsmanship and technical expertise shortages. Training opportunities in these skills are limited, the private sector wants to partner with the government to train a mass of the workforce.

3.3 Opportunities and Recommendations

While several challenges have been highlighted above, several opportunities and solutions can be leveraged off to help strengthen the packaging sector.

i. REMA has elaborated guidelines on procedures and conditions of eligibility to grant exceptional permission to manufacture, use, import or sell single-use plastic items or packaging goods in single-use plastics where there is no alternative yet identified. However, there is a need for the inclusion of different concerned stakeholder institutions in the approval process for granting exceptional authorization to the users in order to ensure harmonization of environmental protection with industrial development.

ii. There is a need for government institutions responsible for industry inspection for compliance of rules and regulations to streamline and remove overlapping roles and regulations.

iii. This sector poses lucrative investment opportunities for the installation of productive capacities especially in sectors that are still untapped such production of Aluminum cans, and glass bottles, the production of different types of customized packaging materials and recycling.

iv. Limited linkages for integrate industrial development: Exports like agro-processing sector continue to rely on expensive imported packaging materials, making their products pricier and less competitive on international markets while some locally made corrugated boxes to be improved to meet the export quality standards.

v. Export sector needs to be served by a vibrant packaging sector producing Sophisticated high-quality design packaging materials. This calls for the establishment of sustainable technologies for constant research, high-quality design and aesthetic technologies to serve the exports need and other small business vendors selling locally.

vi. The packaging industry has the potential to manufacture environmentally friendly packaging materials that are biodegradable and incrementally reduce the import of these types of materials.

vii. Industries are willing to partner with the government to establish Knowledge Transfer Partnerships (KTP) with different Technical and Vocation Training (TVET) Colleges and Schools. Key objectives of the KTP include: (i) a successful transfer of industrial skills, craftsmanship and technical expertise in running and maintaining factories' machineries (ii) beneficial feedback to the TVET in terms of relevant curriculum development, (iii) a well-developed and skilled graduate contributing strongly packaging materials manufacturing sector. The private sector company are willing to support graduate trainees with some stipend. Youth innovation and ingenuity are critical to achieving the country's key development targets. They shall be trained under these programs to harness their talents so that they can productively contribute to a knowledge-intensive economy that is critical to the country’s future.

4 STRATEGIC APPROACH

4.1 Vision

The vision of this strategy is to develop a domestic packaging sector able to significantly contribute to the reduction of the Rwanda trade deficit and play a critical role in packaging, marketing and promotion of Made in Rwanda products.

4.2 Guiding principles

1. **Alignment with national priorities:** This strategy is guided by national priorities laid out in strategic documents; including Vision 2050, National Strategy for Transformation / 7 Years Government Program (2017-2024) and the current, Nationally Determined Contributions (NDCs) for climate change mitigation and adaptation document for the period to 2030, and sectoral policies & strategies.

2. **Investment promotion:** Giving certain benefits or privileges, such as fiscal incentives granted by the Government of Rwanda to businesses that wish to operate in certain industries that the government intends to promote.

3. **Leveraging the private sector:** Rwanda aspires to be a private sector-led economy in line with Vision 2050. Packaging strategy will as much as possible advantage additional investment from the private sector.

4. **Circular economy:** A circular economy refers to an economy which involves industrial processes and economic activities that are restorative or regenerative by design, enable resources used in such processes and activities to maintain their highest value for as long as possible, and aim for the elimination of waste through the superior design of materials and products. Simply, a circular economy reduces material use, redesigns materials to be less resource intensive, and recaptures “waste” as a resource to manufacture new materials and products.

5. **Extended Producer Responsibility (EPR)** is an approach under which producers are given a significant responsibility either financial or physical for the treatment or disposal of wastes. Assigning such responsibility provides incentives to prevent and reduce waste at the source, and promote waste reuse and recycling.
6. **Sustainable development:** Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

7. **Life-cycle sustainability:** integrates environmental, economic and social considerations into decision-making by all packaging actors and takes a closed-loop approach to material management where the flow of materials eliminates waste.

8. **Zero waste:** Seeks to redesign the way resources are used with the aim of eliminating waste by focusing on redesigning products and processes to reduce waste before it is made and designing products for greater reuse of resources.

9. **Coordination and accountability:** Roles and responsibilities of all involved stakeholders shall be clearly designed to ensure coordination across sectors and government levels and to enable all institutions to plan and implement effectively.

