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Circular threads: What EU policies mean for sustainable textile exports from Kenya

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As the European Union (EU) moves towards a greener and circular economy, exporting countries face new policies and requirements to enter the EU market, including the textiles sector where the bloc imports a significant share of its needs.

Many low- and middle-income countries in the 'Global South' prioritise the development of their textiles industry and depend on foreign markets, including the EU, as they embark on the path to export-led industrialisation. Consequently, they will increasingly need to accommodate higher environmental and social requirements to respond to changing trends in the consumer market.

In this paper, we look at the case of Kenya to examine the implications of upcoming EU policies for its textiles exporters in light of its industrialisation priority. To a large extent, opportunities for environmental upgrading depend on existing capabilities. This means that current bottlenecks to the development of the conventional textiles sector, beyond apparels, will also have an impact on the prospects for circular textiles in the country.

Nevertheless, opportunities exist – under circular design and waste management, including recycling, circular production processes, and transparency and traceability. In addition, we point out two pathways for upgrading – the first includes process upgrading within the current configuration of the global value chain while the second includes product upgrading through independent firm strategies to strengthen competitiveness and functional upgrading through vertical integration. This in turn requires a proactive strategy in a more bottom-up way to enable greater domestic value capture and promote traceability and transparency, through a dedicated industrial policy.

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Acronyms

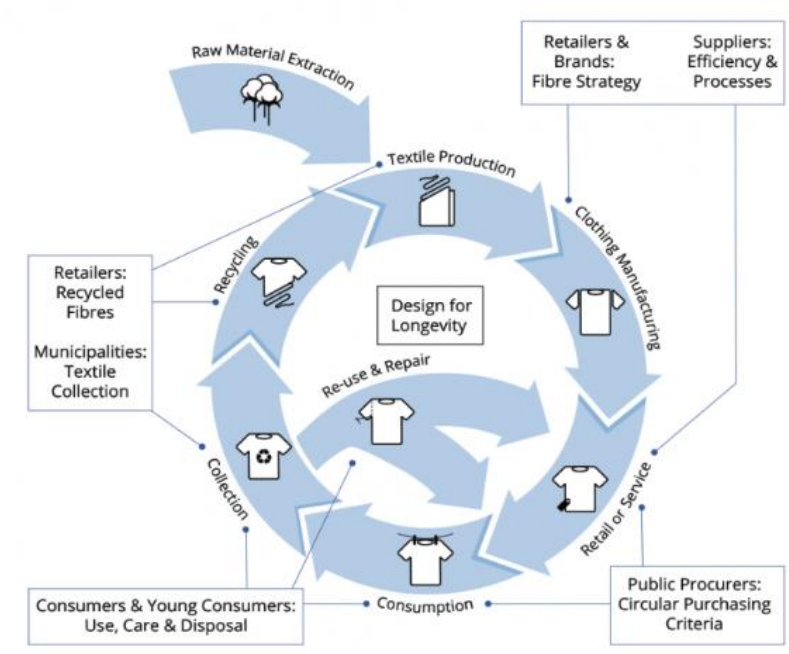
ACT	Africa Collect Textiles
AfCFTA	Africa Continental Free Trade Area
AGOA	African Growth and Opportunity Act
CMT	Cut, Make and Trim
DFI	Development finance institution
ECDPM	European Centre for Development Policy Management
EPA	Economic Partnership Agreement
EPR	Extended Producer Responsibility
EPZ	Export Processing Zones
EU	European Union
GVC	Global value chain
HS	Harmonised System
ITC	International Trade Centre
IWM	Integrated waste management
KAM	Kenya Association of Manufacturers
KEBS	Kenya Bureau of Standards
MIP	Multiannual indicative programme
MSME	Micro, small and medium enterprise
NEMA	National Environmental Management Authority
PDB	Public development bank
PEF	Product Environmental Footprint
PET	Polyethylene terephthalate
R&D	Research and development
rPET	Recycled PET
SME	Small and medium-sized enterprise
TEI	Team Europe Initiative
US	United States
WRA	Water Resources Authority

1. Introduction

The textiles sector is one of the most polluting and wasteful industries in the world. The fashion industry accounts for about 10% of global carbon emissions which is more than international flights and maritime shipping combined (EU 2020), and 20% of total industrial water pollution. Globally, 92 million tons of textile waste is generated per year (Global Fashion Agenda and The Boston Consulting Group 2017), which accounts for 4% of global waste (eds. Rana and Allen 2021). In addition to these environmental concerns, the textiles sector is known for serious human rights violations, poor labour conditions and low wages.

