Manufacturing Africa: Packaging Landscape in Ethiopia

November 2020

This report has been funded by UK aid from the UK Government; however, the views expressed do not necessarily reflect the UK government's official policies.

Executive Summary (1/2)

Overview of packaging sector in Africa

Africa has a **$15 billion packaging sector growing at ~5.5% annually**, which primarily serves the industrial, food, and drink sectors with plastic, metal and paper packing products

Africa's competitive landscape is fragmented (especially outside South Africa), but there are a **several bigger pan-African players that have expanded and diversified in recent years**

Overview of packaging sector in Ethiopia

Ethiopia consumed an estimated $649m of packaging materials in 2019, with consumption **growing by ~8% per annum**

- Of this consumption, we estimate that **$438m (67%) is currently addressable by local manufacturers** (excluding pre-packaged imports)
- About **59 companies with average revenues <$4m** produced an estimated **$174m in domestically manufactured packaging material**, with the food and beverage sector representing ~58% of sales and plastics representing 56% of value
- While an average African economy produces 60% of its packaging materials, **Ethiopia produces only 40% of its addressable packaging needs locally**; Ethiopia is more dependent on imports in plastics, paper, and metal categories, and relatively less reliant on glass imports
- Across packaging value chains, there are investment gaps across raw material manufacturing and conversion, with the **biggest "white space" in pulp production, paperboard, liquid cartons, rigid plastics (especially preform bottles) and flexible plastics**

Ethiopia's packaging sector faces several challenges including: Low competitiveness and small scale; Challenging and costly import of raw materials; Challenging regulations; Generally low ease of doing business

Forecasted growth and trends in Ethiopia's packaging sector

Ethiopia's packaging consumption is expected to double by 2030, to become a **~$1.3 billion market (60-80% addressable)**

- Plastics (both rigid and flexible) are expected to make up an increasing share of consumption, especially for the food and drinks sectors
- By 2030, **the addressable opportunity for local manufacturers could reach $800-1,050m**, implying that local production has an **opportunity to increase 4x over the decade** if import substitution opportunities are pursued

Sustainable packaging trends and opportunities

Some global sustainability trends are less relevant to Ethiopia in the short term (e.g. due to limited e-commerce and high cost-sensitivity), but **"circular economy" opportunities are highly relevant for the country** due to high cost of imported raw materials and difficulty accessing forex

Ethiopia has the greatest opportunities to attract investment and enable the packaging sector through several opportunities: **Paperboard recycling; alternatively sourced pulp from bamboo; PET and HDPE recycling; and utilization of other plastics and waste for refuse-derived fuel (RDF)**

To enable sustainability and recycling, Ethiopia can **set up sorting centers with private partners**, **regulate the use of non-recyclable materials** or set **sustainability standards**, create new **rules for separating waste**, and **raise awareness**

Executive Summary (2/2)

Opportunities for investment in Ethiopia's packaging sector

We identified **12 prioritized opportunities** for investment in packaging manufacturing and enabling sustainability industries (order of priority):

1. **Waste collection and sorting** to provide recyclers and paper/plastic manufacturers with locally sourced raw material
2. **PET and HDPE recycling** to extract greater value from crushed plastic and reduce industrial reliance on imported virgin plastic
3. **Bamboo pulp production** to replace wood pulp for some domestic industries and serve a growing export market for sustainable pulp
4. **Liquid carton conversion** to introduce new technology and higher-value paper manufacturing for milk and juice products
5. **Flexible paperboard manufacturing** to fill a white-space opportunity for a high-demand packaging material
6. **Flexible plastics manufacturing** to serve a wide range of local packaging needs with customizable products
7. **Pre-form PET bottle manufacturing** to reduce reliance on imported intermediate goods and serve a growing plastic bottle market
8. **Toothpaste tube cutting** to fill a gap in market and meet needs of consumer goods companies such as Unilever
9. **Metal can manufacturing** to serve growing demand from agro-processors in a space that is not currently competitive in Ethiopia
10. **Sugarcane-derived bioplastic production** to reduce reliance on imports and create a more sustainable product
11. **Glass bottle manufacturing** to meet growing demand through 2030
12. **Metal recycling** to eliminate value leakage in a high-value substrate

Ethiopia's value proposition

Ethiopia is in a competitive position to attract packaging investment due to:

1. **Unmet and growing demand** for packaging materials
2. **Competitive advantages in manufacturing** and a record of 13% sector growth
3. **Attractive industrial parks** with ideal conditions for investment and synergies with agro-processing and pharmaceutical industries
4. **Government prioritization of attracting FDI**, including through competitive tax benefits for investors

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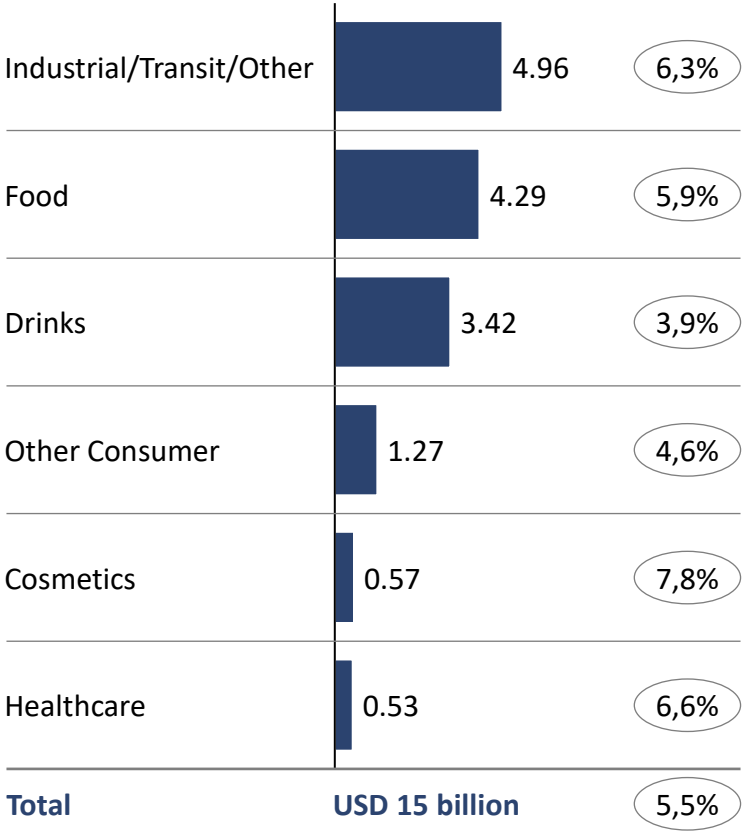
Africa packaging consumption is mostly for industrial and food uses and mainly in plastic packages

xx CAGR 2015-19 (%)

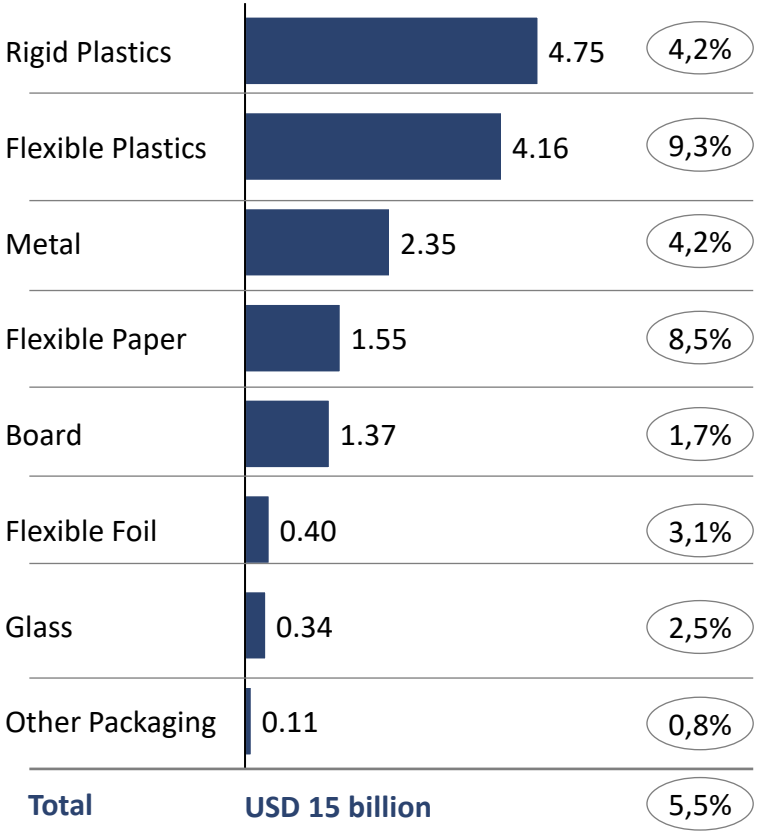
Africa packaging consumption by end-use

2019. USD billion



Africa packaging consumption by substrate

2019. USD billion

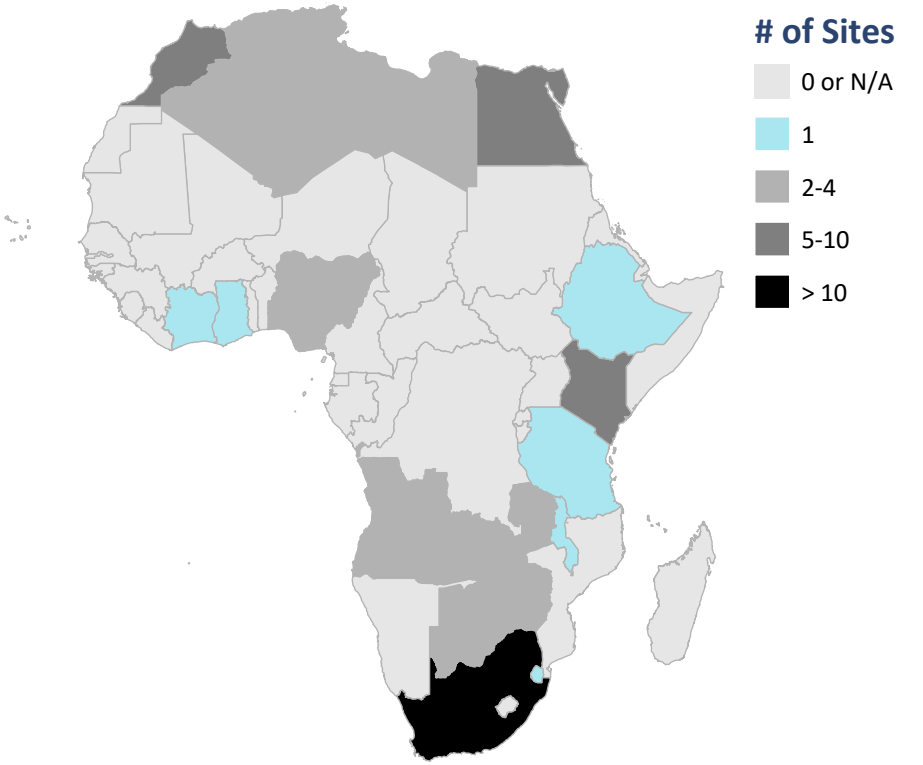


Source: Triangulation based on PIRA (Nov. 2020), trade data, expert interviews and company data

Africa's packaging competitive landscape is fragmented, with a handful of larger players with a pan-African footprint

Examples and Not Exhaustive

Company	Geographical Footprint[1]	# Sites
Nampak	SA, KY, TA, AO, ZM, ZI, NI, ET, MW, BT, SW	34
Berry	SA, AL	13
ALPLA	SA, AO, EG, MA, ZM	13
Tetra Pak	SA, AL, KY, EG, NI, MR, TN	11
Huhtamaki	SA,EG, KY, GH	9
Other[2]	SA,EG, MR, IC, AL, TN, NI, LB,	36



1. Geographical footprint expressed in country abbreviations: https://planetarynames.wr.usgs.gov/Abbreviations#Africa
2. Other companies evaluated: Amcor, Mondi, International Paper, SIG, Elopak, Constantia, Packsolve

Source: Corporate websites

Recently, larger players have broadened their footprints and diversified into new packaging categories

Examples and Not Exhaustive

Company	Key Geography	Strategic rationale
INTERNATIONAL PAPER	Morocco	Largest containerboard in MR; Focused on food, beverage and industrial containerboard; located near recycled containerboard facilities in Spain
Berry	South Africa	Berry acquired RPC plastics in 2019. South Africa comprises 28.6% of the total packaging market and 35.7% of the plastics packaging market in Africa
mondi	Egypt	Egypt comprises 10% of the packaging consumption in Africa; Mondi acquired NPP in Egypt for access to Middle East Markets as well as Africa
Huhtamaki	Egypt, Kenya, Ghana, South Africa	Hutamäki acquired Positive Packaging in 2015 to gain access to Egypt (Middle East), Kenya and Ghana. The purchase of Everest Flexibles gave entrance to South Africa.
ALPLA	South Africa, Mauritius, Zambia	Alpla acquired Boxmore Packaging in 2017. Alpla gained plastics packaging access in South Africa, Zambia and Mauritius. Mauritius enables access to the islands in the Indian Ocean
Nampak	South Africa, Kenya, Nigeria	Nampak has expanded from South Africa into sub-Sahara continental Africa, focused primarily on rigid beverage and industrial packaging. In Nigeria, they have also expanded into metal packaging for chemicals and industrial applications

Source: Corporate websites

Contents

Recent trajectory – key insights

1. Packaging consumption & supply (local production and imports)

A. **Consumption of packaging in Ethiopia has grown at ~11% per annum** (following the regional trend), with industrial and food as main categories, with flexible and rigid plastics are the main consumed substrates overall in Ethiopia

B. **Local production of packaging has mostly been centred around consumer packaging categories,** namely in food and beverage

C. **National production is secured by ~59 local players** (both national and international investors) with relatively small scale (typically <4 Mn USD of revenues) and concentrated around the Addis Ababa region; There are around 20 international companies producing in the country (producing less than 59,000 tonnes per year)

D. **Imported packaging is mostly made up of plastics**, which has represented approximately **50-60% of total packaging imports**, followed by paper and metal packaging which each representing 15-20% of imports; Glass imports now represent <10% of imports, with import value declining by 50% since 2015.

E. **A detailed analysis of the packaging value chain in the country highlighted several gaps and opportunities** (e.g. increase recycling capabilities by existing paper converters and also for plastics which are the main categories produced locally)

2. Key challenges of the sector

A. **Low competitiveness of local players:** Local packaging manufacturers face high costs (limited economy of scale and high logistics costs), produce lower-quality products, and have limited capabilities to offer customized products

B. **Inefficient and difficult importing process:** Packaging companies experience limited or unreliable access to forex required to purchase capital equipment, raw materials, and intermediate goods

C. **Restrictive regulation:** Long lead times to approvals or unclear regulation (e.g. for pharmaceutical packaging), while ready-made finished packing imports face low tariffs if utilized for exporting goods

D. **Difficulty in doing business and converting investment:** Relative to other African economies, setting up a business in Ethiopia takes more time, and companies have unreliable access to electricity; There is limited coordination between the EIC and trade industry trade fairs to follow up with interested new investors

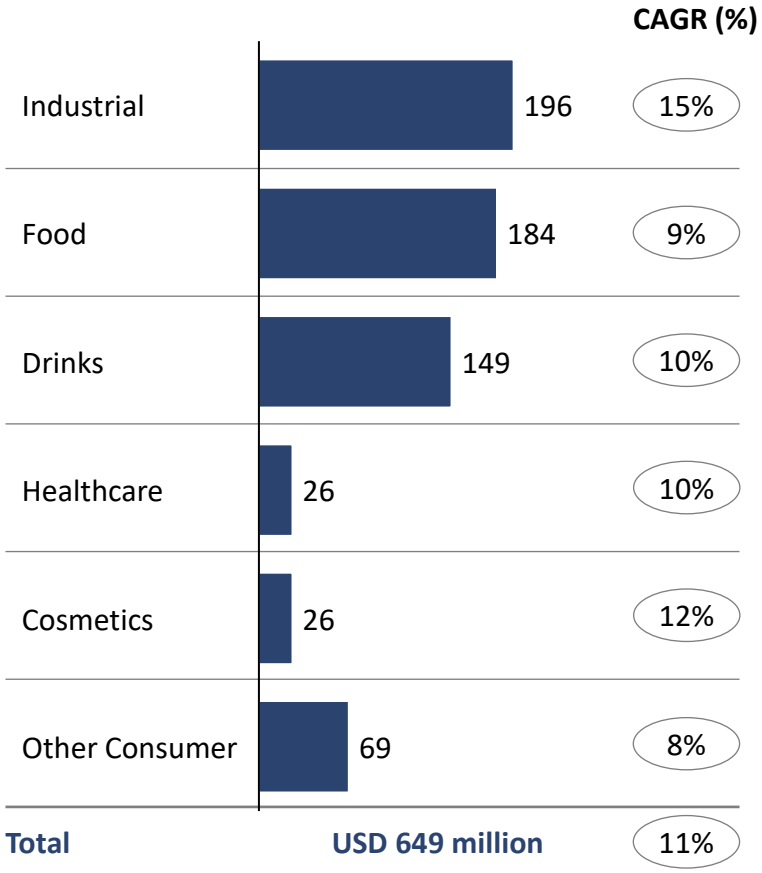
E. **Uncertain demand shifts due to COVID-19:** The demand recovery trajectory is uncertain, and emerging trends in the wake of disruption are unknown

1A: Ethiopia's main demand for packaging comes from the food and drink industries, with plastics as the main substrate

xx CAGR 2015-19 (%)

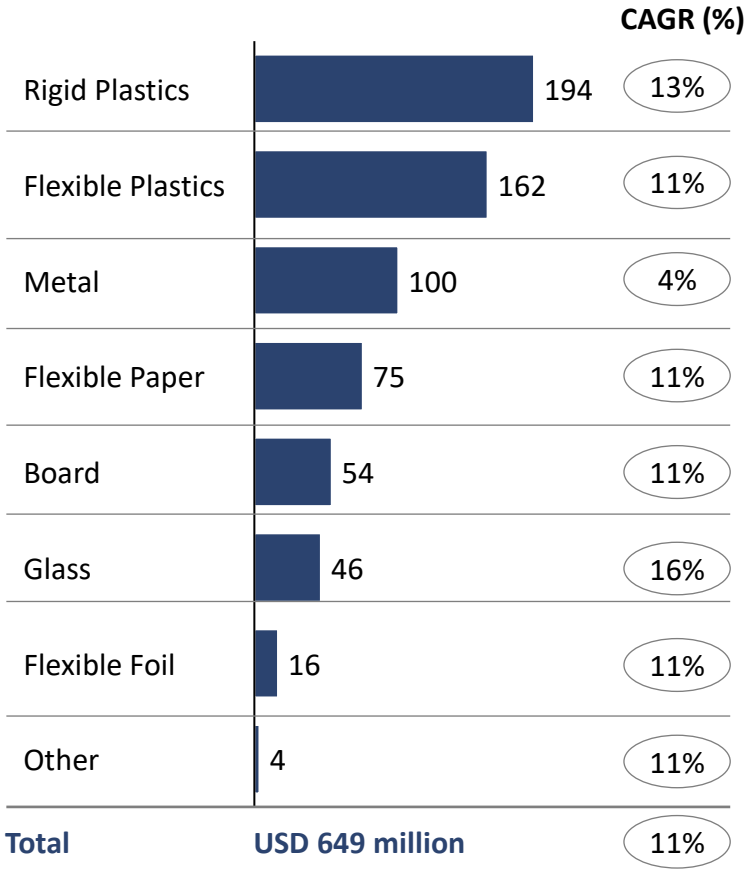
Ethiopia packaging consumption by end-use