5 STRATEGY PILLARS

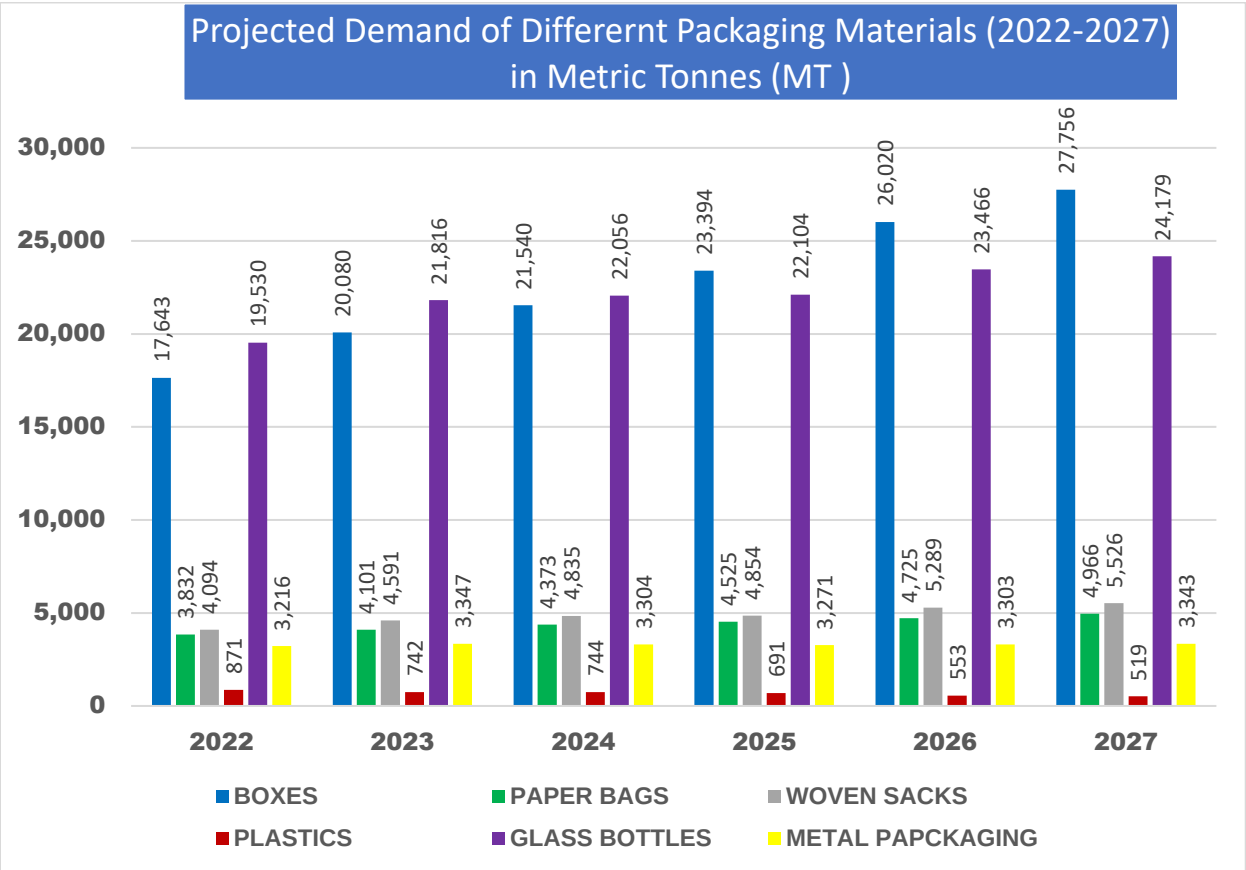
5.1 Pillar 1: Investment Promotion for Packaging Materials

Rwanda produces different packaging materials but there is still importation that comes to support local demand because of insufficient local installed production capacity or lack of any industry producing certain types of packaging therefore necessitating to depend on importation such as glass and metal-based packaging. There have been efforts to attract investment especially for installing industry producing glass bottles, because of the lucrative investment opportunities presented by this area of business. Glass packaging and metal-based are in steadily growing demand because Rwanda has opted for the green industrialization agenda that promotes friendly packaging.

Demand projections for the next five years in metric tones

Demand projection is based on the last five years' demand assessment that showed which types of packaging have been in use and their dynamics of identified changes in the importation, local production and export.

Figure 5: Demand Projection for Packaging Materials in MT (2022-2027)

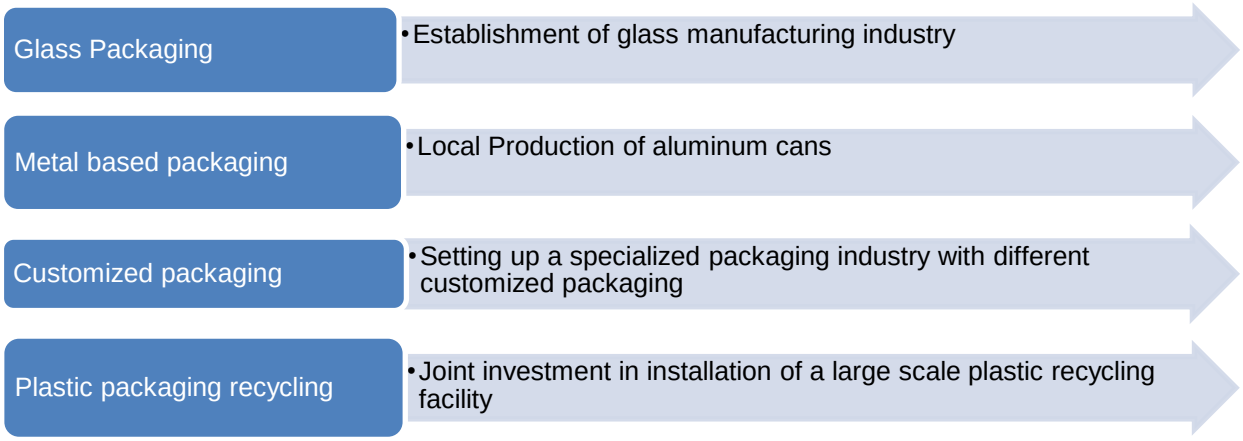


Glass packaging in Rwanda is on a growing demand and is forecasted to continue growing as Rwanda encourages this type of packaging over plastic because of compliance with standards and environmental laws. The largest part of importation comes from India. Because of the growing of demand of glass packaging, Rwanda should accelerate efforts of attracting potential investors for the establishment of a factory to produce glass bottles in order to satisfy this growing demand instead of relying only on imports. This is also the same for metal-based packaging, illustrated below, and especially for Aluminum cans used for packaging different types of beverages produced in Rwanda.

Demand for packaging materials is expected to continue growing in different sub-sectors of packaging especially for paper-based packaging materials, glass bottles and metal packaging such as Aluminum cans. This is reflecting a harmony with the current national policy orientation of directing economic development that is ensuring environmental sustainability.

The only sub-sector that is not likely to grow is the plastic packaging dominated by single-use plastic items that is in the phasing out process in favor of alternative packaging models that are recyclable and environmentally friendly.

Identified gaps in local production that present investment opportunities



The Packaging sector in Rwanda present investment opportunities in different areas. The government of Rwanda has an important role to play to guarantee fair competition and lift economical distortions. If local packaging is to thrive, competition should be fair among imported products and those that are locally produced. There is therefore a need to design, implement and enforce policy measures that will adequately protect local industry from imports.

Strategic interventions:

1. **Investment attraction** for the sub-sector of production of glass bottles, Aluminum cans and other types of packaging materials. Glass bottles manufacturing poses a great investment opportunity as

the demand for this sector is becoming so lucrative following the outlaw of the use of plastic-based bottles for packaging of all alcoholic beverages.

2. **Review of the regulatory framework** to support the packaging industry instead of promoting importation and expedite the enactment of the Environmental Levy.

5.2 Pillar 2: Encourage Environmental Friendly Packaging Materials

In 2019, the Government of Rwanda issued a ban on the importation, manufacture, sale and use of plastic carry bags and single-use plastics in Rwanda. This legislature followed law 57/2008 of 2008 that prohibited the importation, manufacture, sale and use of polythene bags. This ban had a major impact on the plastic manufacturing industry as well as on the packaging industry.

For the packaging industry, this triggered innovation in terms of finding alternative packaging materials (which is still at a very small scale). However, it also created a competitive disadvantage for Rwandan companies as foreign companies are still allowed to import products packaged in plastic to Rwanda while local companies are restricted and lack knowledge of viable alternative materials. However, REMA developed guidelines, which provide procedures and conditions for eligibility to grant exceptional permission to manufacture, use, import or sell single-use plastic items or pack goods in single-use plastics.

Considering that the import rates of packaging materials are growing due to the growth of the manufacturing sector, there is a need to strengthen the local packaging manufacturing industry through alternative materials and incrementally reduce the import of packaging materials. The strategy proposes environmental friendly packaging materials that are biodegradable or have recyclable options.

Using biodegradable and sustainable packaging is easier than it once was because we are all conscious and more aware of our surroundings and the effect we have on the environment. Living a contemporary 'green' lifestyle is more attractive than it ever has been and although there is still a place for plastics and materials that are not biodegradable, especially if they are recyclable, there are now more alternatives available.

Biodegradable packaging materials:

1. **Paper and Board**

Paper and board materials are the most widely used packaging materials in Rwanda. The most common application of paper and board in packaging and is expected to considerably grow as Rwanda adopts a green path of the economy encouraging plant–based packaging over plastic packaging.
The most common application of paper and board in packaging is as follows:

Type	Example applications
Kraft paper	Bags, sacks and sheets
Corrugated Board	Delivery boxes and cartons
Liquid paperboard	Fresh milk and juice cartons, including long-life milk and juice
Molded paper packaging (molded pulp, molded fiber)	Egg cartons, takeaway drink trays and food service packaging

2. Textiles and fiber based Packaging materials

Textile-based packaging materials are used to contain, carry, store, and protect goods. Sacks and bags made of traditional jute, cotton or natural fiber like sisal. Sisal fiber raw material is abundantly available in Bugesera District with one producer planting sisal on over 50 hectares of land.

Sacks for storage (Polyolefin woven sacks and jute sack bags)

Polyolefin woven sacks are multipurpose packing materials used extensively in the packing of cement, fertilizers, food grains, sugar, fertilizers, chemicals, food grains, cattle feed and salt. Jute sack bag is a popular and environmental friendly packaging solution for the agricultural industry. It is ideal for packaging potato, onions, vegetables or other agricultural products. Because this bag is a reusable, long-lasting, breathable and environmental friendly bag.

3. Biodegradable food nets

These are 100% biodegradable fruit and vegetable nets made from fiber. Food nets are excellent for packaging of vegetables like potato, onion, ginger, garlic, cabbage etc. and fruits like pineapple and mango.

Other eco-friendly packaging materials that the government shall need to mobilize investors:

4. Aluminum

Metal-based packaging, especially for aluminum cans are used for packaging of different types of beverages produced in Rwanda. One of the factories visited has a plan to add a production line of aluminum packaging materials; the government should support this investor through fiscal incentives to promote this sub-sector. A discussion with RDB indicated a willingness to support him if he meets the requirements.

Aluminum is common, easy to manufacture, inexpensive and environmentally friendly because it's made of recycled materials and can again be recycled. Aluminum food containers can store food safely for extended periods. It is perfect for storing canned goods, potted meats and fish, as an inner liner for bags, or even as covers for foods stored in trays.

5. Glass

Because of the growing of demand of glass packaging, Rwanda should accelerate efforts of attracting potential investors for establishment of a factory to produce glass bottles in order to satisfy this growing demand instead of relying only on imports.

6. Bioplastic

The Government is currently in discussion with a foreign company to set up a plant to manufacturer bioplastic packaging materials made from biomass, such as plants, trees or animals.

Strategic intervention:

1. Make awareness to the general public and investors about the country's path towards green economy and availability of environmental friendly packaging materials.
2. Promote production of environmental friendly packaging materials.

5.3 Pillar 3: Promote Backward and Forward Linkage

The packaging sector generally has greater backward and forward linkages as the packaging materials are derived from other semi-processed products and used for the packaging of other products in almost all sectors of production. In the process of value addition and intermediate production process, the connectedness of the economic activities can be grouped into after and before the production of goods and services.

The concept of backward and forward linkages was developed in the framework of exploring how the entry of firms, especially large industries from foreign direct investment can get integrated into the local system of interconnectedness in order to promote the entire industrial sector.

Backward linkages apply to the demand-side connections a firm has with other existing firms in the country. This type of linkage system contributes to the location-establishment of factories in the country based on the availability of raw materials. Contrary, Forward linkages refer to the supply-side connections a firm has with other existing firms in the country and provide a measure of the size of the potential market for entrant into the country.

For example, many manufacturing firms produce for inter-industry rather than for final consumption.