2019. USD million



Ethiopia packaging consumption by substrate

2019. USD billion1



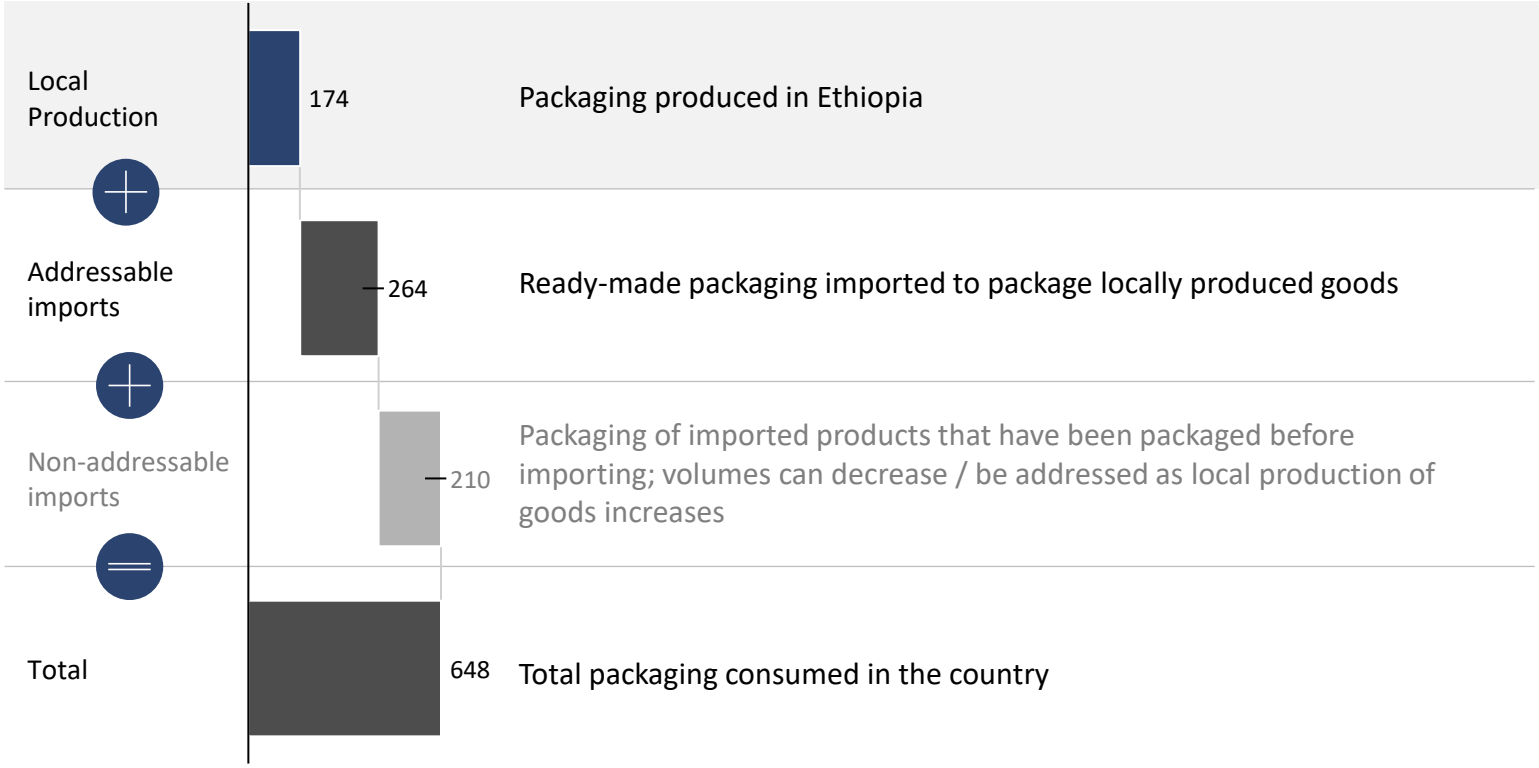
Source: Triangulation based on PIRA (Nov. 2020), trade data, expert interviews and company data

The **food and drinks sector** collectively represent **about half of total demand** for packaging (~$333m of $649m)

Plastics make up over half of packaging demand (~$356m of $649m)

1B: Local production meets only ~27% of the country's demand and is focused mainly on the food/drinks sector (58%) and main substrate is plastics (56%)

Ethiopian packaging production and consumption, 2019. USD million



End-use

32%	26%	21%	21%
Food	Drinks	Industrial / transit	others

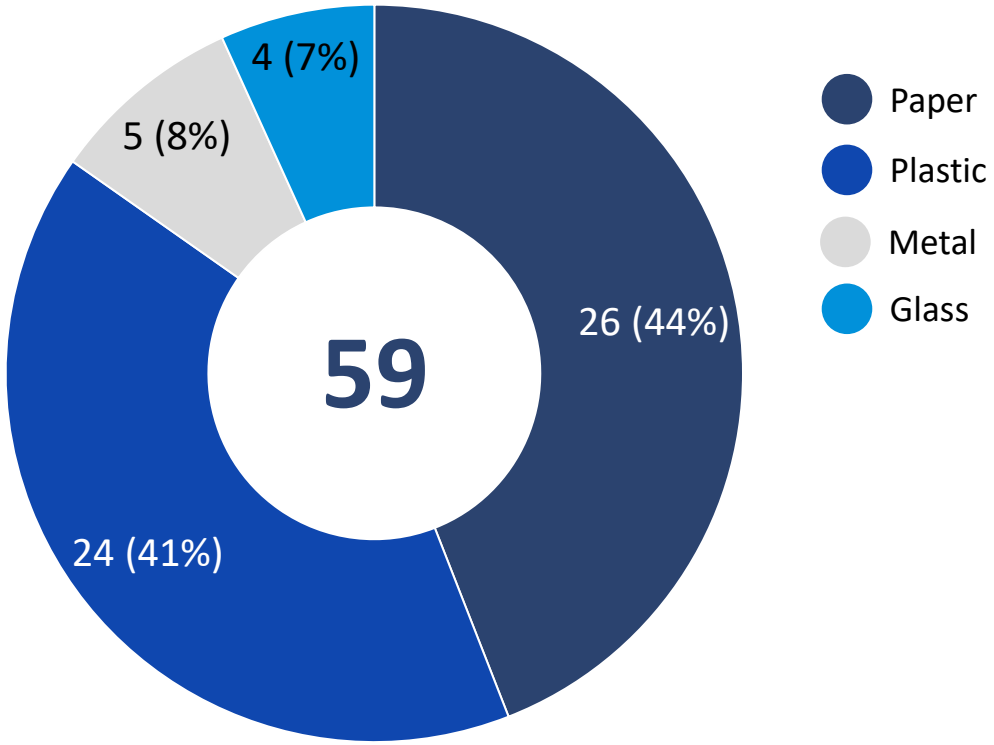
Sub-strate

56%	19%	15%	6%	3%
Plastic	Paper	Metal	Glass	Other

Source: Triangulation based on PIRA (Nov. 2020), trade data, expert interviews and company data

1C: There are ~59 companies producing packaging in Ethiopia, focusing mainly on paper and plastics

Breakdown of players in the packaging industry according to substrates



Key average figures for companies in the sector[1]

10-300
Employees

< US$ 1.5M
Initial investment

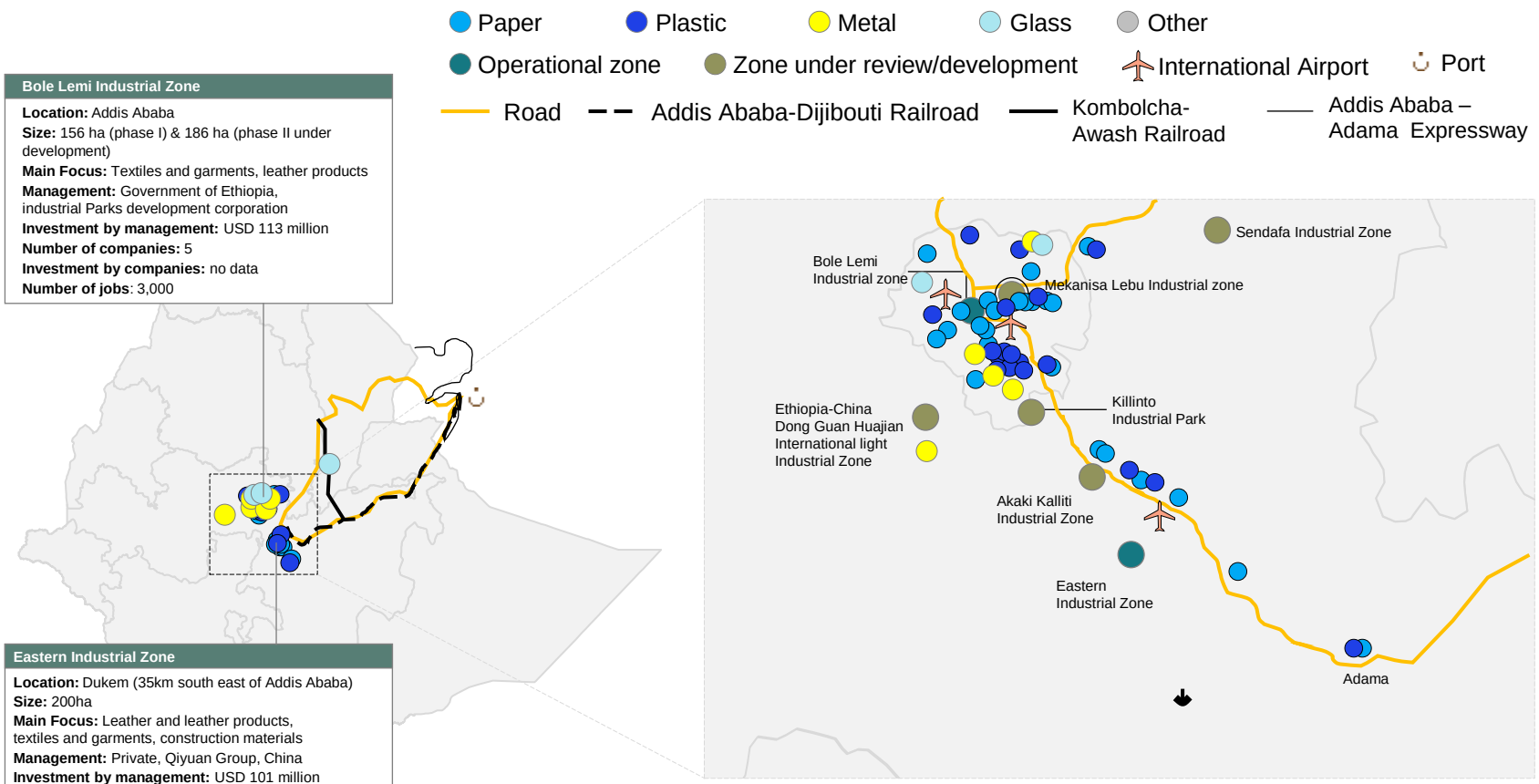
< US$ 4M
Revenues

1. Numbers for revenues refer to only 8 companies across the different sectors, same as for employees. For the invested capital only 6 companies were considered due to available information

Source: Web search

1C: Almost all packaging manufacturing takes place in the vicinity of Addis Ababa and proximal to industrial parks

Illustrative



Bole Lemi Industrial Zone

Location: Addis Ababa
Size: 156 ha (phase I) & 186 ha (phase II under development)
Main Focus: Textiles and garments, leather products
Management: Government of Ethiopia, industrial Parks development corporation
Investment by management: USD 113 million
Number of companies: 5
Investment by companies: no data
Number of jobs: 3,000

Eastern Industrial Zone

Location: Dukem (35km south east of Addis Ababa)
Size: 200ha
Main Focus: Leather and leather products, textiles and garments, construction materials
Management: Private, Qiyuan Group, China
Investment by management: USD 101 million
Number of companies: 27
Investment by companies: USD 205 million
Number of jobs: 4,500

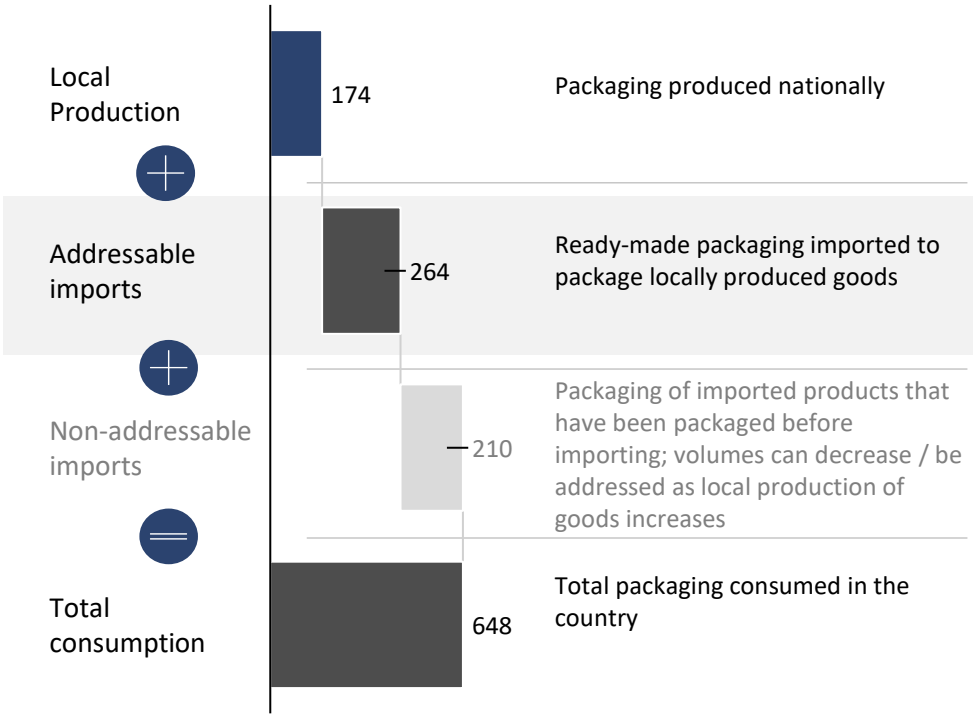
In general, packaging companies seem to have a **central location** (Addis region) and are **serviced by several transport alternatives** (road, rail and air), conditions **required** to have a decent **outflow of production**

Several **industrial zones** now under review/development are being **located next to existing packaging players** and could become **sources of additional demand**

Source: Web search, WEF

1D: Ethiopian companies rely on imported packaging materials for ~60% of addressable domestic demand

Ethiopian packaging consumption, 2019. USD million



Ethiopia packaging imports[2] 2019, USD million

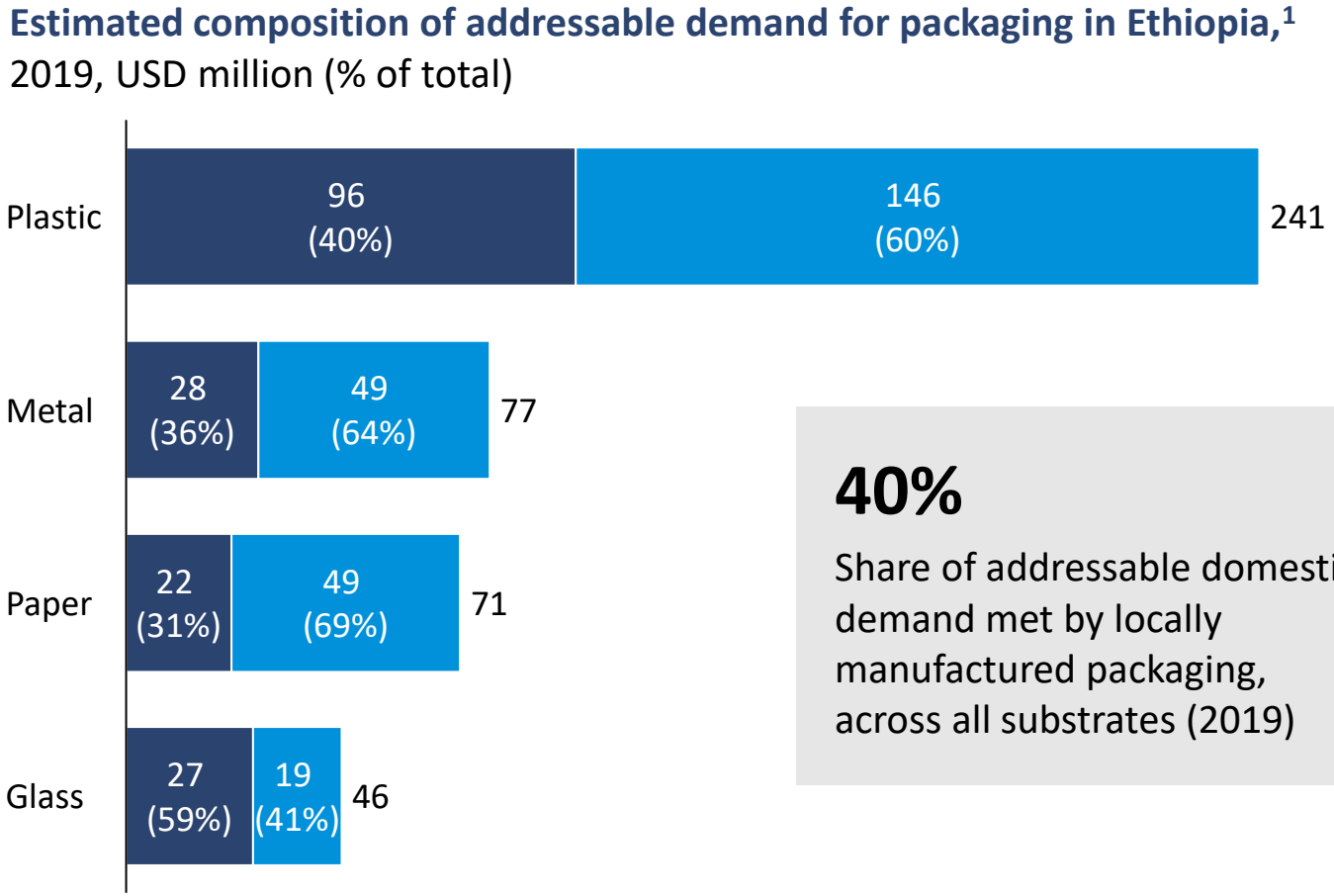
		Main import countries	Main imported products[1]
Plastic	146	WORLD 27% 21% 11% 41%	• Carboys, bottles, flasks • Sacks and bags excluding those of polymers of ethylene • Articles for the conveyance or packaging of goods, of plastics
Metal	44	WORLD 23% 20% 12% 45%	• Crown corks of base metal • Stoppers, caps and lids • Cans of iron steel
Paper	42	WORLD 26% 22% 16% 36%	• Cartons of corrugated paper • Folding cartons of non corrugated paper
Glass	28	WORLD 24% 24% 7% 45%	• Carboys, bottles, flasks, jars, pots, phials and other containers, of glass, of a kind used
Top Importing countries		WORLD 23% 21% 56%	

1. Digit HS code level
2. Only packaging units to be filled with content nationally counted, not packages with contents already filled; Estimate accounts for under-counting in official trade statistics, e.g. due to under-valuation, misclassification, or smuggling

Source: ITC Trademap; PIRA (Nov. 2020), with supplementary analysis from interviews and company data

1D: Ethiopian manufacturers rely on imported packaging across all substrates, but with relatively less reliance on imported glass

Estimated composition of addressable demand for packaging in Ethiopia,[1]
2019, USD million (% of total)



40%

Share of addressable domestic demand met by locally manufactured packaging, across all substrates (2019)

Africa as a whole manufactures ~60% of packaging required for addressable demand, relative to 40% in Ethiopia

For plastic, metal, and paper packaging, Ethiopia relies on imported packaging material for **60-70%** of domestic demand

Approximately **60% of glass packaging is produced in Ethiopia**, a greater share than the other substrates

1. Excludes packaging imported with packaged goods, which is not addressable until those goods are produced in Ethiopia

Source: Triangulation based on PIRA (Nov. 2020), trade data, expert interviews and company data

1E: Opportunities exist across Ethiopia's packaging value chain, particularly in manufacturing of paper/plastic intermediate inputs and recycling

Local players in Ethiopia ecosystem, # of companies

Significant opportunity to deepen investment in the sector

Other opportunities to fill in a gap in the sector

Minimal opportunity for investor to participate

Detailed analysis in back-up **Preliminary**

		Raw product manufacturers	Packaging conversion	Sales - Buyers of Packaging	Distribution - Final users	Collection	Recycling
Paper	Corrugated board	*pulp 0*	5	22	Exporters, transporters and industrial manufacturers[1]	• Retailers • Wholesalers • End consumers	Waste collectors collect paper waste and sell it to recyclers	Implemented at limited scale by paper companies
	Paper board		0	6	Agro-processors (e.g. cereal manufacturers) and FMCG			
	Liquid carton	0			Agro-processors (e.g. beverage producers) and FMCG			
Plastic	Rigid	0	11		Agro-processers (Beverage producers) and FMCG		Informal collectors collect used plastic containers and sell it to recyclers	1
	Flexible	0	13		Agro-processing (food and beverage producers), Exporters, FMCG,			
Glass	Type I	0			Pharmaceutical companies		Glass bottles are returned to beverage manufactures (re-using) or to glass manufacturers for recycling	
	Type II	0			Pharmaceutical companies			
	Type III	4			Agro-processors, FMCG and cosmetic companies			
Metal	Cans	0	2		Beverage related agro-processors and FMCG		Collection by informal collectors and Public Procurement and Disposal Agency	Recycling by manufacturers
	Crown corks	0	5		Beverage related agro-processors and FMCG			
	Aluminum foils	0			Food and beverage, Industrial manufacturers, Pharmaceuticals			

There is a higher **concentration of players** in the packaging manufacturing part of the value chain, with a **significant gap of raw material producers**

Raw product manufacturers (when present) are **forward integrated,** also participating in packaging manufacturing

Key collection and recycling organizations in this space include:

1. Inc. textile, pharma and leather manufacturers

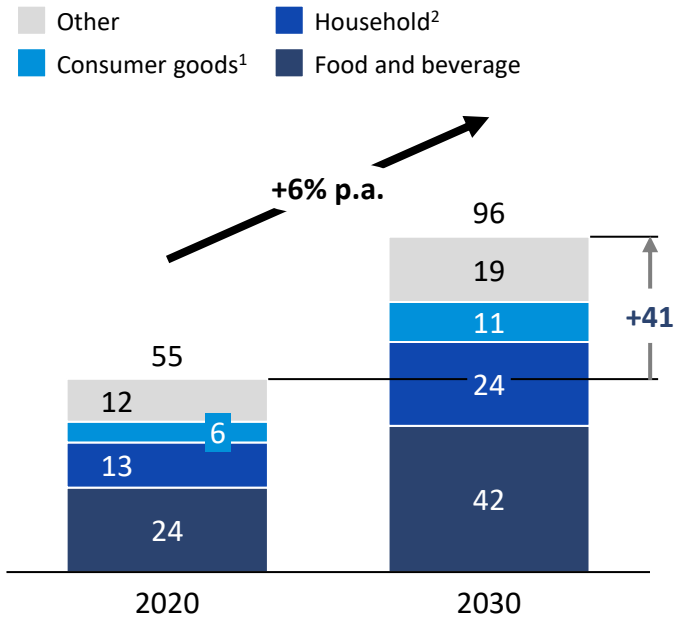
Source: Web search

1E: Growth of the packaging sector will be driven by growth in food and beverage sector, and other priority sectors also depend on locally produced packaging for growth