Backward linkages characterize the relationship of an industry or institution with its supply chain. An industry has significant backward linkages when its production of output requires substantial intermediate inputs from many other industries.

It is also important to note a new linkage that is emerging as **Sideways Linkages**, which are mostly derived from the use of by products and waste products of the main base industrial activity. For example, packaging industries like corrugated boxes factories generate wastes off-cuts of paper that are wasted during production and used boxes that can be recycled to make fresh recycled Kraft paper for the production of paper bags and cartons. This linkage is quite in line with the environmental policy of the Government of Rwanda of promoting green and circular economy. Similar examples can be made to other sub-sectors of manufacturing like in many food processing industries using agriculture raw materials produce waste that can be used further in production of fuel, bio-fuels, paper pulp and fertilizer. The production of sugar results in production of molasses as a waste product, which is used by the Alcohol Brewing industry in the production of ethanol.

In Rwanda and for particular sector of packaging, there are industries producing packaging materials of different types that are grouped into paper based packaging materials such as corrugated boxes and paper bags supplied to agro-processing and other local light manufacturing industries as packaging inputs for wrapping of final products before are sold to the market.

There are also plastic based such as PET bottles supplied to water and beverages industries, woven sacks supplied to grain millers, jerry cans supplied to paints, cooking oil, liquid soaps and other industries, plastic sacks for meat processing units and other authorized industries for specific purpose without established alternative to plastic packaging, High-Density Polyethylene (HDPE) used for milk bottles, freezer bags, ice-cream containers; cosmetics bottles.

Interconnectedness of local packaging industries

Users of Packaging Materials	Packaging Requirements	Packaging Materials Availability
Retail (Fast Consumer Moving Goods - sold in Shops and Supermarkets)	Paper Bags (Brown)	Domestic Supply by local paper packaging industries
Distillers (Beers)	Glass Bottles, Metallic Cans	Import Supply
Beverages (local beer, wine, water, juice and dairy products)	Bottles	Juice, water and milk producers can linked to producers of pet bottles and HDPE
Grain millers, rice, sugar and Horticulture (Flowers,	Ploy-sacks (plastics) and	They can be linked to local producers of corrugated boxes industries and poly-sacks industries.

Packaging Strategy

French Beans, Fruits and Vegetables, etc)	Corrugated Boxes (paper)	
Coffee	Valve Paper Bags	Import and Domestics Supply
Tea	Tea Bags and Tea Boxes	Import Supply & domestic producers of cartons
Confectionary (Bakeries)	Gloss Paper	Domestic Supply

Strategic Interventions to boost Backward and forward linkages

1. **Strengthen packaging industries through market linkage**: link users and producers of packaging materials to meet their quality standards of users instead of continuing to rely on expensive imported packaging materials.

2. **Promote linkage of packaging materials to raw materials inputs**: Packaging industries in Rwanda lack backward linkages in way that most of their raw materials are imported from the global market, while there is a potential of developing capacities to manufacture some of them in the country. This shall be coupled with the recycling of paper and boxes for re-use.

5.4 Pillar 4: Ensure Sustainable Packaging Technologies

Packaging Design and Right Packaging

The designing aspect of packaging emphasizes on two aspects, that is functional parameters and printing parameters. The functional parameters are concerned with the height, weight, type of material, aesthetics and structure of the packaging. The printing parameters are relevant for the printing and labelling of the packaging material. Technological innovations, focusing on marketing, labelling and prolonging shelf life, as well as protecting the environment are transforming the future of packaging.

Sustainable Packaging: The renewed focus is on alternatives for plastic packaging, such as biodegradable and sustainable packaging. Materials under development are Polylactide Acid (PLA) plastics, sugar cane pulp, fiber composite, and starch-based films.

National Industrial Research and Development Agency (NIRDA) has been undertaking and focusing its efforts on supporting Rwandan industries through technology acquisition and applied research and development.

It aims at increasing the competitiveness of Rwandan enterprises by ensuring industrial enterprises have knowledge of the technologies that could improve their competitiveness, supporting them to identify and acquire specific existing technologies which can improve their competitiveness, developing a purpose-built solution where existing technologies needed to improve competitiveness either do not exist or inappropriate

to the Rwandan nosiness environment and ensuring that demonstrated success of pilot projects are replicated by a large number of enterprises to achieve impact at scale.

Packaging Design and Innovation

Packaging designs are facing increased demand for addressing consumer conveniences, such as small package size, smart packaging, reusable packaging, and environmental concerns, such as compostable and sustainable packaging. There is a need to channelize the resources and encourage innovation in packaging design. NIRDA could help in designing appropriate packaging materials for the economy.

Circular Economy Concept

The packaging industry is now at the center of environmental protection and economic growth issues and Rwanda has taken a decision to pursue a green growth approach to development to lessen the hardships that climate change poses to sustainable development.

Sustainability in the packaging value chain can be improved by facilitating the collection and sorting of packaging materials for recycling, reuse and waste-to-energy processing, this leads to sustainable packaging.

Rwanda's environmental policies are geared to promote a circular economy to advance eco-production and sustainable consumption. The country has taken a proactive approach to transit to a circular economy by putting the environment and climate change at the heart of all the country's policies and strategies from its Vision 2050, NST1 and other sectoral policies and strategies, which aim to integrate green growth and climate resilience strategies.

The circular economy is a model of production and consumption, which involves reusing, repairing, refurbishing and recycling existing materials and products for as long as possible. In this way, the life cycle of products is extended. In practice, it implies reducing waste to a minimum. When a product reaches the end of its life, its materials are kept within the economy wherever possible. These can be productively used again and again, thereby creating further value.

In 2018, EU member states have committed to make all plastics packaging recyclable by 2030. In Denmark, the majority of this waste, 63 %, is incinerated while only 36 % of all plastics and only 18 % of all plastics packaging are recycled. A better plastic waste collection and handling is part of the goal to transition into a more circular economy where Danish companies are encouraged to develop sustainable plastics solutions for design, reuse, recycling, circular business models and recycling technology.

This offers great economic benefits as it is estimated that for every 1,000 MT of recycled plastic waste (which are not incinerated), three to four jobs are created along with additional revenue of 6 million Danish kroner (equaling approx. US$ 900,000). The Danish government has set aside EUR 16 million to implement these initiatives.

The circular economy concept is based on three overarching principles: reduce, reuse, and recycle. As the name implies, the **reduction** principle pursues the maximum reduction of raw material and energy demand. It aims to minimize waste during production processes as well as waste incurred at the point of consumption. The **reuse** principle describes how products that are not waste should be reused again, or – if they have turned into waste – should be prepared for reuse. This offers especially environmental benefits as it decreases the resource demand and in most cases also the energy demand since the product is not newly manufactured. The last principle, the **recycle** principle, refers to any process in which waste is recovered through reprocessing the material thereby making it available for new manufacturing processes.

With support from the United Nations Development Programme the Minister of Environment developed a Circular Economy Action Plan for Rwanda in January 2022. The Action Plan indicates that Rwanda refers to the circular economy to achieve green growth and sustainable development and tackle climate change.

This calls for industries come together in innovative collaborations, finding new ways to efficiently use resources, use recycling technologies and increase revenues while reducing waste and associated costs.

Recycling technologies

Why Recycle

- Reduces the need for **Landfills** and saves environment. Keeping recycled materials from the landfill reduces greenhouse gas emissions and provides raw materials for recycled products.
- **Saves Energy**. In most cases, it requires less energy in the manufacturing process to produce goods using recycled materials versus virgin raw materials. For example, recycling aluminum saves 95% of the energy required to produce aluminum cans from virgin raw materials.
- **Conserves Resources**. The overall demand for virgin raw materials used to make recycled products (glass, paper, metal and plastic) is reduced through recycling collection. This creates a lower demand for virgin raw minerals, thus avoiding the environmental damage caused by mining for metals, drilling for petroleum and harvesting trees.
- **Creates Jobs**. Studies show that for every one job at the landfill, there are 10 jobs in recycling processing and 25 more jobs in recycling-based manufacturing.

Packaging materials waste recycling

Currently in Rwanda, recycling of packaging materials wastes still at low level, there is a need to integrate circular economy approaches such as recycling and reuse. At present, Rwanda use mainly a linear economy, which is consuming, collecting and then throwing away packaging waste to the landfill. Consequently, there is need to change that traditional way of treating wastes by integrating a circular economy approach.

Packaging materials waste represents a significant share of the total waste generated in Rwanda that mostly ends up in the environment due to insufficient waste disposal and collection. While it is difficult to trace how much of the waste is recycled, a relevant share still arrives at the landfill. However, there are initiatives that pick out plastic waste from landfills and reutilize it to produce fashion accessories and other items.

Despite Rwandan efforts to abolish use of plastic items, some activities require the use of plastic items. Plastic materials serve several purposes and their consumption will continue in the future. To ensure that the needed plastic items will not end up as waste in the environment, adequate measures should be put in place and consumers should be informed about proper waste treatment.

Overall, waste including single use plastic waste generated by household and commercial entities is collected and disposed to landfill with little recycling. The market for recyclables and reprocessed waste is also nascent, with little waste being reprocessed and returned to the material cycle. It should be noted that the recycling include reuse at home and other informal burning to light charcoal stoves.

Strategic interventions:

1. Promote appropriate technology to ensure a sustainable packaging sector able to supply good quality packaging materials. In this regard, the Government of Rwanda to establish a research and design development center for modern packaging.
2. Improve waste segregation and collection to increase the quality of recycled packaging materials.
3. Promote investment in the recycling of packaging materials.
4. Provide training in industrial skills, craftsmanship and technical expertise in running and maintaining packaging factories machineries to both men and women.

Gender mainstreaming

Gender mainstreaming in the packaging sector is to promote gender equality in the sector and enhance inclusive and sustainable economic transformation. Ensuring high levels of gender inclusivity in the packaging sector is an important part of the packaging strategy. It ensures the effective participation of men and women in the sector to increase performance by leveraging everyone's potential for improved productivity. Doing so also recognizes the importance of the realization of gender equality and empowerment of women.

Inclusivity also requires careful attention to be paid to the need for gender equality. Women are likely to face some particular problems. A better understanding of their needs, problems, and socioeconomic conditions and addressing these issues through more systematic can result in better conditions. Women

have limited access to information-sharing platforms where ideas regarding business management are shared and new opportunities are advertised. They receive less information on training, education and networking activities, as well as trends and updates on their commercial sectors (Gender Mainstreaming Strategy for Private Sector, 2019).

Generally, women in business lack information about market opportunities and packaging materials in particular and this hinder their business growth. A notable example is a female entrepreneur with a 50-hector sisal plantation with the potential of supplying the entire fiber-based packaging materials sub-sector. Facilitating this entrepreneur to link up with potential investors to produce fiber-based packaging materials will grow her business and increase productivity.

6 IMPLEMENTATION FRAMEWORK

6.1 Institutional Framework

To fully implement all strategic actions articulated in the strategy, clear roles and responsibilities of all institutions in coordination, monitoring and evaluation are critical. To coordinate and monitor the implementation of the strategy, MINICOM has the overall leading responsibility to coordinate the implementation of the strategy to ensure the promotion of the packaging sector to manufacture appropriate packaging materials for the economy. It will carry out its mandate in collaboration with other ministries and agencies including the Ministry of Environment, MINECOFIN, MINEDUC, RDB, REMA, NIRDA and RSB. The key existing industrial development coordination mechanisms will support the implementation of the strategy.

The private sector (PSF and RAM) will have responsibilities to support the government in implementing, monitoring and evaluating the strategy.