New opportunities in packaging will be driven by several trends…

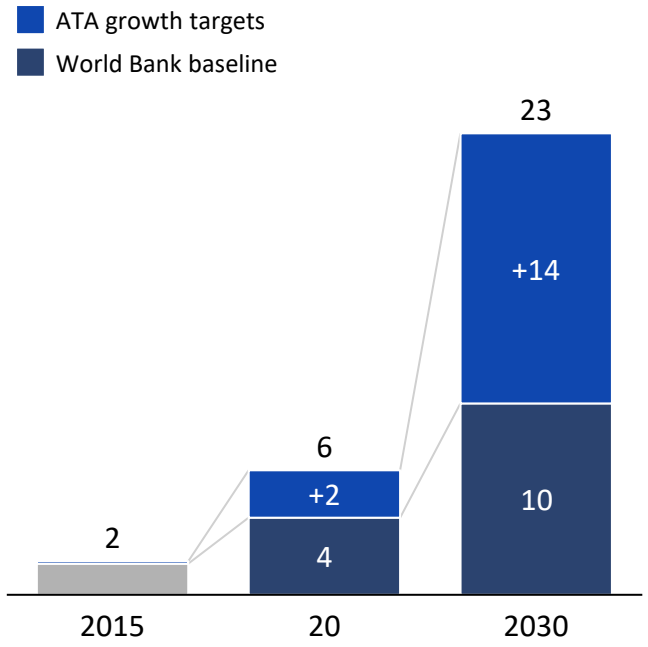
Consumer spending in the country is expected to double in 10 years …

Total consumer spending 2020 vs 2030, US $ Bn



… while agro-processing output could quadruple by 2030

Food and Beverage processing industry forecasted contribution to GDP, US $ Bn



… and several sectors are also dependent on packaging for growth

Pharmaceuticals

Despite the importance of the sector to the economy, there are no local pharma packagers forcing the manufacturers to rely in imports stifling the growth

Food and beverage processing

With the increasing use of PET bottles and lack of customizable packaging in the country, manufacturers are forced to rely on expensive imports which may limit the production

Other consumer goods manufacturers (e.g., shampoo, toothpaste)

Due to the lack of customizable packaging in the country, manufacturers are forced to rely on imports to package their products which may limit the production

1. Clothing, footwear, personal care and automotive
2. Includes all types of house related expenses including maintenance, cutlery and textiles

Source: World Bank, 2019 ATA Food and Beverage Processing and Auxiliary Industry Strategy, Press research

2: Finally, the packaging industry still faces various challenges across five main dimensions that are preventing the industry to achieve its true potential

Preliminary

Detailed next

Challenge	Description
A. Low competitiveness of local players	**Higher product costs** especially due to logistics and inability to buy in bulk (requiring intermediaries) **Lower quality end products** due to lower quality raw materials compared to global competitors, technology and technical knowledge **Lower service levels** with several players having poor to no after sales service **Low ability to offer a customized product** with several players only offering 1-2 stock keeping units (SKUs)
B. Inefficient and difficult importing process	**High level of financial risk** and uncertainty to due constant FOREX issues **High documentary compliance thresholds** versus other developing economies
C. Challenging regulation	**Unclear regulation for food and pharma packaging with long lead times** for the issuance of required certificates by the approving entity (Ethiopia Food and Drug association) **Unsupportive regulation to local producers** with imports of ready-made packaging export purposes being tariff-free
D. Difficulty in doing business and converting investment	**Complex processes to start up businesses** that require an average of 11 procedures and take 32 hours in Ethiopia, versus the 7 procedures and 22 hours taken by Sub-Saharan Africa on average **Unreliable supply of electricity and lack of transparency in its utility tariffs**, with Ethiopia scoring a 0 versus Sub-Saharan Africa's 7 **Difficulty converting investors** with investors visiting showing limited interest as well as poor record keeping of attendees at trade fairs, no communication between organizers and the EIC, and still no adoption of an FDI tracking tool
E. Unexpected demand shifts due to COVID	Overall impact of COVID is still uncertain but may lead to generalized decrease in consumption of goods and respective packaging

2A: Several gaps were identified throughout the packaging sector as a whole…

Main gaps identified in the packaging sector

Sustainability focused

Raw material sourcing/ purchasing

- **Feedstock materials are largely imported** (e.g., with limited use of local sources of raw materials like bamboo)
- **Quantities produced are insufficient to enable bulk purchasing** of raw materials
- **Shortage of forex** and **high customs on resins** affects availability of raw materials
- Delays and **unpredictability of imports** causes players to **produce below capacity**
- **Local recycling of materials is limited**, limiting circularity of the value chain
- **Selection of materials for production not based** on their sustainability or **ability to be recycled**

Packaging conversion

- **Frequent power and water outages** leading to disruption of operations
- **Shortage** of **skilled labor** for production
- Available **technologies** are **for basic type of packaging,** with little sophistication
- **No clear regulation** on quality packaging standards, leading to inconsistent quality of end products
- **No participation of converters in mechanical recycling** to capture value pool and replace imports
- **No packaging dedicated department or account managers** at EIC for packaging sector investors
- **Limited rules and incentives** to adapting the production process to **more sustainable practices** (e.g. light weighting/ light gaging)

Sales & Distribution

- **Insufficient supply** to satisfy current demand
- Purchasers in pharma sector and of export industries get **tax exemption on import of packaging, dissuading purchase of local products**
- High level of **imports of finished goods with non-renewable, non-biodegradable packaging**
- **Poor knowledge of buyers of packaging on the benefits of adequate packaging** (e.g. increasing shelf-life) leading to a for-go of packaging or selection of sub-optimal options

Collection & waste management

- **Lack of enough depots** and sheltered municipal waste collection points
- Transport is **expensive and not frequent** in remote areas, where population is more disperse
- **Collection for recycling relies on informal market** (“Korales”, Trash scavengers and Foragers), with **limited presence of private players** in the market
- **Minimal market outlets for sorted materials** discourages sorting practice during waste collection

Recycling

- **Lack of at-scale sorting centers** (e.g. by landfills)
- **Low capacity** of private recyclers to process and sort all waste
- **Poor knowledge** about recycling of the public in general

Source: Expert interviews

2A: …which results in a lack of competitiveness that came across clearly in interviews done to buyers

Key buying factors' overview of local production

	Paper	Plastic	Metal and Glass
Price	**More expensive than imported packaging** Due to lack of forex and higher margins by manufacturers	**More expensive than imported packaging** Due to higher tariffs on raw materials, lack of forex and high profit margins	**Competitive pricing over imports,** driven by cheaper access to raw materials
Quality	**Inconsistent quality packaging** Which sometimes create product damage	**Low quality packaging** which compromises product appeal to retailers	**Meets client expectations** Minimal breakages, however there have been complaints of broken bottles as reported for some players
Service	**Poor customer service** With inconsistent supply reported from most buyers	**Poor customer service** With inconsistent supply reported from most buyers	**Compliant with sufficient lead time** Poor customer service and no after sales service as reported for some players
Customization	**Low level of customization** Focus is on producing tertiary packaging (corrugated boxes)	**Levels of customization are available** depending on the end use	**Creates one to two standard SKUs**

Source: Buyers and EIC after-care team interviews

"The packaging manufactured locally is more expensive than what we can import"

– Buyer of Packaging

"Costumers end up preferring lower quality products in the retailers just because their packaging is better and therefore the products have a better shelf life and maintain properties longer"

– ATA Report

"Packaging imported by agro-processors and Pharmaceutical manufacturers are not taxed if the final product is exported"

– EIC after-care team

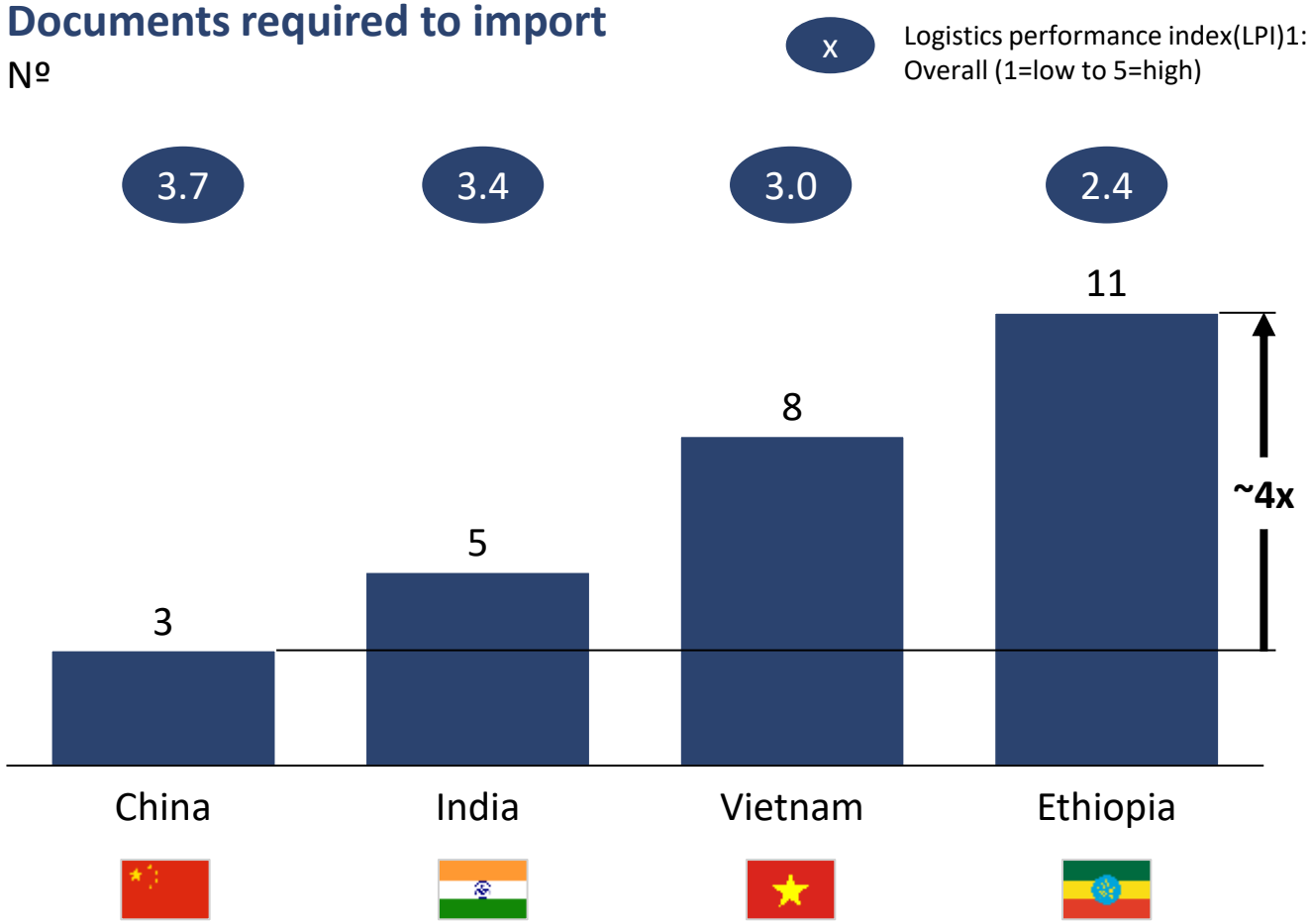
"Pharma standard packaging are not available locally"

– EIC Pharmaceuticals after-care team

2B: Packaging manufacturers face burdensome processes to import which jeopardize for example the time to import raw materials needed

Documents required to import

Nº



Source: World Bank, IFC, ATA

The majority of packaging consumption in the country is met through imports and when it comes to efficiency in clearing imports, Ethiopia is still behind the main emerging economies

The effects of this bureaucratic import processes are augmented by the difficulties in logistics and Forex availability having impact on packaging manufacturers and consequently their customers

According to ATA, lead times can exceed one year, leading to under-capacity production of 20-40% below theoretical levels for food processors

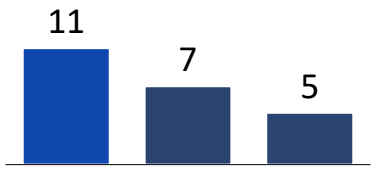
1 The LPI is an interactive benchmarking tool created to help countries identify the challenges and opportunities they face in their performance on trade logistics and what they can do to improve their performance Source: World Bank

2D: In terms of ease of doing business, Ethiopia is lagging behind in areas that may hamper growth in packaging sector

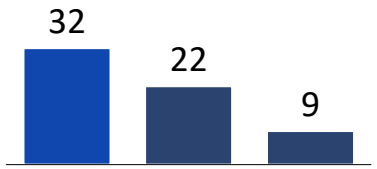
Illustrative examples from World Bank's Ease of Doing Business ratings

It is a long and bureaucratic process to start a company…

Number of procedures need to start a business

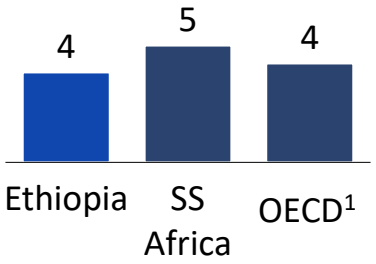


Time (hours) to start a business

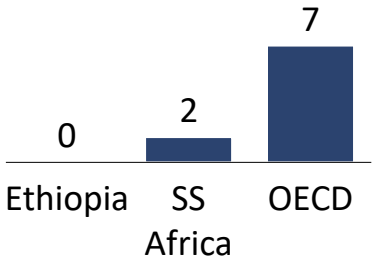


…that lacks access to critical enablers

Number of procedures to get electricity



Reliability of supply and transparency of tariff index (0-8)



As of 2019, Ethiopia sits in the **159th position on The World Bank's Ease of Doing Business rankings, out of 190 countries**

Apart from general ease of doing business frustrations, manufacturers in the packaging sector frequently cited **foreign exchange challenges and other difficulties accessing imported raw materials reliably**

In 2020, Ethiopia's House of People's Representative passed a new **Investment Law**. Foreign investors – particularly in the collection and recycling sub-sector – report increased ease of doing business and ability to participate across value chains

[1] Organisation for Economic Co-operation and Development (OECD) is an intergovernmental economic organisation with 37 member countries, founded in 1961 to stimulate economic progress and world trade.

Source: World Bank

2D: Addis Ababa has played host to packaging-related expos, including the annual "Ethiopia plastprintpack" meeting …

Non-exhaustive

Ethiopia plastprintpack

Annual meeting point for the plastics, printing and packaging machinery and equipment industry in Addis Ababa, hosted by German company Fairtrade Messe which runs similar events in countries like Kenya and Nigeria

compack COMPLETE PACKAGING EXPO

Compack is a professional expo about packaging processing technology, printing, logistics and warehousing organized by Indian company Smart Expos which holds events in Nepal, Bangladesh, South Africa, Kenya and others. The event was held in Addis Ababa for the first time in 2020

COMPLAST Complete Plastics Exhibition

Complast is focused on the plastic packaging and machinery industries and is also hosted by Smart Expos in countries such as Nigeria, Kenya, and South Africa. The event was held in Addis Ababa for the first time in 2020

153
exhibitors from

18
countries

3,205
attendees from 20 countries

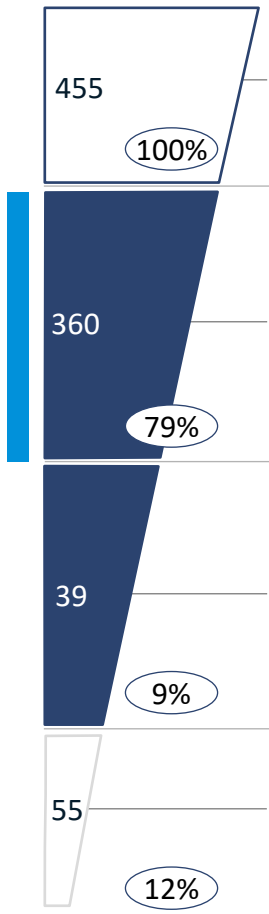
~80%
of exhibitors foreign and the rest Ethiopian

Source: Web search

2D: However, planned investments in the sector have not always materialized, with only 12% of the projects reaching operational phase between 1993 and 2020

Pipeline of investments 1993-2020

Detailed next



Investments	Stage	Description	Details
455 (100%)	**Applications**	Companies who have submitted formal proposals to manifest their intent to invest in Ethiopian packaging industry	~87% of the companies from Ethiopia
360 (79%)	**Pre-implementation**	Company was registered with the EIC and received a permit but has not started operations	~97% from Ethiopia ~60% paper/board and ~20% plastics
39 (9%)	**Implementation**	Company is licensed, land for project was acquired and machinery is in place but production is yet to start	~67% from Ethiopia, ~7% from China, ~7% from India and the rest include Netherlands, Kenya, Saudi Arabia and USA ~56% are companies for paper packaging
55 (12%)	**Operational**	Company has ongoing active operations	~40% from Ethiopia, ~18% from India, ~11% from China ~74% are companies manufacturing paper packaging

Within the EIC pipeline of deals there is a significant amount of investments that are yet to become operational (~88%)

Source: EIC After-care

Contents

Source and methodology notes

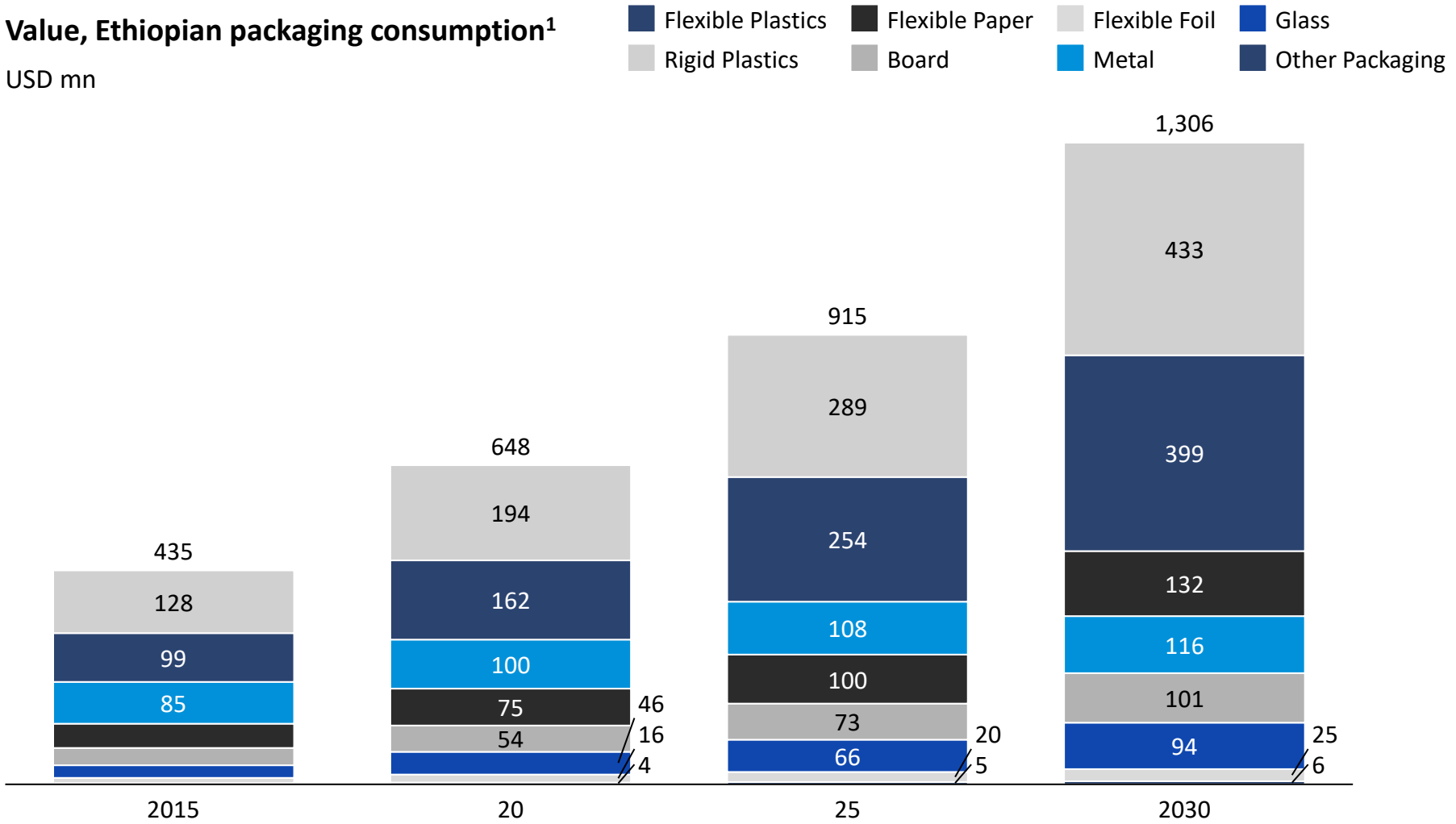
Package market sizing data and analysis was commissioned from Smithers PIRA, a market leader in intelligence and reports on the packaging sector globally. Historical market assessment and forecasts cover the 2015 to 2030 period.