6.2 Monitoring and Evaluation

Monitoring and evaluation of the strategy will be undertaken based on the following implementation matrix and will be generally followed up by the leading Institution-Ministry of Trade and Industry.

6.3 Implementation Matrix

STRATEGY OR DEVELOPMENT OF PACKAGING SECTOR					
PILLAR OBJECTIVES	**ACTIVITIES**	**PERFORMANCE INDICATORS**	**RESPONSIBLE INSTITUTIONS**	**TIME LINE**	**BUDGET (US$)**
Pillar 1: Demand Stimulation & Investment Promotion for Packaging Materials					
Attract investors in sub-sector of production of glass bottles, aluminum cans and other customized types of packaging materials.	Develop clear prospectus indicating key information leading investors in deciding to invest in the production of glass bottles, aluminum cans and other types	Investors secured and start production	**RDB,** RMB, MINICOM	2022-2023	10,000
	Identify potential local & international investors in the sector of packaging	Investor secured and start production	**RDB**, MINICOM	2022-2024	49,500
	Organize meetings with identified investors for possible establishment of packaging factories in Rwanda	Number of investors engaged locally and internationally	**RDB,** MINICOM	2022-2024	70,000
	Develop targeted incentives like a special electricity tariff for glass manufacturing	Targeted incentives developed	**MINICOM,** RDB	2022-2024	N/A
Review of the regulatory framework to support packaging industry instead of promoting importation	Fast track enactment of the Environment Levy with a significant levy in order to ensure fair competition	Levy enacted	**MoE,** MINICOM, REMA	2022-2023	N/A
	Organize Group value chain sub-sectors that have not yet identified alternative to single use plastic for facilitation to get authorization to use single use plastic packaging materials	Value chain companies grouped and the approval process made efficient	**MINICOM,** REMA, MoE	2022-2023	30,000
Pillar 2: Encourage Environmental Friendly Packaging					
Promotion of environmental friendly packaging	Make awareness to the general public and investors about the country's path towards green economy	Awareness campaigns conducted	**REMA,** MoE, MINICOM	2022-2025	30,000
	Establish a list of available alternative packaging to plastic packaging materials	A list of alternative packaging established	**REMA,** MoE, MINICOM	2022-2027	N/A

	Organize benchmarking tours for international best practices for identification of alternative friendly packaging	International best practice benchmarking tours organized	**MINICOM,** RDB, REMA, NIRDA, MoE, PSF	2022-2027	70,000
Pillar 3:Promote Backward and Forward Linkages					
Strengthen packaging industries through market linkage	Identify and build database on users and producers of packaging materials	Users and producers identified	**MINICOM,** RSB	2022-2027	30,000
	Organize workshops to link users and producers of packaging materials	Backward and forward linkages established	**MINICOM,** RSB	2022-2027	30,000
	Conduct demand assessment and production capacity of local industries in order to remove incentives for importation of packaging materials that can be produced in Rwanda	Demand assessment conduced & incentives removed	**MINICOM,** RDB	2022-2027	N/A
Pillar 4: Ensure Sustainable Packaging Technologies					
Promote appropriate technology to ensure sustainable packaging sector able to supply good quality packaging materials	Establish a research and design development center for packaging	Center for research and design established	**NIRDA**	2022-2024	1,000,000
	Identify modern technologies in the sector of packaging that are responding to the needs of local market	Modern technologies identified	**NIRDA**	2022-2024	75,000
	Develop standards for different types of sustainable packaging materials	Standards developed	**RSB**	2022-2027	N/A
Promote Investments in the recycling of packaging materials	List potentials and opportunities in the recycling of packaging materials	A list of investment opportunities in packaging recycling established	**RDB,** MINICOM	2022- 2025	N/A
	Engage local & international key investors into the recycling of packaging materials	Meetings and workshop with local and international investors organized	**RDB**, MINICOM	2023-2027	50,000

	Initiate specific incentives targeting promotion of recycling activities	Incentives developed and approved	**RDB,** MINICOM	2022-2023	N/A
Improve waste segregation and collection to increase the quality of recycled packaging materials	Establish buyback centers and Deposit Return/Refund Schemes	Buyback and Deposit return/refund established in all districts	**MOE,** MINICOM, REMA, CoK, District Councils	2022-2027	100,000
	Implement Extended Producer Responsibility programs	EPR implemented	**REMA**, MINICOM, MOE, CoK	2022-2027	100,000
Provide training in industrial skills, craftsmanship and technical expertise in running and maintaining packaging factories machineries	Identify manufacturers willing to partner with government to establish Knowledge Transfer Partnership (KTP).	All packaging manufacturers in the country engaged and secured willingness of at least 6 companies	**MINICOM,** MINEDUC, RAM/PSF	2022-2027	30,000
	Sign agreements between industries and TVET government institutions for students industrial based training under KTP program	6 agreements signed	**MINICOM,** MINEDUC, RAM/PSF	2022-2027	10,000
	Relevant institutions to develop curriculum based on skills required by industries	Curriculum developed	**RP, RTB, MINEDUC**	2022-2023	50,000
	Train students in industrial skills, craftsmanship and technical expertise in running and maintaining packaging factories machineries	Trainings conducted	**RTB,** RDB	2022-2027	50,000
Total					**1,714,500**

Note: This matrix was prepared when the exchange rate of US$ 1 was RWF 1,066

Quick win interventions for immediate implementation

The quick wins in the first years of the implementation of the packaging strategy have been identified for immediate action, among the ones are:

1. Attract investors for the production of glass bottles and Aluminum cans under the first pillar, which focuses on demand stimulation and investment promotion for packaging materials. Glass bottles and metal packaging such as Aluminum cans packaging materials have a growing demand due to the phasing out of single-use plastic packaging materials. Manufacturing glass bottles and Aluminum cans pose a great investment opportunity for packaging all alcohol and other types of beverages.