Market sizing assumptions	Notes
Volumes	• Initial sizing derived from proprietary Smithers packaging market data, • Africa and Ethiopia market sizing adapted based on expert interviews, company websites and annual reports, and region/country demographics • COVID-19 disruptions and trends accounted for in 2020
Prices	• Import and export data (volume and value) for raw materials • Research and interviews with packaging companies in each material type. (Prices obtained through interviews will be a list price which is open to negotiation and other factors including business relationship status, credit status etc. Adjustments made to account for different customer types and volume orders) • Average material prices used across end-use applications despite varying prices for products within each product category • Material pricing assumed to be similar in countries within same region, with slight differences across countries
Trends and forecasts	• World and regional trends captured by Smithers packaging market data and reports • Africa and Ethiopia trends informed by growth outlook, demographic trends, and current income levels

The packaging industry in Ethiopia will increase considerably in the next decade, driven mainly by flexible and rigid plastics in value and metal in volume

Value, Ethiopian packaging consumption[1]

USD mn



Packaging consumption is on track to double by the end of the decade to become a $1.3bn market in Ethiopia

Rigid and flexible plastics are forecast to represent a growing share of demand over the decade

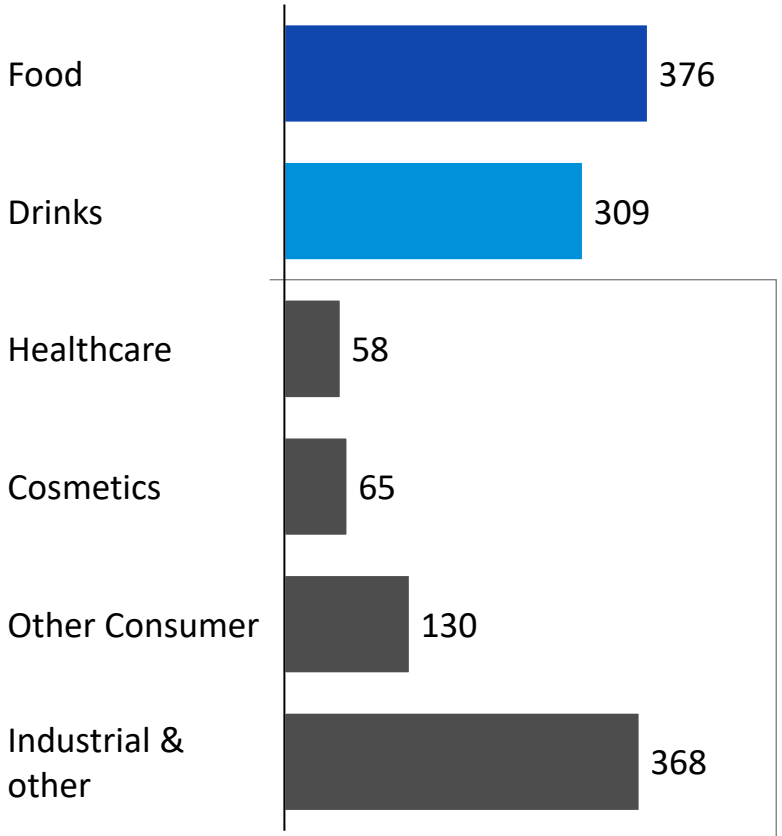
NOTE: Ethiopia's packaging manufacturing output (currently ~$174m) can grow significantly faster than overall demand, due to under-penetration as well as broader import substitution in the economy driving demand for packaging materials in Ethiopia

1. Includes packaging consumed with imported packaged goods (not considered addressable)

Source: Triangulation based on PIRA (Nov. 2020), trade data, expert interviews and company data

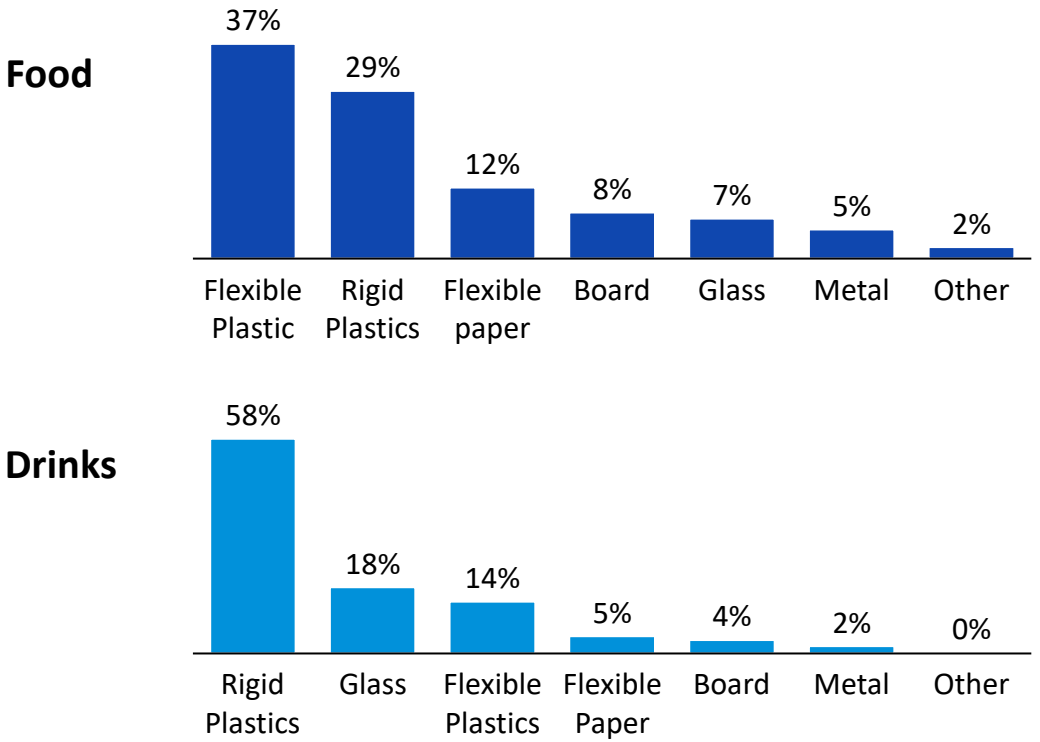
Food and Industrial packaging will be key drivers of this growth in the country, representing over 50% of consumed packaging in 2030

USD mn, 2030



Break-down by substrate for food and drinks sector

Percentage



Key takeways

The demand for packaging in Ethiopia in 2030 will come mostly from the food and beverage industry, as well as other industrial use

Rigid and flexible plastics will remain the preferred options in both of the largest and fast growing categories, as well as glass for beverage sector

Source: Triangulation based on PIRA (Nov. 2020), trade data, expert interviews and company data

By 2030, the addressable market for locally manufactured packaging is likely to reach $0.8-1.05 billion, relative to only ~$174 million of output today

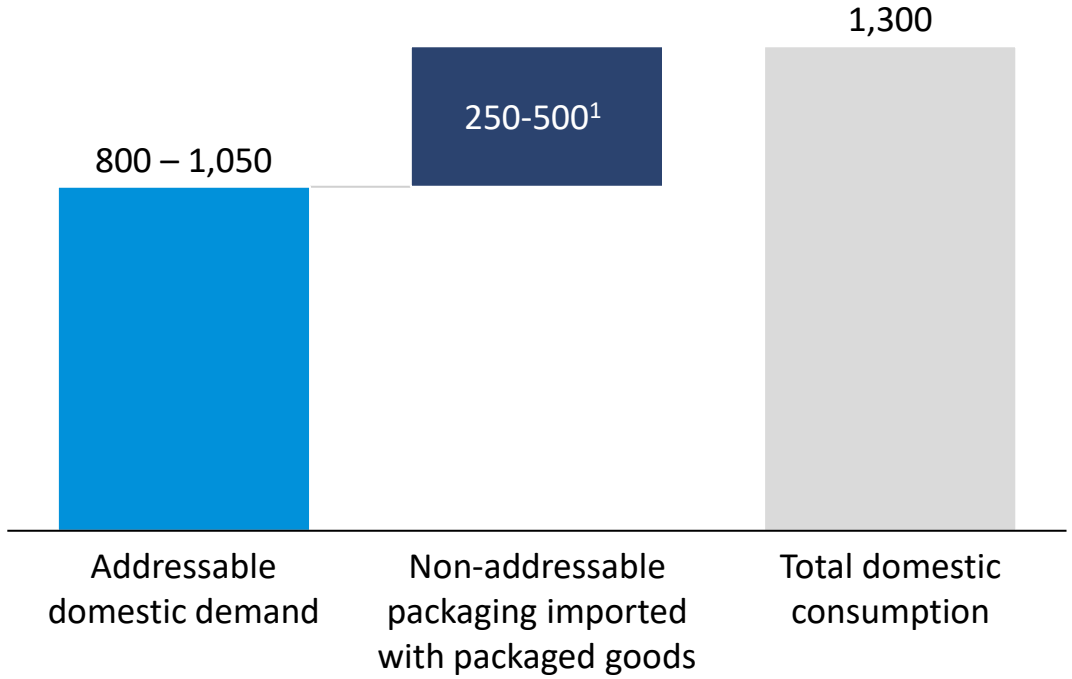
Addressable market – detailed next

Current market size of the packaging industry

Mn USD, 2019

Future market size of the packaging industry

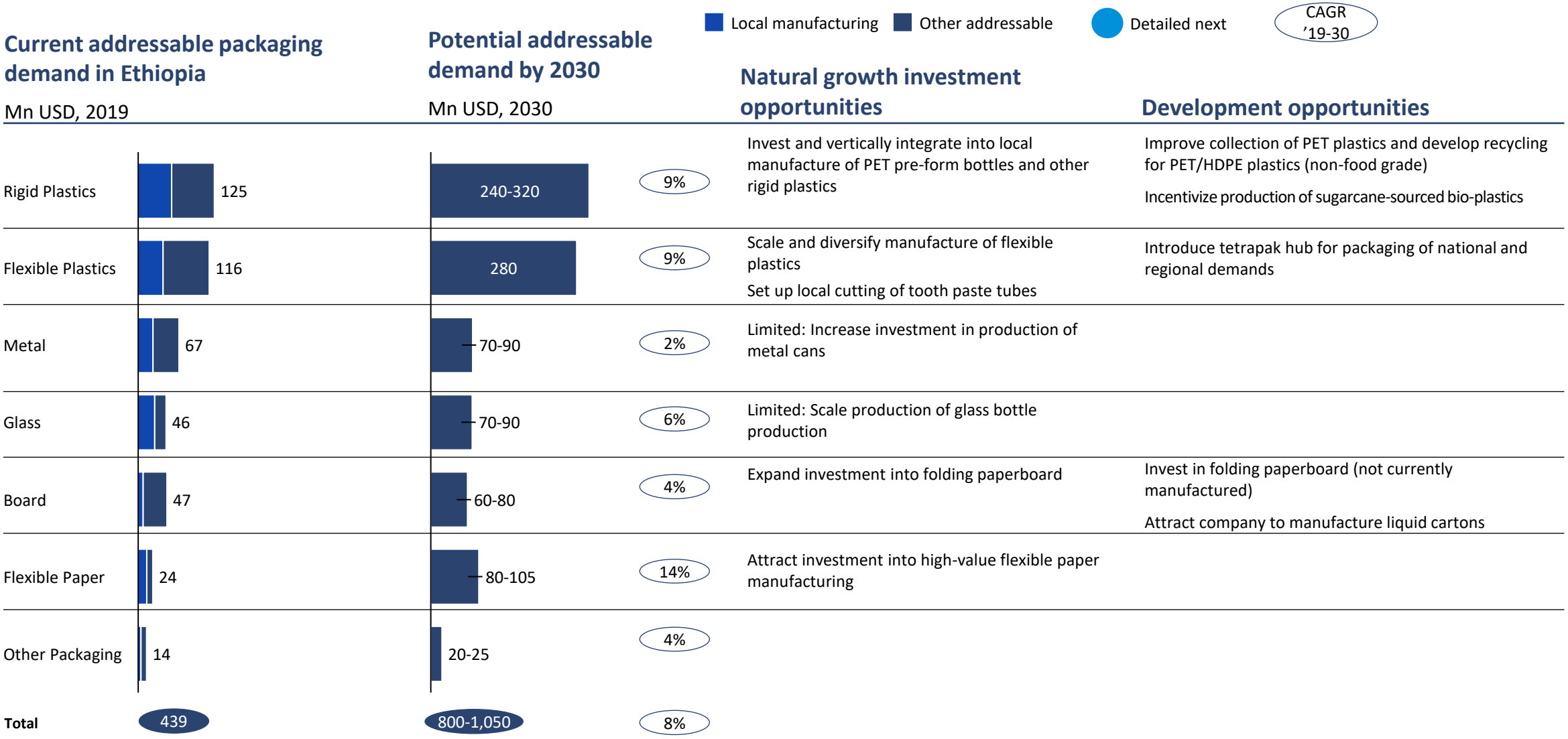
Mn USD, 2030



1. Size of addressable / non-addressable opportunity depends on degree of import substitution seen in broader industrial, agro-processing, and consumer good sectors

Source: Triangulation based on PIRA (Nov. 2020), trade data, expert interviews and company data

Current manufacturing footprint and growth forecasts across materials reveal significant investment opportunities across the sector



Source: Triangulation based on PIRA (Nov. 2020), trade data, expert interviews and company data

Contents

There are several global trends impacting the packaging sector, sustainability trends should be the ones with highest impact for the Ethiopian market

Non-exhaustive

Focus of this chapter – detailed next Low High

Trends impacting the packaging industry	Impact / relevance for Ethiopia	Key implications for Ethiopia
Sustainability, recycling and circularity opportunities appearing along the value chain, as technology evolves to produce new materials, public pressure increases and stakeholders become more aware of the importance of using packaging more responsibly		Opportunities to alleviate reliance on costly imported raw materials requiring forex, so "sustainability" investments do not have to rely on green price premiums Private and investor-driven efforts can create at scale sorting centers to create supply for recyclable waste, which will enable further investment in recycling plastic and paper Explore local sources of alternative packaging raw materials (e.g. bamboo, sugarcane)
Consumers are becoming more sophisticated and demanding more portable and efficient packaging		Cost-consciousness will continue to dominate because of income levels, but convenience will be a growing consideration, e.g. creating new opportunities for liquid carton packaging instead of plastic bags for milk
Buyers of packaging require both innovation as well as lower costs of packaging, fewer waste (both in packaging materials and food waste due to poor packaging) and increased shelf-life		Opportunity for low cost but higher shelf life type packaging for buyers, whose sales are suffering from low quality complaints in a market that is very price sensitive (e.g. metal cans and flexibles can make food last 1-2 years instead of days)
E-commerce is shaping the types of packaging required and their shapes for efficiency in transport		E-commerce still has low expressiveness in Ethiopia, yet businesses with export potential could start looking to understand trends in corrugated cardboard packaging for shipping parcels
Digitalization of packaging (IoT) being adopted to help players **become more efficient**		Companies can explore low hanging fruits in technology adoption and include tech-savviness and innovation as criteria to screen investors

Sustainable packaging refers to packaging that is made, used and enables circularity, in an environment friendly way

What is sustainable packaging?

Sourcing

Raw materials sourced from **environmentally friendly sources** (e.g., bamboo packaging)

Raw materials are **locally produced**

Raw materials **incorporate high level of recycled material or waste products from other production processes** (e.g. bio-based sugar cane bottles)

Production

Produced using **minimal materials** (reduced layers, less volume and mass) (e.g., flexible plastic packaging uses less plastic than rigid packaging and weighs less than metal)

Produced in a **resource efficient manner** (e.g., use of renewable energy, water re-use)

Produced in a way that has a **minimal effect on climate & pollution** (e.g., CO2, ozone layer)

Produced in a way that poses **no health harm** to consumers or workers

Usage

Developed to be **re-usable**

Developed **adequately to extend shelf-life of contents** to reduce food waste (e.g. metal cans or flexible plastics can make food last 1-2 years instead of days)

Disposal

Safe end of life form – recyclable, completely compostable or incineration with energy recovery (e.g., using mono-materials versus composites which cannot be recycled)

Recycling

Developed using **recyclable materials** (can be salvaged for value)

Used in locations where **systems exists for collection, segregation & recycling** of material

Source: Expert interviews, Winning with New Models in Packaging, Sustainable Packaging, Threat or Opportunity

As it stands, Ethiopia has had minimal investment in the recycling and sustainable materials landscape

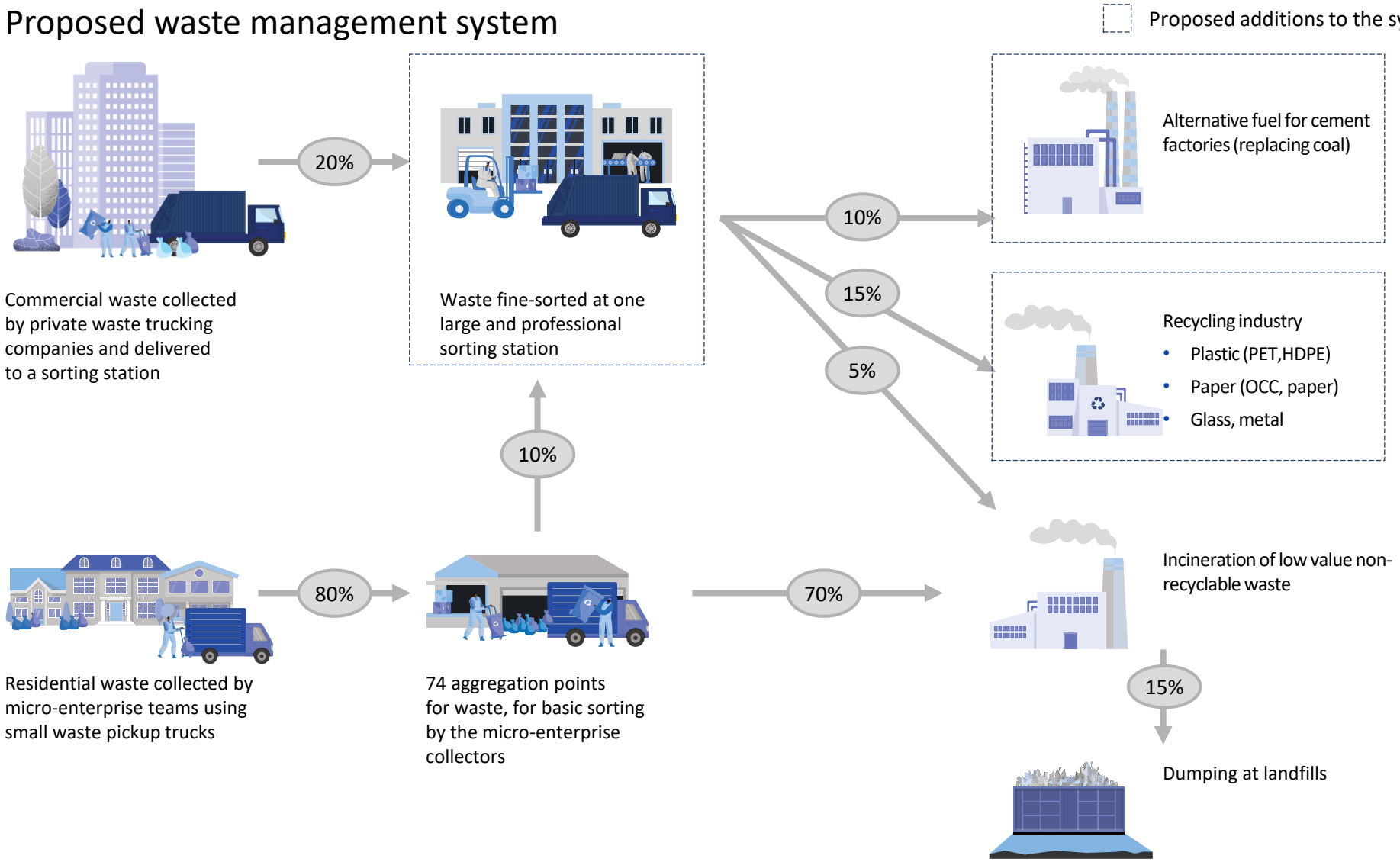
Baseline recycling or sustainability landscape

Category	Description of what currently happening in the space	Key players	Next steps or opportunities to facilitate investment
Paper recycling	~5% of paper/board recycled or exported Informal collection systems A few paper processors who sort and process for export to gain foreign exchange	Penda Sorts and collects paper prior to collection by municipalities through informal networks Sells pulp/board to manufacturers	Partner with private companies to establish sorting centres near landfills Promote sorting at point of disposal in commercial and government sectors Partner with bottlers and paper/board manufacturers to adopt recycled raw materials Attract investment into low-complexity PET and HDPE recycling (non-food grade is low hanging fruit)
Plastic recycling	30-40% of plastics collected for export by informal sector 10+ active PET plastics processors who sort, clean and process flakes for export without value addition No chemical recycling for domestic market	petco COBA IMPACT Sets up collection network for plastic, including through partnerships with industry Exports flakes/pellets	
Metal recycling	30-40% of metals recycled 20+ active metal recycler who collect, sort and melted and repurposed for other use or exported for scrap	*Unknown* Sets up collection network for scrap, primarily through informal networks Also exports scrap metal	
Glass recycling	High share of glass re-used or recycled (especially bottles) 5+ active glass recyclers who collect, sort and recycle primarily into new bottles	Juniper Glass Industries S.C. Glass manufacturers and bottlers that collect, sort, and recycle	Limited need for independent collection or recycling
Alternative sustainable materials	No active players in the market Taison Group signed an MOU with the govt for $2bn bamboo pulp and tissue factory	*Not applicable*	Opportunities to invest in pulp and plastics derived from bamboo, bagasse, and bio-ethanol

Source: Expert interviews, press research, GIZ

An investor in paper recycling has proposed a new $10 million investment in a large scale sorting center, which could create significant opportunities to add value across material types

Proposed waste management system

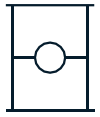


Currently, a minimal percentage of plastic and paper waste is collected for value addition, with almost all waste going to landfills (sometimes via an incinerator extracting limited value potential)

We estimate that improved collection system could enable a new ~$135 million opportunity in paper and plastic recycling

Source: Penda Paper sorting center project proposal, press research

Based on work to date, key recycling and sustainability opportunities to explore in Ethiopia are in paper products and recycled plastic, with some potential for metal

Material	Insights	Feasibility and attractiveness for Ethiopia	Rationale
Paper and fiber 	• **Recycling is critical** in boosting the sustainability of paper packaging and in **reducing reliance on imported pulp or paper products** • Global rise **of bamboo for the production of reusable packaging** (particularly for dry food, fresh fruit)		• **Large demand for paper** packaging • Ethiopia has **largest bamboo forest in the region** but no plans for it, while several initiatives and organisations[1] in Africa are already **promoting the cultivation of bamboo** for paper and packaging
Plastic 	• Growing demand for recycled materials given fast moving consumer goods (FMCG) company commitments to sustainability and **demand for alternatives to imported virgin plastic** • **Non-recyclable plastics can also be converted to energy** as refuse-derived fuels through processes such as gasification and be used to replace non-renewable sources such as coal		• Limited offer of **recycling players** locally and difficulties in importing plastic as a raw material • **Global demand for recycled plastic** materials (rPolymer with growing premium over virgin plastics) • **Potential large job creation opportunity** in sorting
Metal 	• **Share of metal that is recycled tends to be high** (particularly in emerging countries) due to the value of the raw materials • There is **potential to convert recycled metal to sheets** before exporting		• Metal waste has high value, but informal sector already collects and sells significant share of metal waste • Not a key enabler of packaging sector
Glass 	• Increasing **promotion of re-use as a model** for bottles and jars is an opportunity for glass packaging • **Challenges in recycling glass** because given that glass is heavy, breaks easily and recycling requires large investment and scale		• **Manufacturers can re-use glass, but there is little remaining investment opportunity** • **Limited manufacturing opportunity** in the re-use of glass

1. Rwanda examples: China Bamboo Aid Project - partnership with Rwanda to import and grow ~5000ha of bamboo (currently at ~500ha), EcoPlanet Bamboo - working with small holder farmers to increase bamboo production

Source: Ecoplanet bamboo website, NewTimes rwanda

We identified opportunities for investment in recycled paperboard, bamboo pulp, recycled PET/HDPE, and refuse-derived fuel (1/2)

Feasibility of the paper, metal and glass substrates for packaging in Ethiopia

Most viable for investment

Material	Market size	Economic attractiveness	Technical feasibility	Access to inputs & collection systems	Summary assessment	Key considerations
Paperboard	$ 37 million	Significant opportunities in creation of basic packaging from waste paper	Limited access to raw materials due to low recycling rates	Unlike plastics, deliberate sorting is required at point of disposal	**Priority opportunity**	Has the ability to reduce pulp imports, for converters as well as other industries, in the short term driving sustainability and closing the loop on circularity
Bamboo pulp manufacturing	*Large export opportunity*[1]	Attractiveness could depend on ability to serve export markets paying premium	New equipment and know-how required to convert bamboo pulp; Paper mills need to be set up to use this fibers	Ethiopia has cheap and abundant access to bamboo	**Potential opportunity**	Some paper companies e.g., Burayu have expressed interest in procuring bamboo pulp as alternative to imported wood pulp There may also be an opportunity for export to pulp importers in developed markets e.g., China, or textile investment in Africa
Glass recycling	$ 16 million[2]	Already addressed by players in the market	Has developed all the capabilities required	Existing bottler-led collection	**Limited new opportunities**	Minimal opportunity for investment due to monopoly over collection and recycling held by the glass bottle manufacturers
Metal recycling	$ 60 million	Scale constrained by demand	Some recycling done by existing manufacturers	Scrap collected for export	**Limited new opportunities**	Minimal opportunity for investment due to limited used of metal for consumer packaging

1. Given that the product is primarily for export to international markets, it would require detailed sizing hat encompasses assumptions behind what share Ethiopia could feasibly take up
2. Assuming $80/ton and 66% of glass is recycled

Source: Expert interviews, Global Business Network reports, Euromonitor packaging reports, Press research

We identified opportunities for investment in recycled paperboard, bamboo pulp, recycled PET/HDPE, and refuse-derived fuel (2/2)

Feasibility of the plastics substrates for packaging in Ethiopia

Most viable for investment

Material	Market size	Economic attractiveness	Technical feasibility	Access to inputs & collection systems	Summary assessment	Key considerations
Plastic collection and recycling	$ 58 million[1,2]	Must be competitive with exports of flakes	Non-food grade recycling is most feasible	Scaling of sorting systems required	**Priority opportunity**	Has the ability to reduce imports in the short terms driving sustainability and closing the loop on circularity by increasing the recycling rate
PET-derived polyester fiber	$ 30-40 million	Textile industry is ready customer	Only mechanical recycling is required for polyester fiber	Scaling of sorting systems required	**Priority opportunity**	Conversion to polyester fiber is dominant use of recycled PET globally and does not require food-grade quality chemical recycling
Bioplastics manufacturing (PET)	$ 95 million[2] *(Only if competitive)*	Requires high willingness to pay (2-4x higher cost than ordinary PET	Capital intensive	Abundant sugarcane and conversion to bio-ethanol	**Limited new opportunities**	Due to the lack of willingness to pay price premium in Ethiopia, the opportunity would depend on being able to serve export markets
Biodegradable plastics manufacturing (PLA)	$ 7 million	Small domestic market and requires high willingness to pay	Highest technical complexity		**Limited new opportunities**	Considered a relatively new product requiring significant capital investment and ongoing R&D Requires high willingness to pay and specialized after-use composting
Refuse-derived fuel (RDF)	$ 3 million	Plastic currently going to waste with no value extraction	Noted interest from international players	Scaling of sorting systems required, especially for non-PET plastic	**Priority opportunity**	Could drive sustainability by repurposing waste and reducing the dumping rate at landfills

1. Assuming recycled plastic is inclusive of PET, PP and HDPE; and 40% of PET is collected and 75% is recycled ; non PET plastics (60% of all plastics) for conversion priced at $50/ton
2. Assuming bioplastics would essentially replace the function of PET bottles

Source: Expert interviews, Global Business Network reports, Euromonitor packaging reports, Press research

PET, HDPE and PP are the most viable plastic resins to pursue for recycling due to the yield and cost competitiveness

Prioritization of plastic substrates for Ethiopia to consider for packaging investment

Compatibility Low High

	Value of product consumed in Ethiopia where the higher the demand, the larger the opportunity	Ease of collection and recyclability where the easier it is to recycle, the more compatible the plastic	Cost competitiveness where the more valuable the pellets, the higher the returns and compatibility	
Polyethylene Terephthalate (PET)	$ 438 million	Easiest sorting / recycling	Typically competitive	Priority opportunity for recycling
High Density Polyethylene (HDPE)	$ 18 million	Easy sorting / recycling	Typically competitive	
Polypropylene (PP)	$ 215 million	Challenging sorting and low recycling yields	Less competitive	Potential opportunity for more complex recycling, but not immediate term
Low-Density Polyethylene (LDPE)	$ 2 million	Difficult to recycle	Not competitive	Not currently a viable recycling opportunity for Ethiopia.
Polyvinyl Chloride (PVC)	$ 185 million	Difficult to recycle	Note competitive	Waste can serve as refuse-derived fuel for incinerator or cement kilns
Polystyrene (PS)	$ 8 million	Unrecyclable	*Not applicable*	

Source: Expert interviews, Global Business Network reports, Euromonitor packaging reports, Press research

Global experience suggests 6 key levers to promote circular economy, with Ethiopia currently utilizing 3 to some extent

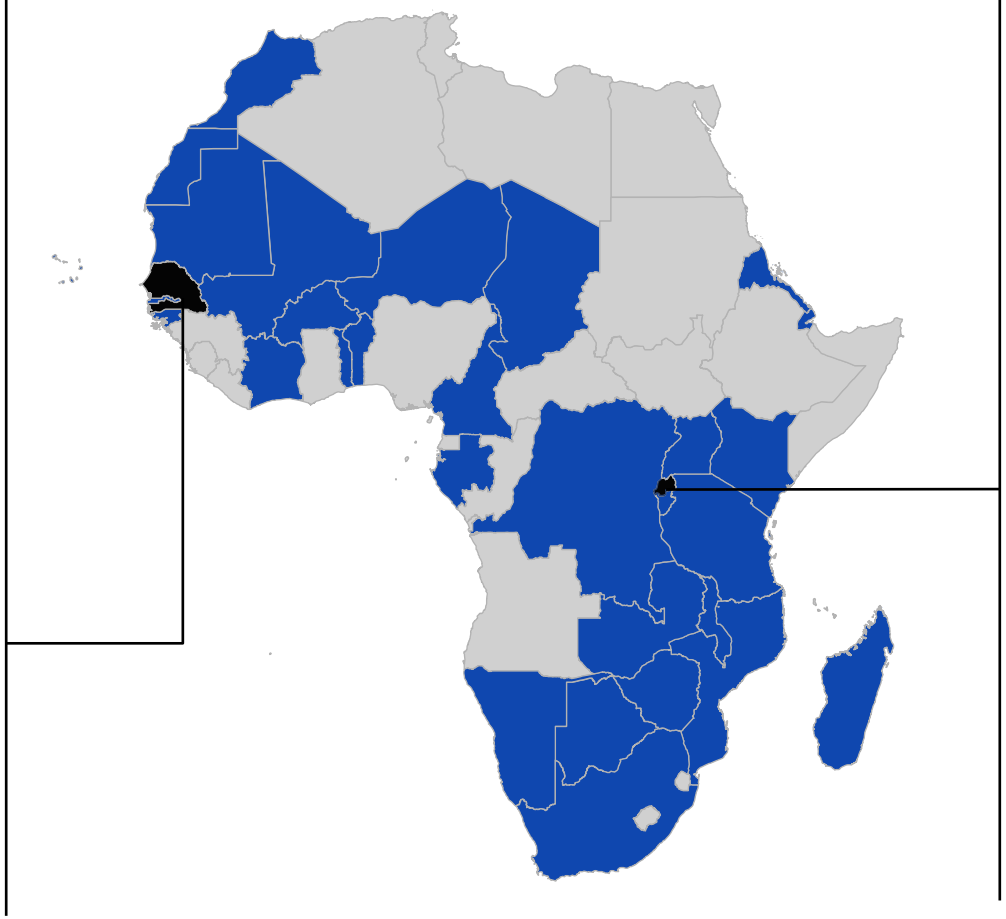
PRELIMINARY

Lever	Examples	Description	Assessed extent of use in Ethiopia
1 **Procurement**	Conditional procurement contracts	Government awards procurement contracts based on compliance with certain standards e.g. 30% of packaging material recycled	
2 **Subsidisation**	Make land available	Government land made available for exclusive use by circular economy initiatives	
3 **Regulation**	Extended produce responsibilities (EPRs)	Companies charged tariff for type (e.g. +/- recyclable) and amount of material sold; tariff used by gov't or other e.g. NPO to recover materials	
	Minimum requirements for recycled content	Regulations pertaining to the minimum share of products/packaging that needs to be made from recycled material	
	Restrictions on single use plastic	Regulations regarding the application of single use plastic e.g. banning single use plastic	 Plastic bags with thickness <0.03mm are banned
	Increase use of bio-based plastics/ compostable packaging	Government setting demands for specific amount of plastics from renewable sources and/or compostable/biodegradable	
	Material reduction	Governments are promoting packaging weight reduction and decrease of excessive packaging	 Meck sleeve on bottled water and juice is banned
4 **Develop waste management and limit resources**	Develop clear policies for waste collection and limit landfills	Restrict the available space in landfills to limit the amount of waste that is dumped and develop alternative sources to landfills for waste	 Reppie Waste-to-energy plant incinerates 80% of Addis Ababa's rubbish
5 **Outsourcing across value chain**	Employ private companies in parts of value chain	Creating opportunities for private companies to enter parts of the value chain e.g. private waste separation facilities, private-public partnerships in collection	 Waste collection and separation is done by SMEs
6 **Consumer education/ demand creation**	Marketing campaigns	Raising awareness of the impact of circularity/non-circularity through targeted campaigns and incentivizing its use	

3: In Africa, 62% of the countries adopted legislation against plastic pollution, the focus is still mainly on single-use plastic bans

Moderately exceeds regulations Aggressively exceeds regulations

Legislation against plastic pollution
(single use plastic bans)



Senegal :

- Prohibited the production, import, holding, distribution, use of thin plastic bags and the rational management of plastic waste
- Prohibited the possession and use of plastic bags with a thickness of 30 microns or more

Economic Community of East African States:

- *Polythene Materials Control Bill (2017):* Enacted a law prohibiting the use and import of plastic bags within the member countries of the community
- Promoted the use of environmentally friendly packaging materials

Rwanda:

Pioneer in the fight against plastic pollution

- 10 cleanest cities in a UN ranking
- Launched a “plastic reform in Africa” movement by banning plastic bags in 2008
- Created the Rwanda Environmental Management Authority (REMA)
- Providing tax incentives for purchasing equipment to recycle plastic or manufacture environmental friendly bags

Source: Press search

3: Globally, while the push for single-use plastic bans is still present, policy making is showing increased focus towards increasing recycling and sustainable use of plastic

	Description	International examples
Plastic ban	Governments are eliminating single use plastics	EU plans to implement a ban on single use plastics by 2021 10+ states in the US have introduced legislation around banning single-use plastics
Material reduction	Governments are promoting packaging weight reduction and decrease of excessive packaging	Singapore has launched a packaging weight benchmarking database to allow companies discover improvement potential
Increase recyclability	Many governments and administrations have committed to allowing only recyclable plastic going forward, and/or banned some non-recyclable and non-compostable products	In several regions/countries like the EU there is a common commitment is to have 100% recyclable plastic by 2030 California has banned nonrecyclable food packaging
Increase recycled content	Countries are discussing on demanding products to contain recycled materials	UK is discussing requiring plastic bottles to contain 50% recycled materials
Increase recycling rates	Several governments are passing on the responsibility of recycling to FMCGs/retailers under Extended Producer Responsibility (EPR) policies for waste collection and Deposit-Return Systems in multiple countries	China set target of scale plastic recycling in 2020 of 2,300 million tons (up from 1,800 millions in 2015) OECD countries are already in large compliance with the EPR policies
Increase use of bio-based plastics/ compostable packaging	Typically setting demands for specific amount of plastics from renewable sources and/or compostable/biodegradable in specific application group	France demands that lightweight bags for fruits and vegetables need to be bio based and compostable in home composting

Source: Expert interviews, Press search

4: Nascent waste management systems typically focus on waste collection and enforcement of proper disposal

Countries can be divided into 3 stages of waste market maturity

☐ Detailed next

Maturity	Description	Country examples
A **Evolving waste management**	**Evolving policies for collection or elimination** of waste Eradicating fly tipping by **organizing waste collection and enforcing proper disposal**	
B **Limit landfill**	**Organized collection** Elimination mainly in engineered **landfill** sites with limits	   
C **Valorisation of waste**	Logic of **preserving resources** Landfill is substituted by **extensive recycling and treatment**	   

Source: Frost & Sullivan (2017)

Case Example: The Pune Government developed an optimized waste collection program through end-to-end automation

Approach description

Pune's optimized waste collection **uses sensors and real-time software to optimize waste collection** in the city. The program was implemented in 2016

Features

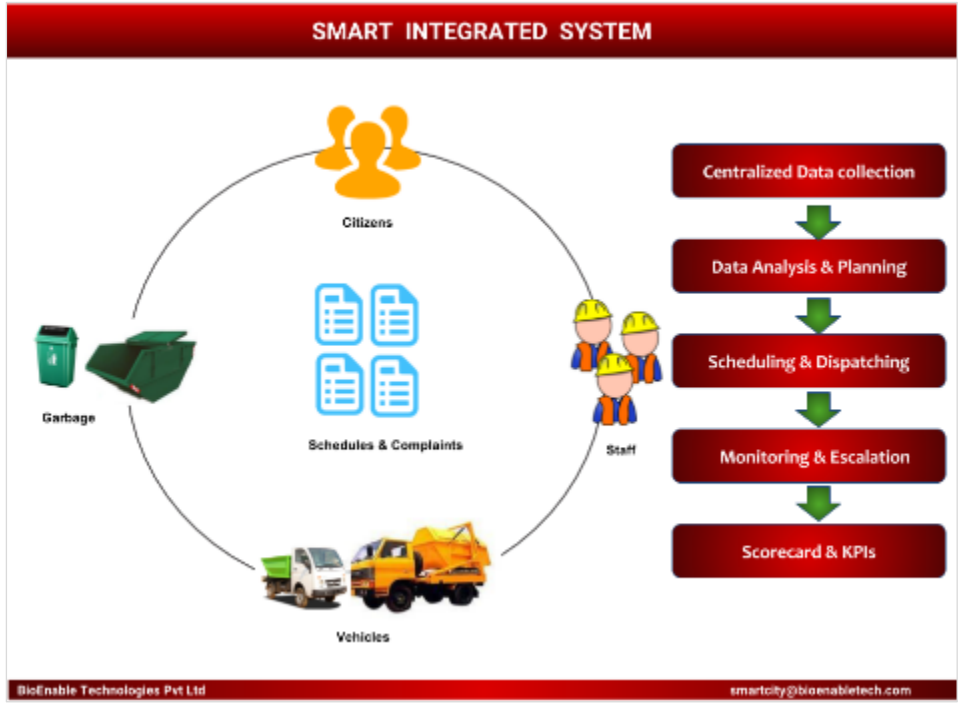
The system uses **complete end-to-end automation and monitors waste collection management**

It uses **cutting-edge technologies like GPS, GSM, RFID, M2M and IoT sensors** along mobile and web applications to improve efficiency in waste collection

The system allows for the **rapid management of vehicle breakdown** maintenance

MIS provides **effective planning of resources**, schedules and unforeseen events. This optimized usage of assets by routing collecting vehicles only if bins are 75% full

The program significantly **reduced the acquisition of new waste collecting vehicles**, they were reduced from 219 in 2017 to an expected 71 in 2018



Pune's optimized waste collection has a real-time system and automation of operations that together allow the city to monitor and optimize waste collection

Source: Pune Corp. website

Case Example: Singapore is using waste-to-energy and pneumatic waste conveyance systems to increase waste collection and decrease landfilling

Approach description

Singapore uses waste-to-energy systems to convert the **hard-to-recycle fraction of their waste to energy,** through the piloting a Pneumatic Waste Conveyance System which is an **automated collection system that sends waste to a centralized collection facility**

Features

The **Pneumatic Waste Conveyance System** is automating waste collection

- The PWCS is an automated waste collection system which **uses vacuum to convey waste via a network of underground pipes to a container in a centralized bin center**
- The container when filled will be transported by truck for disposal. The **entire waste collection process is automated**, thereby reducing manpower requirements and increasing productivity
- The PWCS also serves to mitigate the **environmental and hygiene issues associated with open collection methods**

Waste-to-energy (WTE) is generating value from hard-to-recycle waste

- Singapore has adopted **waste incineration** as the treatment method **due to land scarcity.** Incineration (~30%) plus recycling (~60%) takes care of 90% of their waste
- WTE plants generated 2 – 3% of total electricity in 2015
- The efficiency of typical WTE plants range from 15% to 20% but Singapore is investing in next WTE plants which **could achieve 23% and higher efficiency**

Singapore's waste system is moving increasingly toward collection automation and conversion of low value waste to energy. These trends will help Singapore improve on an already excellent 10% waste-to-landfill rate

Source: Singapore Solid Waste Management Technology Roadmap

Case Example: Buenos Aires optimized the city's waste collection through a partnership with a private firm

Approach description

Buenos Aires optimized waste **collection uses sensors and telemetry software to plan and control waste collection** in the city

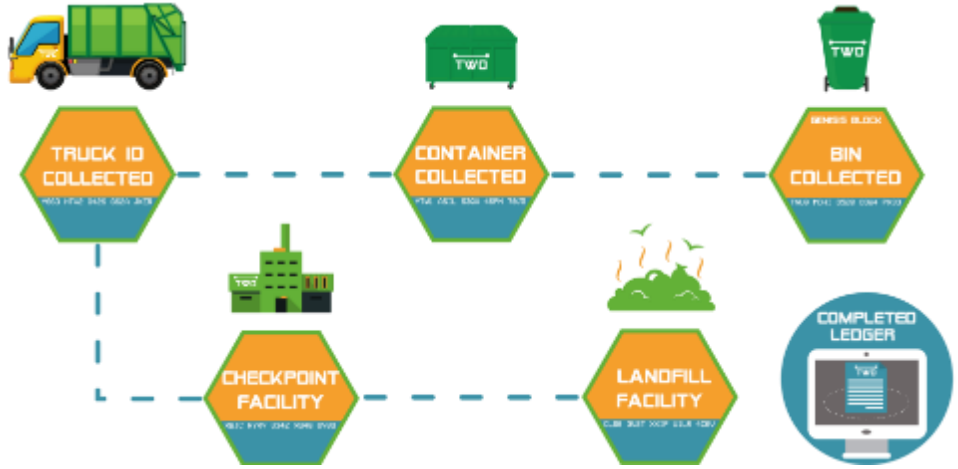
Features

The program **uses TAGs RFID technology** to implement a system that optimizes waste bin collection and maintenance for garbage trucks

The system uses **telemetry and GIS software to optimize, plan and control waste collection** in the city

The system registers if there has been any **vandalism to waste bins** through mobile apps, allowing authorities to keep the bins in good condition

The **main challenge** is to maintain and improve the system. In order to address this, some tests on placing sensors within garbage bins to obtain centralized data were started in late 2017



Buenos Aires optimized waste collection reduces costs incurred in waste collection by using advanced technology such as sensors and computer software to optimize waste collection in the city

Source: Buenos Aires government website

Case Example: The deposit-return system in Finland, managed and overseen by Palpa, is based on strong cooperation between different stakeholders

What is Palpa?