2. Fast-track enactment of the Environment Levy with a significant levy on imported goods. Rwanda's Environmental Law of 2019 prohibits the use of single-use plastic packaging materials for locally made products while imported goods continue to come to Rwanda packed with single-use plastic packaging materials. The proposed levy is expected to balance a reported unfair treatment for imported goods vis-à-vis locally made products not allowed to pack in single-use plastic materials. The environmental levy law needs to be enacted urgently for fair treatment and competition of imported and locally manufactured.

3. Establish Packaging materials research and design Centre. Our local packaging materials manufacturing sector is less sophisticated and lacks modern innovative designs for competition on the international market- incapable of catering for the needs of exporters. Agro-processing exporters continue to rely on expensive imported packaging materials. A packaging materials research and design center under NIRDA will quickly help to come up with desired packaging materials designs for development by industries.

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Annex 1: List of stakeholders engaged in consultations

NAME	ORGANISATION	POSITION
1. Dismas KARURANGA	MoE	P&W Policy specialist
2. Pascal GATABAZI	MINEDUC	Chief Technical Advisor
3. Juliet KABERA	REMA	Director General
4. Béatha AKIMPAYE	REMA	Division Manager
5. Dr. Christian SEKOMO BIRAME	NIRDA	Director General
6. Amandin MUSIRIKARE MIHIGO	NIRDA	Program Operations Specialist
7. Dedan NISHIMWE	RDB	Sector Lead
8. Sam MUHINDA	RDB	Sector Lead
9. Raymond MURENZI	RSB	Director General
10. Antoinette MBABAZI	RICA	Head of Registration, Licensing & Enforcement
11. Dr. Innocent NYAMWASA	Rwanda FDA	Food inspection and compliance Analyst,
12. Fred SABITI	MINECOFIN	Technical Advisor
13. Alphonse KWIZERA	RAM	ES
14. Martin NGIRABATWARE	PSF	Head of Trade Negotiations & Facilitation
15. Fidele HAKORIMANA	NAEB	Product Development & Innovation Specialist
16. James BISERUKA	Inyange Industries	Managing Director
17. Coltilda MUJAWINGOMA	Inyange Industries	Procurement Manager
18. James SANO	ROBA General Merchants	General Manager
19. Michael KWIZERA	ROBA General Merchants	Procurement Manager
20. Francis OCHUKA	ROBA General Merchants	Quality Controller
21. Jonathan BISENGIMANA	Rwanda Tea Mountain	General Manager
22. Gaëlla INGABIRE	Africa Improved Foods	New Product Development Manager
23. H. DHARMARAJAN	SULFO	Managing Director
24. Teklay TEAME	Simba Supermarket	CEO
25. Justine NGARAMBE	Simba Supermarket	Managing Director
26. Aline-Pascale BATAMULIZA	BRALIRWA	Corporate Affairs & Communication Manager
27. Sylvain BEYS	SKOL BREWERY	Supply Chain Director
28. Richard MANZI	SKOL BREWERY	Procurement Manager
29. Augustin NGAMIJE	SPERANZA GROUP LTD	Finance Manager
30. Leo NDUWAYEZU	AGROPLASTIC	CEO
31. Brian NGARAMBE	BONUS INDUSTRIES	Proprietor
32. Wenceslas HABAMUNGU	ECO PLASTIC	CEO
33. MOIZ J HASSANALI	JABBAR DEVELOPMENT	DIRECTOR
34. Theoneste NDAYAMBAJE	N & T BOTTLES	CEO
35. Marcellin MUHIZI T.	POLYBAG RWANDA	Managing Director
36. Jean De Dieu KAGABO	SOFT PACKAGING	CEO
37. JEENDGER HEMANT	V PLUS PACKAGING INDUSTRIES	CEO
38. Anil KUMAR	CRANE PAPER	Managing Director
39. Jean-Baptiste NKAKA	RWANDA PLASTIC INDUSTRIES	Chief Accountant
40. Olivier MBERA	Enviroserve	Country General Manager
41. Felix MIHIGO	Enviroserve	Operations Manager

Annex 2: International best practices on sustainability packaging and circular economy

#1: The German Recycling System: The World's Best Recycling Country

Germany recycles more than any other country. According to Eunomia, Germany has the best recycling rate in the world with 56.1% of all waste it produced being recycled. Austria (53.8%) comes in second, followed by South Korea (53.7%) and Wales (52.2%). All four countries manage to recycle between 56% and 52% of their municipal waste. Switzerland (49.7%), in fifth place, recycles almost half of its municipal waste.

HOW DOES THE GERMAN RECYCLING SYSTEM WORK?

In the 1990s, the use of refillable glass bottles began to drop, falling to below 72%. This drop, which had a direct impact on waste management processes, since the system had to deal with a vast number of single-use containers, **led the country's authorities to introduce legislation for waste management** and implement an innovate waste collection model in which citizens played a key part.

German recycling bins

The German recycling system uses **six different bins classified according to a color system,** which tells users what kind of waste they can put into each of them. The yellow is for plastics, the blue for paper and cardboard, the red for clear glass, the brown for colored glass, the green for green glass and a black bin for food waste and organic matter.

Although the effectiveness of the system is undeniable, **the involvement of citizens has been key to its success,** with citizens having to separate their waste with great care. For example, contrary to what may seem logical, cardboard pizza boxes cannot be placed in the blue bin because food scraps can obstruct the machines in the recycling plants.

The same applies to potentially hazardous products. Batteries, light bulbs and fluorescent tubes cannot be placed in any of these bins and must be taken to special recycling points. In short, too many requirements which, sometimes, **discourage users.**

Bottle recycling machines in Germany

Known as the *Pfand* system, this is a small extra cost applied in the form of a "deposit" to the sale of bottled drinks. **This deposit is refunded** once users return the empty bottles to the food store or automated machines, which are designed to accept and compact these bottles. Even when citizens think it is not worth the effort of recycling to recover this money, which ranges between eight to twenty euro cents, the authorities have installed **containers in the busiest areas of the city, where people can leave the bottles to be collected by the more vulnerable members of society.** This enables these people to obtain

a small sum of money by recycling the bottles, while also dissuading them from searching through the bins for bottles.