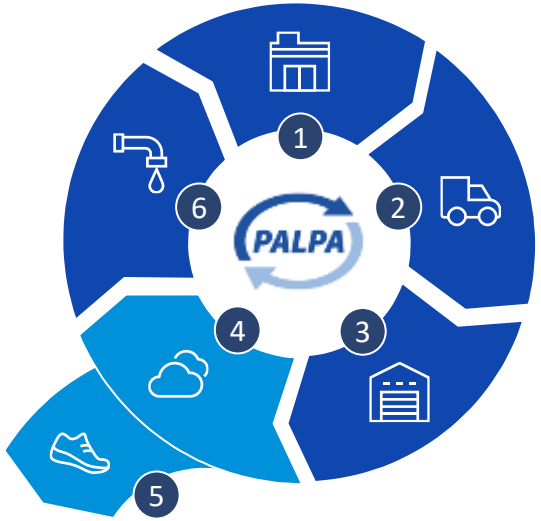
Palpa, founded in 1996, is a privately owned company that manages the return systems of beverage packages

Palpa administers three different return systems: aluminum cans, PET plastic bottles and glass bottles recycled as materials

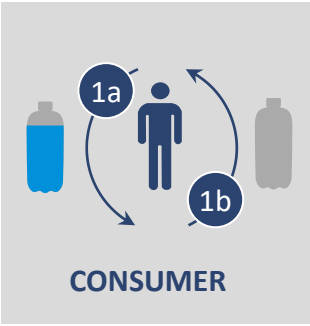
Palpa is owned by major retailers and breweries in Finland. Major owners are:

Sinebrychoff, Alko, KESKO, Inex Partners, OLVI, HARTWALL

How it works



1a. Retailer
Consumer buys a product and pays additional deposit charge for a bottle



1b. Retailer
Bottle is returned, a reverse vending machine reads the barcode and prints out a redeemable receipt for consumer

2. Transportation
Bottles are pre-crushed at collection point and transported to a bottle operator

3. Bottle operator
Bottles are further crushed and packed into bales before transportation to material processor

4. Material processor
PET bales and bottles are separated by color and processed into plastic granulates

5. Material utilizer
Colored plastic chips are used for example in packaging, food and textile industry

6. Beverage manufacturer
Clear PET granulates are converted into bottle preforms and shipped to bottle manufacturer (or brewery)

Across western Europe, both for-profit and non-profit private companies run similar national recycling systems. DSD in Germany, the pioneer in the space, became a for profit company in 2005

Source: Palpa company website, press research

Contents

11 concrete potential investment opportunities were identified leveraging on the insights from multiple sources

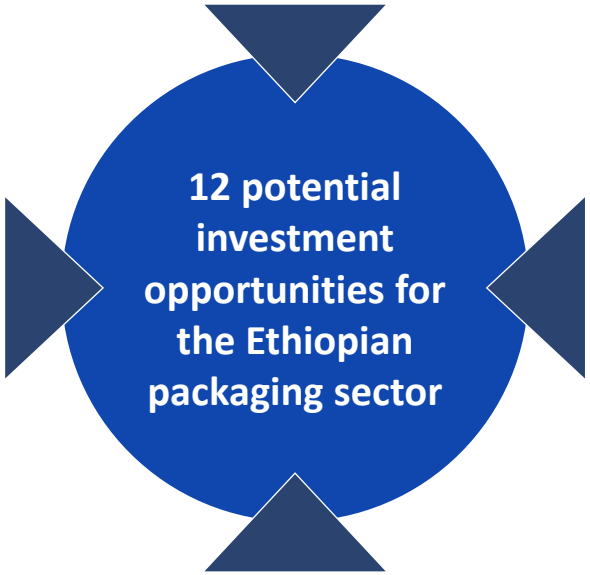
Detailed next

Gaps in the current packaging value chain

Detailed analysis of the packaging value chain in the country allowed to identify multiple gaps that could be addressed by current or new packaging players in the country, in terms in increasing supply but also closing in the imbalance between production and recycling

Packaging global trends

From the global trends, sustainability and recycling trends seem to be the trends impacting the most the future of the packaging sector in Ethiopia and as such could drive several investment opportunities



Future market size growth in Ethiopia and neighbor countries

Considerably increase on the consumption levels of the sector, especially on the food and beverage segments in flexible and rigid plastics, will also present investment opportunities from national and international players in the packaging industry

Interviews with key stakeholders of the sector

Interviews with several packaging stakeholders (investors, buyers, manufacturers and internal experts) allowed not only to identify additional investment opportunities but also to test initial hypothesis from other sources

Twelve opportunities for investment in Ethiopia's packaging and raw material ecosystems are prioritized on three criteria based on likelihood and support opportunities

Agro-processing · Leather · Textile · Pharmaceuticals · Sustainability enablers

Manufacturing or ecosystem opportunity	Relevance to priority sectors	Market opportunity (2030, $m)	Potential investment ($m)	
1	**Waste sorting and recycling**		65	20	Collection and sorting can capture value going to landfill, and unlock opportunities for local processing or recycled raw material for plastic and paper manufacturers
2	**Hard plastic recycling (PET, HDPE; RDF)**		70	30	All raw materials for plastic production are imported at high cost, yet both rigid are highly consumed locally and there is large potential supply of recyclable PET
3	**PET to polyester/bottles recycling**		30-40	75-90	Export of PET waste is challenging as countries are banning imports and recycling PET flakes to polyester could be an import substitution opportunity, however blue bottles limit usability as polyester. Additional opportunity in preform bottle recycling
4	**Bamboo pulp**		(export)	up to 2,000	Significant export opportunity (unlike other opportunities); No pulp manufacturers despite growing investment in paper manufacturing; Taison Group MOU with EIC
5	**Liquid cartons**		85	TBD	High-value packaging sub-sector; Growing presence of product in Africa by Tetrapak and other companies with liquid carton capabilities such as Nampak
6	**Paperboard packaging**		130	60	Demand for paperboard packaging across key industries is high with local supply being limited in quality or quantity
7	**Flexible plastics**		300	50	Growing popularity of type of packaging with limited local offer in terms of quantity and quality that could be used for key export commodities
8	**PET bottles (and other rigid plastics)**		200	50	Rigid plastics is one of biggest import substitution opportunities, and bottlers rely on imported pre-form plastic
9	**Glass bottles**		70	120	Local demand being satisfied with expensive and inefficient imports
10	**Metal cans**		80	30	Two local player providing metal cans, and could see demand grow as the agro-processing industry grows in the country
11	**Sugarcane bioplastics**		<120	TBD	Significant supply of sugarcane ethanol and bagasse; Increasing global pressure to shift from traditional plastic to alternative eco-friendly materials

1: Enable paper recycling by establishing sorting center at Repi landfill

Low Medium Medium-high High

Description / rationale of the investment opportunity

local paper and packaging manufacturers face **difficult and costly importing processes**, harming their competitiveness

Establishing paper recycling efforts could lead to **efficiencies in paper pulp production** process as 1-ton recycled paper production can save 2m³ wood logs compared to 1-ton groundwood pulp production, as well as **savings in energy consumption**

Recycled paper could **improve sourcing for packaging converters** and enabling dependent players within the value chain

Key enablers to materialize the opportunity

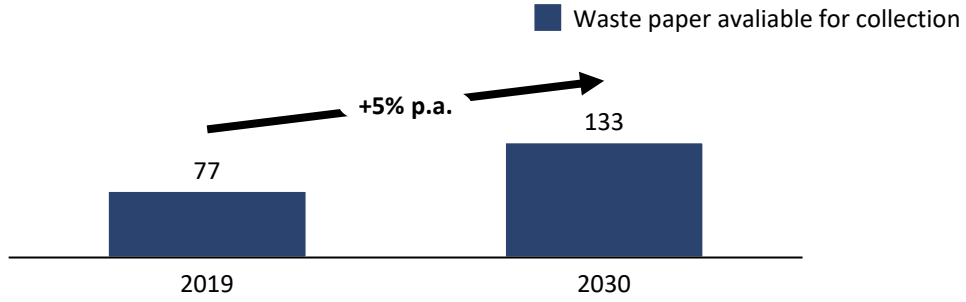
Technology for paper purification

Collection system to increase paper waste collection rates in Ethiopia through incentivization

Institutional framework in place to allow entry of private and non-national recycling players

Potential Paper packaging waste generated in Ethiopia (high-level)

Thousand Tonnes



There is a ~$55 million opportunity by 2030

Key assumptions

Assuming a 60% waste collection of paper; of which 80% will be recycled

Pulp prices are 80% of the final cost for paper packaging

Capital Intensity

Phoenix Paper invested 200M $ to set up paper-pulp recycling facility with annual capacity of 700,000 tons ($285/ton)

Required investment in 2030 would be **~$18 million**, given the tonnage available in the country

Opportunity

~$55 million by 2030

Key Product

Paper pulp

Other recycled paper based products (Newspapers, magazines, notebooks and others)

Potential Investors

Local players for expansion

Penda Paper

Burayu packaging and printing

Source: EPA, PIRA, Waste to Energy International, Web search, World Bank

2: Recycle hard plastics to provide local raw material for manufacturers

Low Medium Medium-high High

Description / rationale of the investment opportunity

Total consumption of rigid plastic packaging in Ethiopia is expected to increase **from ~112,000 tonnes in 2019 to ~250,000 tonnes in 2030**

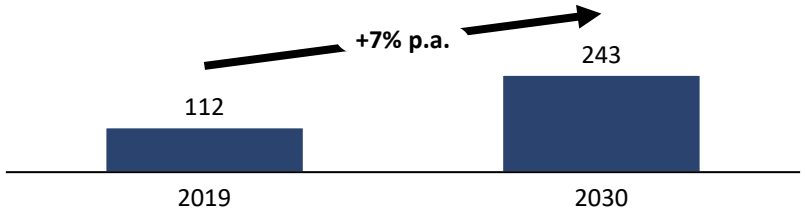
Currently there is **no local production of plastic packaging raw materials**, mechanical recycling of plastics for re-introduction into the local value chain could help curb import challenges felt by local players

Recycling is at a **nascent stage** in Ethiopia, representing ~5% of waste collected in Addis Ababa, and being performed mainly by informal/individual entrepreneurs and small scale enterprises with 10-15 people, signalling a high gap for impact

Main plastic waste generated will be **highly concentrated in the Addis area**, allowing for targeted efforts for plastic collection to yield high feedstock for recycling process, while presenting a large opportunity for job creation in sorting

Hard plastics accessible for recycling in Ethiopia (high-level)

Thousand. Tons



Key assumptions

Assuming 55% waste collection rate for plastics and 40% recycling rate for the collected plastics

Capital Intensity

PET and HDPE Recycling Plant

~$30 million for mechanical recycling plant with annual capacity of 40,000 tons or ~400M bottles of 0,5L litres in Europe ($ 750/ton)

Other hard plastics to RDF or diesel fuel

Depending on technology and regulation, low for RDF to cement kiln

Key enablers to materialize the opportunity

Reliable waste collection systems

Opportunity

~$67 million by 2030

Key Product

Recycled HDPE pellets and bottles

Recycled PET pellets and preforms

Refuse derived fuel (RDF) or other energetic use

Potential Investors

International players

Dangote

Charles Parker

Local players for expansion

COBA Impact Manufacturing

Roha Pack

Source: PIRA, Web search, World Bank

3: Recycle PET to polyester fibre to provide local raw material for manufacturers

Low Medium Medium-high High

Description / rationale of the investment opportunity

Recycling is at a nascent stage in Ethiopia, representing ~5% of waste collected in Addis Ababa, and being performed mainly by informal/individual entrepreneurs and small scale enterprises with 10-15 people, signalling a high gap for impact

Consumers are increasingly demanding products with a sustainable end-to-end value chain to counter the perception of wastefulness in the apparel industry

Company executives are investing in sustainability initiatives to protect and enhance their brand's reputation e.g., in February 2020, H&M became the first retailer to sell a dress made from 100% recycled cotton and sustainably sourced wood pulp

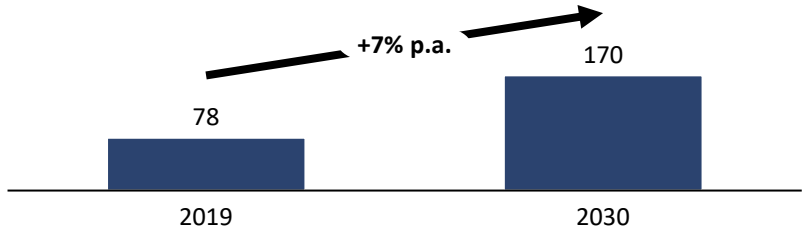
Key enablers to materialize the opportunity

Reliable waste collection system

Institutional framework in place to allow entry of private and non-national recycling players

Potential volume of PET and HDPE packaging waste generated in Ethiopia (high-level)

Thousand Tonnes



Assuming PET and HDPE are 70% of rigid plastics, for which, there is a 55% waste collection rate for plastics

Assuming a 40% recycling rate for the collected plastics

Capital Intensity

PET Recycling Plant

Required investment for mechanical PET bottle recycling: **~$ 28 million**

Polyester fibre production

Key Product

Nylon
Cotton yarn
Viscose
Polyester
Wool
Mattress padding

Potential Investors

Local players for expansion

COBA Impact Manufacturing
Weidong Jia Plastic Recycling Company
AISAI Chemical Fiber PLC
Great Wall Packing Materials PLC

Source: EPA, PIRA, Waste to Energy International, Web search, World Bank, Expert interviews

4: Set up bamboo pulp production to serve both domestic and international demand

Low Medium Medium-high High

Description / rationale of the investment opportunity

Ethiopia was the 9th largest exporter of bamboo raw materials in 2015, holding **3% of the global stock of bamboo** with 1.4 million hectares, but only 0.02% of the international trade

Bamboo is regarded as **environmentally friendly and its rising popularity** makes it an option for several end-uses such as personal care (e.g. tissues)

Ethiopian government plans to promote expansion of the national stock of bamboo to 1.6 million hectares by 2030 (~14%)

Bamboo pulp could be a competitive product as it is easily shipped to global markets with demand

Key enablers to materialize the opportunity

Proximity between pulp mill and bamboo forests

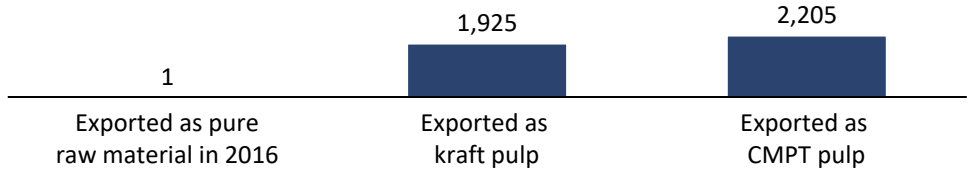
Stable supply from bamboo crops

Regulatory framework in place to provide assurance to investors regarding land use and to minimize frictions from a fiscal and environmental standpoint

Logistic infrastructure to bring bamboo to mill and then from mill to port

Different scenarios for potential market size of bamboo pulp in Ethiopia (high-level) per year

Mn. USD



Key assumptions

Crop area: 1.4 million hectares of bamboo in Western Ethiopia, of which 0.93 million ha (67%) is lowland type

Pulp yield: 1 hectare would yield 7.5 tons of kraft pulp, 12 tons of CTMP[1]

Price: $550/ ton for kraft pulp, $450/ton for CTMP

Capital Intensity

Higher capital intensity than for paper mill

Capital costs: $1,500 – 2,000/ton for kraft pulp ($5-7 billion), $1,000 – 1,500/ton for CTMP ($ 4 – 7 billion)[2]

Efficient size (World class greenfield mill): 1-2 million ton for kraft pulp, 300-500 thousand ton for CMPT

Opportunity

$1 million per year if exported as pure raw materials

$1,925 million per year if exported as kraft pulp

$2,205 million per year if exported as CMPT pulp

Key Product

Mechanical Pulp (CMTP) : yellowish/grey tone with high opacity, smooth surface, higher absorbency and low cost product

Chemical Pulp (Kraft) : High quality pulp with better properties of strength and brightness

Both products are mainly used in tissues, copy and writing papers

Potential Investors

International players

Taison Group

Navigator

1. Bamboo crop annual sustainable yield of 30 m^3/ha/year; Dry density of 0.5 tons / m3; Chemical pulping yield of 50%, CTMP of 70%
2. Assumed size of production between 3,5-4,9 M tons of pulp

Source: INBAR, Expert conversations, CNBM, Press Research

5: Set up liquid carton production/ converting

Low Medium Medium-high High

Description / rationale of the investment opportunity

Aseptic liquid carton packaging is mainly used by players in dairy and juice processing industry

Although liquid carton currently has low adoption levels, Ethiopia could play a similar role to India in Tetra Pak strategy: be a first mover in a market with potential in dairy industry and potentially gain access to other key markets in the region

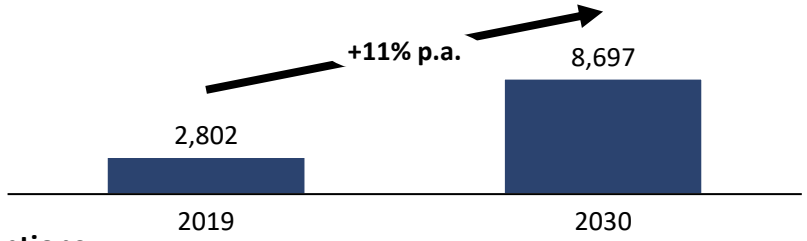
Ethiopia has the largest inventory of milk producing animals in Africa, while Dairy sales have been growing at 17.1% CAGR from 2014-2019

Rising trend of aseptic-based packaging and increase need from retailers for longer shelf life will drive the industry growth in Africa with 3% growth p.a. until 2022 reaching 108,000 tones which is equivalent to 200 million packages

Ethiopia's capillarity could make it well positioned to be a hub for liquid carton packaging conversion, allowing dairy producers to save in logistics costs associated with cold-chain transportation

Milk consumption in Ethiopia (high-level)

Mn. litres



Key assumptions

Ethiopia's per capita consumption of milk in 2019 was 25 litre per annum which is lower than the African average of 50 litres per annum

An additional 15% of liquid carton packaging is dedicated to juice processing

Average price of aseptic liquid carton packaging to be $0.1 per litre

Ethiopia reaches half of per capita consumption rate of Kenya in 2019 (60 litres per annum) by 2030 and of that 40% of milk is packaged with 20% of packaged milk packaged in liquid cartons, the market size of liquid cartons could become ~$140 million

Capital Intensity

In 2013 Tetra Pak invested ~$125 million in a new facility in Chakan, India which has the capacity to process 8.5 billion packaging materials (equivalent to ~4,6 million tons)

Another option is conversation: buying food grade liquid carton rolls and perform cutting and forming process locally

Key enablers to materialize the opportunity

Adoption from key players in key industries such as dairy

Quality testing for liquid cartons

Opportunity

~$82 million by 2030

Key Product

Aseptic carton packs

Potential Investors

International players

Tetra Pak

Nampak

Source: Euromonitor, Worldbank, FAO Web search

6: Increase local production of paperboard based packaging

Low Medium Medium-high High

Description / rationale of the investment opportunity

Imported corrugated boxes amounted to ~$27 million, folding cartons amounted to ~$12 million and flexible paper amounted to ~$10 million, showing there is an opportunity for new companies to fill the gap

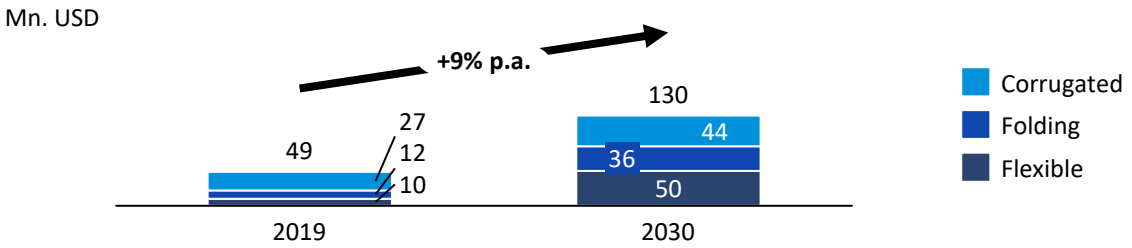
Key Enablers

Requires scalability and mass production

Access to raw materials , either virgin or recycled pulp

Adequate access to forex for operations

Potential market size of paperboard in Ethiopia (high-level)



Key assumptions

CAPEX $554 per ton for corrugated & folding cartons

CAPEX $888 per ton for flexible paper packaging

Average price of corrugated carton in 2019 was $930/ton, $1,913 for folding paper and $3,882 for flexible paper

Average price in 2030 to become $1,027/ton for corrugated board, $1,959 for folding paper and $3,823 for flexible paper

Capital Requirements

Yhaenu Packaging & Printing invested ETB 121 million (~$3 million) in a corrugated carton plant with capacity of 5706 tons per year ($554 per ton)

August Koehler is set to invest ~$175 million in a flexible paper packaging plant with 100,000 tons annual capacity ($1,725 per ton)

Required investment for 2030 demand levels: ~$57 million - $24 million for corrugated board, $23 million for flexible paper and $10 million for folding paper

Opportunity

~$130 million by 2030

Key Product

Medical packages

Paper cups for hot and cold beverages

Perfume packaging

Confectionary packaging

Frozen food packaging

Stand up displays

Potential Investors

International players

East African Packaging

Nampak

Huhtamaki

Local players for expansion

Burayu Packaging and Printing

Yekatit Paper Converting

Ethiopian Pulp and Paper

Minaye Packaging PLC

Teki Paper

Source: PIRA, Web search

7: Increase local production of flexible plastic packaging

Low Medium Medium-high High

Description / rationale of the investment opportunity

Flexible plastics like pouches are gaining popularity as less material is required to package goods

This popularity can gain further momentum as the packaged food industry in Ethiopia is set to grow 1.7% p.a. between 2019 and 2024[1]

Most of the volume growth will come from biscuits (3.2% p.a.), cereals (3.1% p.a.) and rice and pasta (2.6% p.a.) - all suitable candidates for flexible plastic packaging

Imported flexible packaging amounted to ~$41 million in 2019 showing there is an opportunity for new companies to fill the gap

This opportunity could enable exporters within the agro-processing industry meet quality requirements from global markets and become more competitive

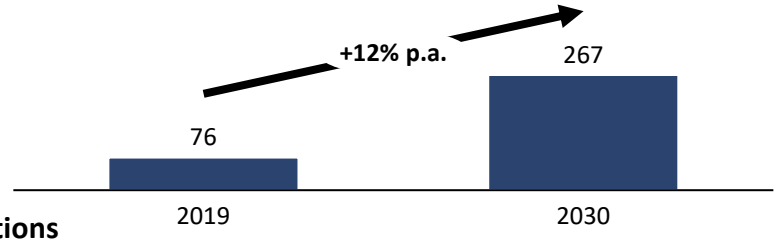
Key Enablers

Requires scalability and mass production

Access to raw materials and forex

Strong commercial relationship between packaging manufacturers and agro-processors

Potential market size of flexible plastics packaging in Ethiopia (high-level)



Key assumptions

Assuming the average price will be $3,069 /ton in 2030

Assuming the capex requirement for extruding and converting flexible plastics is $ 571/ton and the average price of flexible plastics is $3069/ton

Capital Intensity

Extrusion + converting option: Borealis LDPE plant with annual capacity of 350,000 tons per year cost $ 200 million (~ $ 571/ton)

Required investment for 2030 demand levels: ~$50 million

Opportunity

~$267 million by 2030

Key Product

Wrap film

Pouches

Cutter box and case ready film

Film

Potential Investors

International players

Huhtamäki

Dangote Group

Tadbik Pack SA

Silafrica

Local players for expansion

Flexible Packaging PLC

Classic Packaging

3Y Flexible packaging

1. From 623,500 in 2019 to 677,600 tons in 2024

Source: Euromonitor, PIRA, Web search

8: Produce pre-form bottles and other rigid plastics directly from virgin plastic

Low Medium Medium-high High

Description / rationale of the investment opportunity

Imported PET pre-forms and other rigid plastic packaging amounted to ~$70 million in 2019 showing there is an opportunity for new companies to fill the gap

Other sources of value

PET and HDPE are relatively easy to recycle and Ethiopia has low levels of recycling with most of the solid waste ending up in landfills

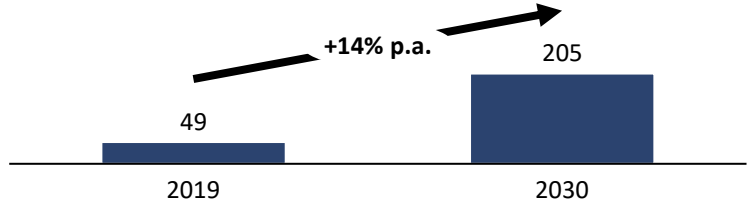
Key Enablers

Requires scalability and mass production

Access to raw materials and forex

Potential market size of PET and HDPE packaging in Ethiopia (high-level)

Mn. USD



Key assumptions

Average price to become $1,779 /ton in 2030

Total demand for PET and HDPE plastics is equivalent to 70% of total rigid plastic packaging demand

Capital Requirements

Chinese producer Zhejiang Zhengkai invested $ 507 million in PET bottle chip plant with annual capacity of 1,2 million tons ($423/ton)

Required investment for 2030 demand levels: ~$49 million

Opportunity

~$205 million by 2030

Key Product

PET bottles

HDPE bottles

Potential Investors

International players

Nampak

Mpact Limited

Polyoak packaging

Local players for expansion

SilAfrica

Roha Pack packaging Limited

COBA Impact Manufacturing

Source: PIRA, Web search

9: Increase glass production

Low Medium Medium-high High

Description / rationale of the investment opportunity

The glass packaging market totaled ~$ 46 million in 2019, from which ~$ 29 million (63%) came from the beverage industry

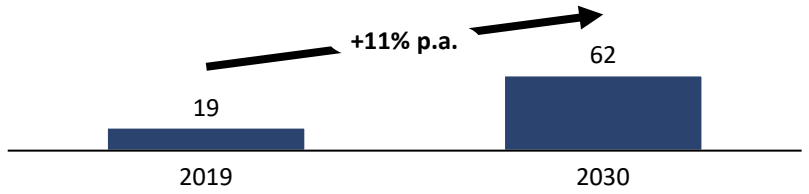
> ~40% of the beverage sector recurs to imports for packaging, due to higher logistics costs and Forex availability

Current volumes of consumption of glass packaging in the beverage industry sit between 20,000 and 37,000 tons while the combined capacity of the 4 local players is estimated to be ~130,000 tons

Opportunity will come from increasing existing capacity utilization levels due to excess capacity

Potential market of glass packaging for beverage (high-level)

Mn. USD



Key assumptions

Average price of glass bottles was $600/ton in 2019 and to become $590/ton by 2030

Total demand for glass packaging was equivalent to ~45,000 tons in 2019 and will reach ~147,000 in 2030

Local production was responsible for ~45,000 tons in 2019, creating a gap of ~102,000 tons vs. 2030 forecast

Capital Intensity

Full set-up (from scratch)

Greenfield benchmark: Juniper Glass invested $ 70 million in glass plant with annual capacity of 60,000 tons (~$1200/ton) Required investment to fill gap until 2030 – $ 125 million

Expansion

Expansion benchmark: Addis Glass announced $ 40 million investment to expand capacity by additional 160 tons/day ($684/ton); Required investment to fill gap until 2030 – $70 million

Opportunity

~$62 million by 2030

Key Product

Type 3 glass for beverages

Potential Investors

International players

Milliglass

Local players for expansion

Addis Glass
Juniper Glass
Sid Bottles
KK PLC

Source: ITC Trademap, PIRA, Web search

10: Increase production of metal cans

Low Medium Medium-high High

Description / rationale of the investment opportunity

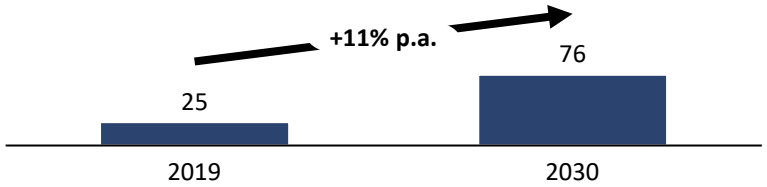
The Ethiopian metal packaging demand was worth ~$99 million in 2019, but local production of metal cans is limited between two players produces cans locally, five companies produce crown corks (but knowledge of metal could allow them to expand portfolio)

Key Enablers

Seamless process to shift from crown cork production to tin can with same capacity installed

Potential market size of metal packaging in Ethiopia (high-level)

Mn. USD



Key assumptions

Assuming the price of metal packaging per ton is 669 per ton in 2019 and grow to $584 per ton by 2030

Assuming the average weight of a metal can is 350 grams

Capital Intensity

MIDROC set up tin can plant with annual capacity of 9800 ton tin cans a year, with an investment of $2 million, $200 per ton

Required investment to fill the gap until 2030 is ~$25 million

Opportunity

~$76 million by 2030

Key Product

Tin cans for paints, milk, canned foods etc.

Potential Investors

Local players for expansion

Nampak Limited
Daylight Applied technologies
MetCan Company
Alemayehu Nigussie Company
CGF Cork Company
Peniel Industry
Metal Crown Company

Source: PIRA, Web search

11: Produce bio-plastics from sugarcane

Low Medium Medium-high High

Description / rationale of the investment opportunity

Total consumption of plastic packaging in Ethiopia is expected to increase from ~166,000 tonnes in 2019 to 373,100 tonnes in 2030

Green bottles made by biodegradable materials (i.e sugar cane) can ease pressure on imports of plastic resins and preforms. Ethiopia has ~103 hectares sugarcane planted, with 8 operational factories and 4 under construction. ~20 million litres of ethanol are produced annually in the country

Producing plastics from sugarcane could create competition with alternative uses of ethanol, and potentially food crops

Key enablers

Proximity between factory and sugarcane

Stable supply from sugarcane crops

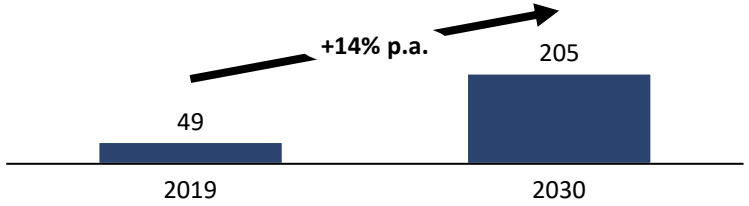
Regulatory framework in place to provide assurance to investors regarding land use and to minimize frictions from a fiscal and environmental standpoint

Logistic infrastructure to bring cane to the factory

Adequate access to forex for operations

Potential market size of PET packaging in Ethiopia (high-level)

Mn. USD



Key assumptions

Assuming the average ordinary PET price is $423/ton in 2019 and will grow $1,779 /ton in 2030

Total demand for PET and HDPE plastics is equivalent to 70% of the rigid plastics demand within the beverage segment

Capital Intensity

Bioplastic products typically cost between 50 – 60% more that ordinary PET because of the higher cost of processing, as such the required investment to fill the gap in 2030 could be between ~$100 - 120 million, twice that of an ordinary PET plant

Key Product

PET bottles

Potential Investors

International players

AirCarbon Company

Versailles Company

EarthSoul Company

Novamont Company

Green Dot Bioplastics

BioApply Polymers Company

Source: EPA, PIRA, Waste to Energy International, Web search, World Bank, Expert interviews

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Ethiopia

Case for investment in packaging manufacturing

December, 2020

Ethiopia's value proposition to attract investment in packaging manufacturing

- **Why invest in Ethiopia's packaging sector?**
  1. **There is a unmet and growing demand for packaging products**
     - Ethiopia will have a packaging manufacturing opportunity worth between $800 -1,050 million by 2030
     - >50% of the opportunity is in packaging for the food and beverage sectors
     - ~20% of packaging is imported in the country, which is highly inefficient for consumer goods companies
  2. **Ethiopia's manufacturing sector** is growing at 13% annually**, underpinned by key competitive advantages**
     - Ethiopia's manufacturing output doubled in ~5 years and is expected to grow at 13% annually
       - The fast-growing agro-processing industry is a major consumer of packaging
     - Key ingredients for success:
       - Fast-growing consumer spending and in a large emerging market
       - Power generation capacity and the low electricity prices in Africa
       - Growing skilled labor force: Low wages in Africa, growing use of English as working language
       - Distribution infrastructure: Ethiopia has 121,200 km of road network, a 752 km transnational rail and air cargo services
  3. **Ethiopia is seeking to attract investment in packaging manufacturing into specialized industrial parks near the capital, which offer ideal conditions for investment**
     - 6 industrial parks specialized for agro-processing and pharmaceuticals are operating or in development in the vicinity of Addis Ababa
     - Benefits for investors include: Constantly developing infrastructure, one-stop shop service, transaction in foreign currency, guaranteed remittance of funds and tax benefits
  4. **There is strong government support for packaging manufacturers, including through competitive tax benefits**
     - Ethiopia has provided a number of incentives for manufacturers
     - Ethiopia has put up regulatory protections for investors
     - Ethiopia is a member of regional and global trade agreements

- **We have already identified promising investment opportunities in the country**
  - There are 12 promising investment opportunities in Ethiopia
  - Example #1: Secure supply of PET bottles to domestic market
  - Example #2: Secure supply of PE flexible plastic packaging to domestic market
  - Example #3: Set up bamboo pulp production (and additional bamboo products

- **Three main annual events to promote the packaging sector in Addis Ababa**

Ethiopia has key competitive advantages for Packaging Manufacturers

Unmet and growing demand projected to reach ~$800 to 1,050m by 2030

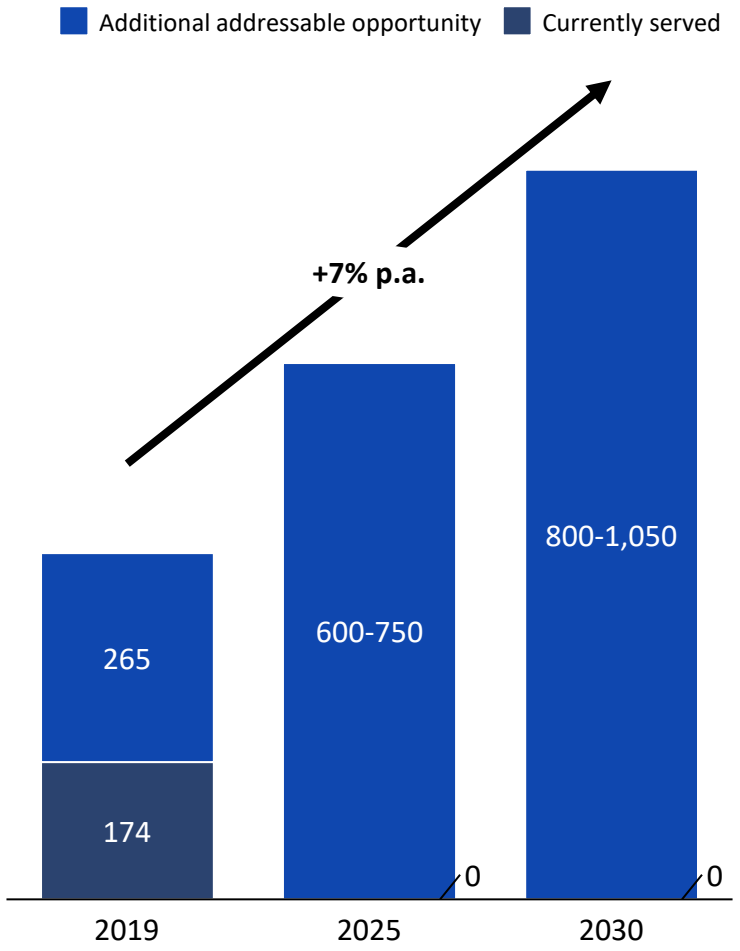
Great conditions for manufacturing growth

Specialized industrial parks

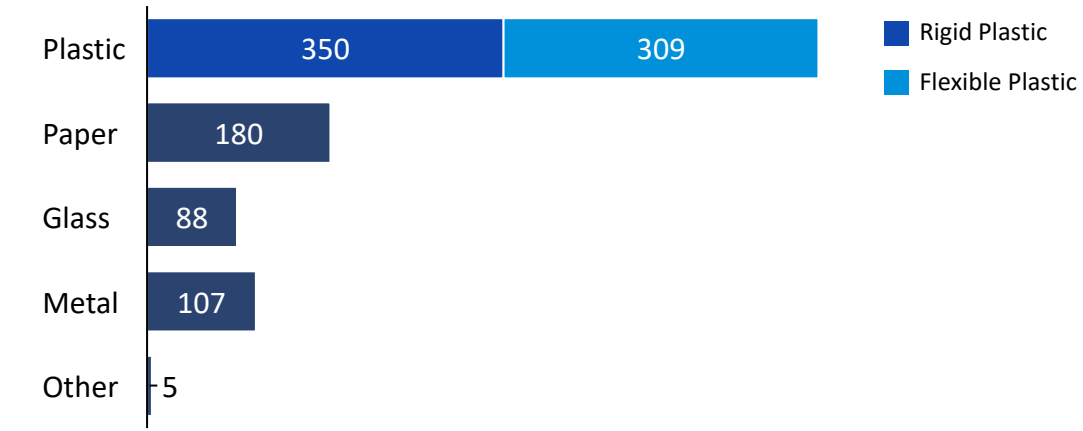
Strong government support

There is unmet and growing demand for packaging products in Ethiopia with ~60% of addressable packaging need imported which is highly inefficient

~$1Bn demand of packaging products by 2030 in Ethiopia[1]

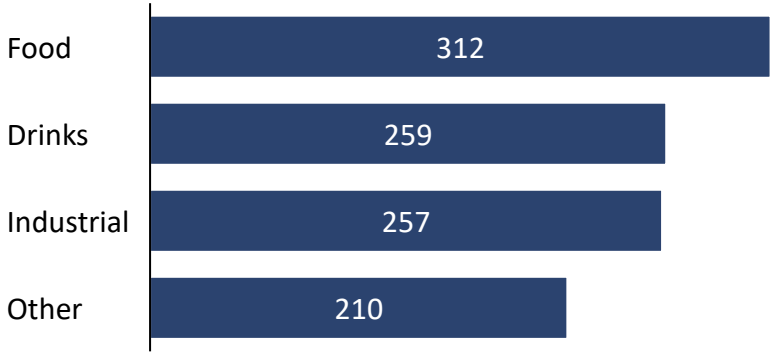


2030 Demand for packaging by substrate, usd mn



~64% of packaging demand will be plastic packaging in 2030

2030 Demand for packaging by end use, usd mn



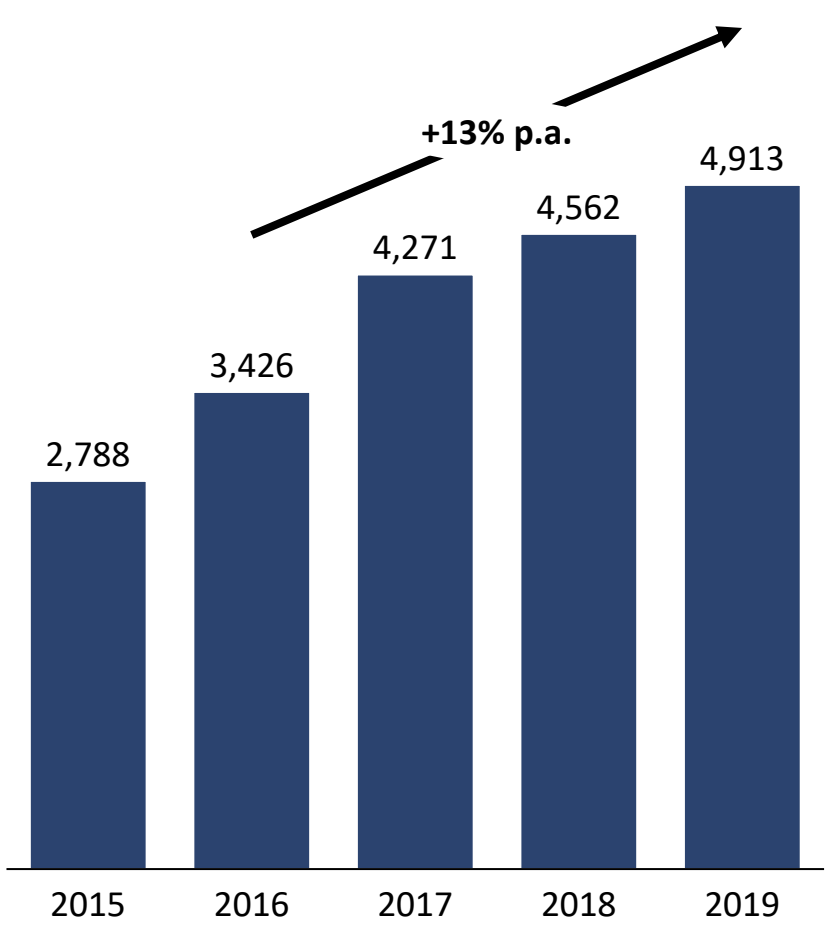
55% of the packaging demand will come from Food and Drink industry