IS RECYCLING MANDATORY IN GERMANY?

As in other countries, placing waste in public spaces without permission constitutes an offense and may lead to the imposition of an economic fine in Germany. The same applies if **a citizen is found inserting waste into the wrong bin.**

A series of obligations have also been established in terms of recycling and although an economic fine will probably not be applied if they are not met, they are equally inconvenient. For example, the use of certain types of homologated bags based on size and color to dispose of waste, or respecting waste removal times.

If these requirements are not met, **waste collection operators do not have to collect the waste**, therefore, users will have to keep their garbage at home until the next collection date, causing significant inconvenience.

These obligations are even stricter for companies, which have to register with an official registry, which entitles them to have their waste collected by public services. If they do not fulfil this requirement, **they may receive a fine.**

What is the recycling rate in Germany?

The solid waste recycling figures in Germany are the highest in the world. However, Norway is now threatening to knock Germany off the top spot which the country has enjoyed for years, with the introduction of even stricter laws than in Germany. Among other aspects, the Norwegian authorities have imposed a higher tax on producers of plastic bottles than other industrialists, however, they can benefit from tax exemptions if they recycle a specific percentage of the bottles they have manufactured. In any event, with both the German model and the Norwegian model, **it is important to differentiate between the recycling rate and the collection rate.** While the percentage of reusable bottles placed in the German.

#2: Norway: Global Leader in Packaging Policy

Norway has been actively concerned about the impact of plastic packaging on the environment for decades. Its first beverage packaging plastic tax was introduced as early as the 1970s and in 1994, the tax was divided into two per unit – a basic tax for single-use containers and a variable tax which varies as a function of packaging return rates. In 1999, Norway was a pioneer in the introduction of a formally regulated, national plastic deposit return system (DRS) with a focus on plastic beverage bottles. But, interestingly, the DRS system itself was not set up by the authorities, instead the government put a regulation into force with requirements for the return systems (including deposit rates if a deposit system is in place) and a related

tax system, leaving return companies flexibility to develop their own ways of operating and incentives for achieving high collection rates. This was later incorporated into Norway's 2004 waste regulations. Between 2018 and 2020, the scheme achieved return rates of around 85-90% for PET bottles – proving to be one of the most effective in the world.

But there is a significant gap in achieving a zero-waste circular plastic economy domestically

Norway's plastic system is better than most: 85% of people have access to separation at source and most of the remainder have access to mixed waste collection that is sorted in advanced specialised material recovery facilities (MRFs). Additionally, reported recycling rates are higher than the global average (especially for bottles), consumers prioritise environmental concerns, and Norway has one of the most successful EPR programmes in the world. And yet – when measured against the ambition to become a zero-waste circular plastic economy – Norway's current efforts are falling significantly short. It is estimated that more than 72% of Norwegian plastic waste is sent to waste-to-energy incineration, meaning the plastic industry is still predominantly a resource-intensive, linear system.

The bottle deposit system is successful by any international standard, but beverage bottles represent less than 10% of Norway's plastic waste. This successful scheme actually runs the risk of distracting society from other plastic products that have low recycling rates despite representing the lion's share of plastic waste. Furthermore, the deposit system could be acting as a disincentive to introducing plastic bottle reduction measures that are more environmentally impactful than recycling. Even the addition of the new EPR schemes and requirements for sorting plastics currently being developed cannot alone turn Norway into a zero-waste circular plastic economy.

Norway's entire plastic system, and especially its heavy reliance on fossil-based feedstock and incineration, needs to undergo significant changes if it wants to lead the world in building a zero-waste circular plastic economy.

#3: Global Circular Economy Examples: Denmark

In 2018, European Union introduced its European strategy for plastics including goals to make all plastics packaging recyclable by 2030, to reduce single-use plastics where applicable and to restrict the intentional use of micro-plastics. Moreover, binding regulations are planned which oblige manufacturers to use a certain amount of recyclates in their products and oblige Member States to recycle 50 % of their plastic packaging by 2025 and 55 % by 2030.

The current waste management system in Denmark has a comprehensive waste collection infrastructure. However, according to a study by the Danish Ministry of Environment and Food (2018), the majority of this waste, 63 %, is incinerated while only 36 % of all plastics and only 18 % of all plastics packaging are

recycled. Thus, the Danish government introduced their new strategy to transition to a more circular economy and meet the goals set by the EU plastics strategy. In their Action Plan, the Danish government portrays a holistic approach with measures all across the value chain. In particular, they highlight six focus areas and 27 reinforcing action measures in order to transition into a more sustainable, circular economy. The six focus areas are:

- To strengthen enterprises as a driving force for circular transition
- To support the circular economy through data and digitalization
- To promote a circular economy through design
- To change consumption patterns through a circular economy
- To create a properly functioning market for waste and recycled materials
- To increase the recycling of material used in buildings and biomass

All stakeholders in the value chain of plastic packaging are included in these actions. To increase the recycling of plastics from households, a standardized waste collection is planned, as well as a mandatory EPR system. Also, better plastic waste handling is part of the goal to transition into a more circular economy. Danish companies are encouraged to develop sustainable plastics solutions for design, reuse, recycling, circular business models and recycling technology.

Embracing a more circular approach also offers great economic benefits as it is estimated that for every 1,000 MT of recycled plastic waste (which are not incinerated), three to four jobs are created along with additional revenue of 6 million Danish kroner (equaling approx. US$ 900,000). The Danish government has set aside EUR 16 million to implement these initiatives.