1. Excludes non-addressable imports (i.e. packing material on imported goods)

Source: Triangulated based on: current capacity and outputs, expert interviews, PIRA

Ethiopia's manufacturing sector is growing at 13% annually, underpinned by key competitive advantages

Value added manufacturing, million USD (constant 2019 US$)



50%

Agro-industries (food and beverage) account for about 50% of manufacturing goods

Agro-processing growth will be a major driver of opportunities in packaging

Second biggest country in Africa

- **~112 million** population in 2019
- **~145 million** people by 2030

Fast growing consumer base

- **~5% urbanization** growth rate
- **~39 million urban** population by 2030
- **~16% annual growth of total Consumer expenditure**

Power Generation

- **One of the highest power generation capacity in Africa** with 4,206 MW with an additional 6,000 MW dam close to completion
- **Lowest electricity prices in Africa** with $90 per megawatt hour

Labor

- **Second largest labor force** in Africa, ~55 million
- One of the **lowest labor cost in Africa**
- **English** is used as **medium of instruction and working language**

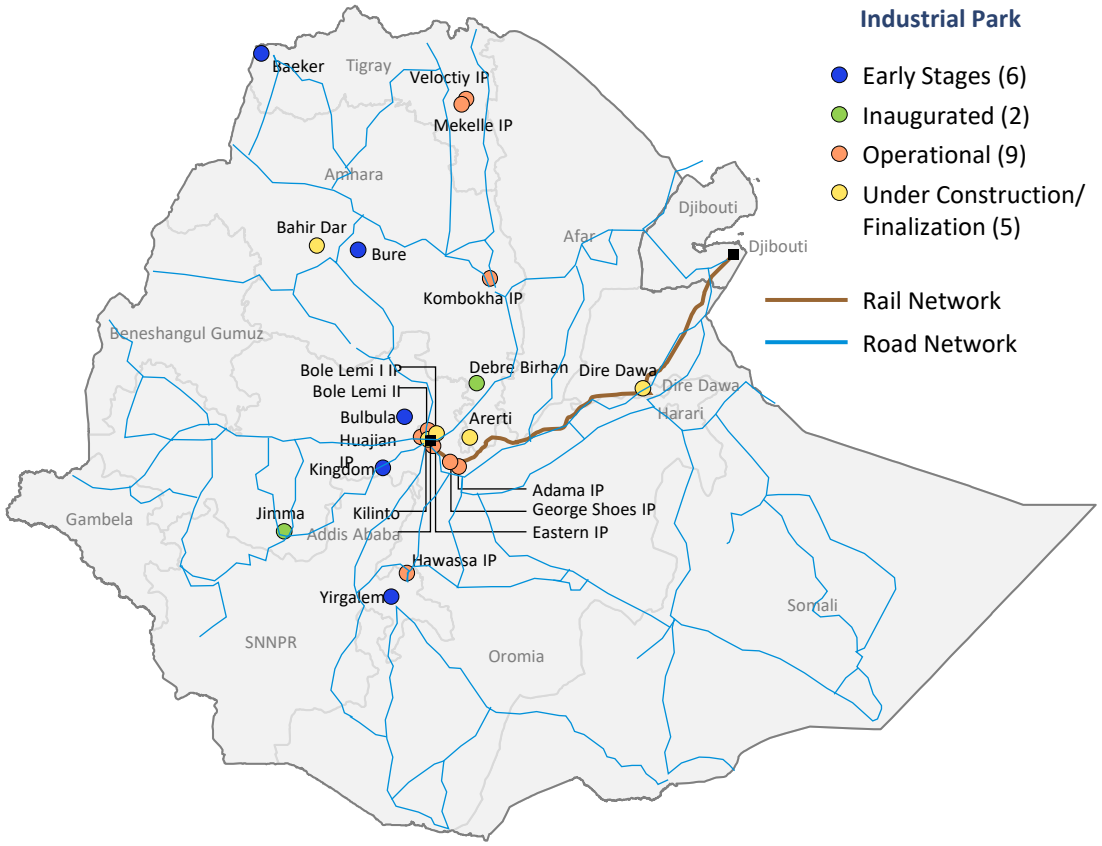
Infrastructure

- **121,000 km** of **road** network
- **752 km** of transnational **rail** network
- **Largest air cargo terminal** and **air cargo operator** in Africa

Source:ATA, world bank, UNIDO, Brookings institute, press search

Specialized industrial parks in agro-processing, pharma and location near the capital offer ideal conditions for investment in the packaging sector

Industrial parks in Ethiopia



Selected industrial parks relevant for packaging manufacturers

Status	Park	Specialty	Size (hectare)
Operational	Kilinto	Pharma-ceuticals	279
	Debrebirhan	Agro processing	1000
In development	Bulbula	Agro-processing	263
	Yirgalem	Agro-processing	109
	Baeker	Agro-processing	151
	Bure	Agro-processing	155

Source: EIC, Industrial Parks Incentives Packages

Some of the benefits for investors include …

- **Growing infrastructure:** **constantly** developing infrastructure and access to utilities including a dedicated power station
- **One-stop shop service:** license, visa and work permit renewals etc. are provided at the industrial parks
- **Access to Forex:** ability to trade in foreign currency with other companies in industrial parks and guarantee for remittance of funds
- **Tax incentives:** Income tax exemption for **up to 8-12 years, import and export duty exemptions**

Industrial parks in Ethiopia offer a number of incentives which make them attractive for investors

Not Exhaustive

Key differentiators

	Scope	General investment situation	Specificities of industrial parks	Conditions in the "industrial park" scenario
Income tax exemption[1]	General case	6 - 8 years	8 – 12 years	If at least 80% export or input supply to exporters
	Developers of industrial parks		10 – 15 years	10 years if in or around Addis Ababa, 15 years elsewhere
Personal income tax exemption	Expatriate employees in industrial parks	5 years[2]	5 years	5 years following issuance of business license Expanded to all investors in new law
Import duty exemption	Industrial inputs	100%	100%	If used in the production of export goods
	Capital goods	100%	100%	
	Construction Material	100%	100%	Based on approved Bill of Quantity
	Raw materials	100%	100%	Needed for the production of export commodities
	Spare parts	100% (max. 15% of capital goods value)	100%	Not time or value limitation
Export duty exemption	All except semi-processed hides and skins	100%	100%	
Foreign currency	Industrial parks		Transactions in Fx with other IP companies	Available to all investors (collections in Fx currently available to IPDC only)
One-stop shop service	Industrial parks		Facilitated procedures	Wide range of services covered (work permits, customs clearance…)
Preferred access to infrastructures	Off-site infrastructure		Infra developed by the government	Up to the perimeter of the park (not guaranteed)
	Utilities		Dedicated supply	Government avails dedicated power substation for the park (not guaranteed)
	Sheds		Dedicated supply	Subsidized shed lease prices for IPDC parks
Additional developer incentives (e.g. accessories)	Equipment ,Vehicles, and Personal items	100% import duty exemption on all construction equipment, vehicles for transport of goods and employees of IPs, and all equipment required for daily life of IP employees		

1. Also: right to carry forward loss incurred within the period of income tax exemption for half of the income tax exemption period after expiry, maximum being 5 year (in all cases)
2. To be implemented once law is approved

Source: EIC Investor Guide, Industrial Parks Incentives Packages

The government is committed to attracting investment in the manufacturing sector

Participant in regional and global trade agreements

There have been several developments that have created an enabling trade and regulatory environment to support manufacturers:

- **Ratification of the Africa Free Trade Agreement** which aims to remove tariffs from 90% of goods will boost intra-African trade, which aims to make Africa a single market of cumulative GDP of US$ 3.4Tn
- Ethiopia is part of the **Common Market for Eastern and Southern Africa (COMESA)**
- Ethiopia is eligible for **preferential access to the U.S. market** under the African Growth and Opportunity Act (**AGOA)**
- Everything but arms free trade agreement with the **European Union**

Competitive incentives

The country has provided a number of incentives such as:

- **Exemption of payment of customs duties and other taxes** levied on imports to all capital goods
- **Exemption of Business income tax** (4 years for glass, metal and paper packaging, 2 years for Plastic packaging)
- **Loss carry forward** for up to five years

Regulatory protections

Regulatory schemes have been put in place to protect foreign investors

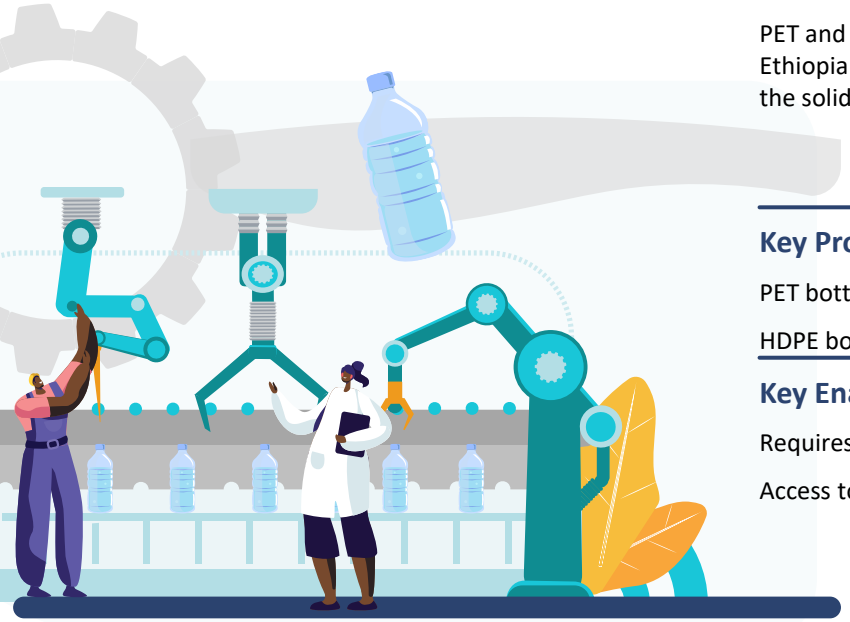
- **Constitutional guarantee** against expropriation or nationalization
- **Signatory of multilateral investment guarantee agency** & has concluded bilateral investment promotion & protection treaties with 30 countries
- **Right to employ** expatriate managers and experts
- **Double taxation avoidance** treaties with 18 countries

Source: EIC, press research

There are 11 promising investment opportunities in Ethiopia

	Investment opportunity		Rationale	Market opportunity (2030, $m)	Investment required ($m)
 Plastic	1	Secure supply of PET bottles to domestic market – opportunity ranging from blow-moulding to end-to-end production	Rigid plastic is one of top substrates currently and in terms of expected growth, with several agro-processors (e.g. in fruit juices and edible oils) resorting mostly to imports	95	20
	2	Secure supply of flexible plastic packaging	Growing popularity of type of packaging with limited local offer in terms of quantity and quality that could be used for key export commodities	200	35
	3	Incentivize production of bio-plastics from sugar cane to reduce environmental impact of plastic use	Increasing global pressure to shift from traditional plastic to alternative materials, as well as increasing global demand for eco-friendly packaging due to awareness, esp. in Europe and USA Ethiopia's large sugar production can supply sugar cane waste to produce plastic	<120	TBD
	4	Boost production of recycled plastic to replace imports for local producers to use as feedstock or for gasification (fuel)	All raw materials for plastic production are imported currently, yet both rigid and flexible plastics are highly consumed locally, ensuring sufficient supply of feedstock for recycling process	30	25
	5	Recycle PET plastic to converted polyester fiber for textile sector	Add value to exported PET flakes and provide raw materials to the textile sector by converting plastic to polyester fiber	30-40	75-90
Paper	6	Set up liquid carton converting hub	Growing presence of product in Africa by Tetrapak, which could be looking for other African countries which are well connected to set-up as hub	140	TBD
	7	Set up supply of forest-certified bamboo wood pulp for paper packaging producers	Increasing demand for eco-packaging due to consumer awareness and preferences, particularly in Europe and North America, that could be served by large local supply of bamboo that is easy to ship in the pulp form	(export)	Up to 2,000
	8	Development of local production of corrugated paper – opportunity ranging from local cutting of imported corrugated paper, to boost of end-to-end production	Demand for corrugated paper across all key industries with local supply being limited in quality and quantity	70	38
	9	Boost paper recycling to replace imports for local producers to use as feedstock	Only few local players have access to locally produced feedstock while others face difficult importing processes, harming their competitiveness	40	10 to 20
 Metal	10	Increase metal cans production for food and beverage segment	Only one local player providing metal cans with fast growing demand	70	25
 Glass	11	Increase glass packaging production for beverages	Local demand being satisfied with expensive and inefficient imports	70	120

Produce pre-form bottles and other rigid plastics



Description/rationale of the investment opportunity

Imported PET pre-forms and other rigid plastic packaging amounted to ~$70 million in 2019 showing there is an opportunity for new companies to fill the gap

Opportunity

~$205 million by 2030

Other sources of value

PET and HDPE are relatively easy to recycle and Ethiopia has low levels of recycling with most of the solid waste ending up in landfills

Key Product

PET bottles

HDPE bottles

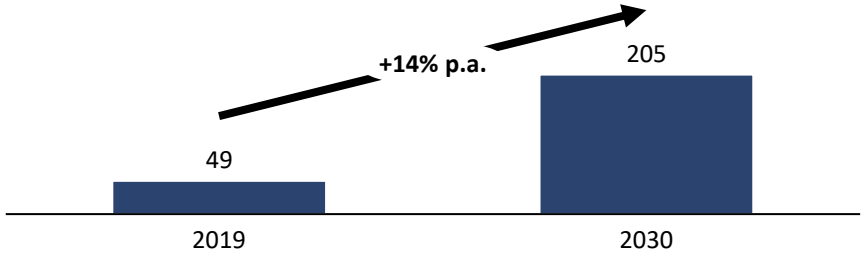
Key Enablers

Requires scalability and mass production

Access to raw materials and forex

Low Medium Medium-high High

Potential market size of PET bottles in Ethiopia (high-level), Mn. USD



Key assumptions

Average price to become $1,779 /ton in 2030

Total demand for PET and HDPE plastics is equivalent to 70% of total rigid plastic packaging demand

Capital Requirements

Chinese producer Zhejiang Zhengkai invested $ 507 million in PET bottle chip plant with annual capacity of 1,2 million tons ($423/ton)

Required investment for 2030 demand levels: ~$49 million

1. Total capital required summing PET bottle chips (7M$) and blow molding part (3M$)

Source: Euromonitor, PIRA

Increase local production of flexible plastic packaging

Description/rationale of the investment opportunity

Flexible plastics like pouches are gaining popularity as less material is required to package goods

This popularity can gain further momentum as the packaged food industry in Ethiopia is set to grow 1.7% p.a. between 2019 and 2024[1]

Most of the volume growth will come from biscuits (3.2% p.a.), cereals (3.1% p.a.) and rice and pasta (2.6% p.a.) - all suitable candidates for flexible plastic packaging

Imported flexible packaging amounted to ~$76 million in 2019 showing there is an opportunity for new companies to fill the gap

This opportunity could enable exporters within the agro-processing industry meet quality requirements from global markets and become more competitive

Key Product

Wrap film, Pouches, Cutter box and case ready film

Key Enablers

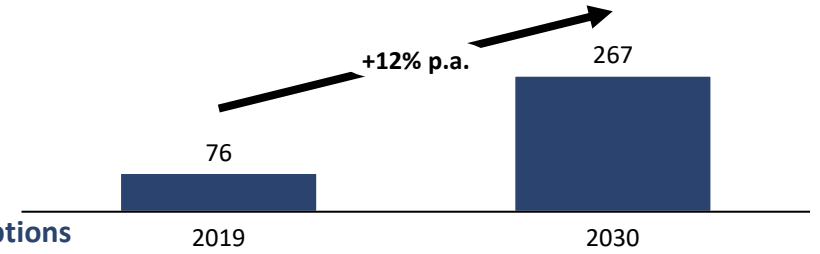
Requires scalability and mass production

Access to raw materials and Forex

Strong commercial relationship between packaging manufacturers and agro-processors

Low Medium Medium-high High

Potential market size of food and beverage flexible plastics packaging in Ethiopia (high-level), Mn. USD



Key assumptions

average price will be $3,069 /ton in 2030

Capex requirement for extruding and converting flexible plastics is $ 571/ton

Capital Intensity

Extrusion + converting option: Borealis LDPE plant with annual capacity of 350,000 tons per year cost $ 200 million (~ $ 571/ton)

Required investment for 2030 demand levels: ~$50 million

1. From 623,500 in 2019 to 677,600 tons in 2024

Source: Euromonitor, PIRA

Set up bamboo pulp production (and additional bamboo products)

Low Medium Medium-high High

Description/rationale of the investment opportunity

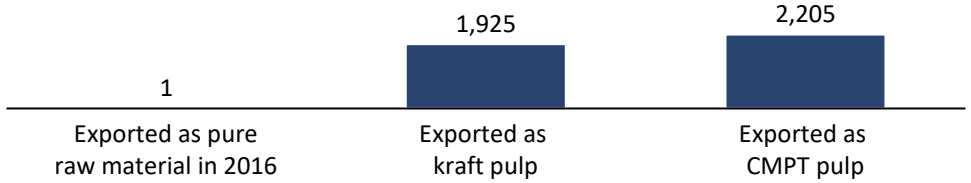
Ethiopia was the 9th largest exporter of bamboo raw materials in 2015, holding 3% of the global stock of bamboo with 1.4M hectares, but only 0.02% of the international trade

Bamboo is regarded as environmentally friendly and its rising popularity makes it an option for several end-uses such as personal care (e.g. tissues)

GoE plans to promote expansion of the national stock of bamboo to 1.6M hectares by 2030 (~14%)

Bamboo pulp could be a competitive product as it is easily shipped to global markets with demand

Potential market size of bamboo pulp in Ethiopia (high-level) per year, Mn. USD



Key assumptions

Crop area: 1.4M hectares of bamboo in Western Ethiopia, of which 0.93M ha (67%) is lowland type

Pulp yield: 1 hectare would yield 7.5 tons of kraft pulp, 12 tons of CTMP1

Price: 550 USD/ ton for kraft pulp, 450 USD/ton for CTMP

Key Product

Mechanical Pulp (CMTP) : yellowish/grey tone with high opacity, smooth surface, higher absorbency and low cost product

Chemical Pulp (Kraft) : High quality pulp with better properties of strength and brightness

Both products are mainly used in tissues, copy and writing papers

Capital Intensity

Higher capital intensity than for paper mill

Capital costs: 1500-2000 USD/ton for kraft pulp (5-7 bn USD), 1000-1500 USD/ton for CTMP (4-7 bn USD)2

Efficient size (World class greenfield mill): 1-2 million ton for kraft pulp, 300-500 thousand ton for CMPT

Key enablers to materialize the opportunity

Proximity between pulp mill and bamboo forests

Stable supply from bamboo crops

Regulatory framework in place to provide assurance to investors regarding land use and to minimize frictions from a fiscal and environmental standpoint

Logistic infrastructure to bring bamboo to mill and then from mill to Port (e.g. 600 km asphalted road linking Benishangul Gumuz region to Addis Ababa)

1. Bamboo crop annual sustainable yield of 30 m3/ha/yr; Dry density of 0.5 tonnes/m3; Chemical pulping yield of 50%, CTMP of 70%
2. Assumed size of production between 2.3-3.3 M tons of pulp per year

Source: Euromonitor, PIRA

There are three main annual events happening to promote the packaging sector in Addis Ababa

Non-exhaustive

Ethiopia plastprintpack

Annual meeting point for the plastics, printing and packaging machinery and equipment industry in Addis Ababa, hosted by German company Fairtrade Messe which runs similar events in countries like Kenya and Nigeria

compack COMPLETE PACKAGING EXPO

Compack is a professional expo about packaging processing technology, printing, logistics and warehousing organized by Indian company Smart Expos which holds events in Nepal, Bangladesh, South Africa, Kenya and others. The event was held in Addis Ababa for the first time in 2020

COMPLAST Complete Plastics Exhibition

Complast is focused on the plastic packaging and machinery industries and is also hosted by Smart Expos in countries such as Nigeria, Kenya, and South Africa. The event was held in Addis Ababa for the first time in 2020

153
exhibitors from

18
countries

3,205
attendees from 20 countries

~80%
of exhibitors foreign and the rest Ethiopian

Source: Web search