A circular textiles system (see figure 1) addresses the wasteful use of resources and adverse impacts of the sector by ensuring that inputs for textiles are safe, recycled and renewable, that textiles are kept in use longer and that they are recyclable and recycled at the end of use.[1] This means that resources are brought back into the system which minimises wastage and the extraction of virgin resources, thereby lowering emissions. The transition towards circular textiles as explained in the figure below therefore requires several innovations which in turn need interventions to bring about the desired changes. These range from processes that support reuse and repair to more fundamental innovations like new design strategies, development of recycling technologies, use of sustainable materials and inputs, and transition to a service-based model which includes leasing, renting, or pay-for-use agreements as an alternative to the established "buy and own" approach.

Figure 1: Circular cycle of textiles



Source: Ellen MacArthur Foundation 2017

[1] See: The Textiles Programme Pace.

Apart from regulations, consumer preferences are slowly changing with a rise in demand, albeit modest, for sustainable textiles in the European Union (EU).[2] Leading brands[3] are increasingly adopting circular economy related targets and drafting ambitious plans not only to take these consumer market trends into account, but also to better prepare themselves in anticipation for stricter EU policies in this area.

At the same time, exporters of clothing, mostly low- and middle-income countries in the 'Global South', have ambitious plans to embark on industrialisation through textiles. The production process, which is concentrated in these countries, accounts for 71% of the emissions of the industry (Jensen and Whitlfield 2022), making a strong case for circular textiles to reduce emissions. Moreover, investments in recycling can bring significant benefits by avoiding waste going to landfills. As these countries rely on access to foreign markets like the EU, they will increasingly need to accommodate higher environmental as well as social requirements to respond to changing trends in the consumer market. To a large extent, opportunities for upgrading depend on a whole host of factors linked to existing capabilities, supplier relations, as well as other enabling factors around policy frameworks and infrastructure.

This brief takes the case of Kenya where there is a growing interest in seizing the potential market opportunities from the new EU policy framework and consumer demand. Data for this paper has been collected through a desk review, along with interviews with a range of stakeholders from the EU and Kenya, including public, private and civil society actors.[4] The following Section 2 highlights some of the measures currently in place in the EU to promote circular textiles. Section 3 discusses the context in which the Kenyan textile industry currently operates. Section 4 outlines the entry points for circular textiles in Kenya, by also drawing on the experience from Ethiopia which has made strides in developing its (circular) textiles sector (examples from Ethiopia are highlighted in text boxes). Based on this, section 5 provides policy recommendations for Kenyan actors and for EU-Kenya cooperation.

2. EU policy measures

At the European level, there is an increasing recognition of the responsibility of importers, brands, retailers and even customers to be aware of, and to address the social and environmental issues associated with textiles. Over the years a number of national and transnational initiatives have emerged in different forms, including national due diligence regulations, Extended Producer Responsibility (EPR) policies and recycling targets. At the EU level, policies to address sustainability challenges in the textile value chain are currently limited, scattered, and varying in relevance and specificity. These range from non-textile specific regulations such as policies on waste, packaging waste and landfill, to voluntary measures including EU Ecolabel and Green Public Procurement. Figure 2 below provides a snapshot of the EU's vision for sustainable textiles.

The EU Strategy for Sustainable and Circular Textiles has a mix of legislative and voluntary measures together with initiatives to create an environment conducive for circular businesses. This section discusses the three main areas of the strategy which are likely to have the most impact on producing countries: i) circular design, ii) transparency and traceability, and iii) export of waste.

[2] For instance, one in five consumers would choose brands that make their sustainability credentials clearer through packaging and marketing (Unilever 2017), although they would also be unwilling to pay higher prices (Fashion United 2016).

[3] For example, H&M has developed a circular economy strategy (H&M Group), and Inditex has a sustainability roadmap with concrete goals (Inditex).

[4] Annex 1 provides the full list of interviewees.

Figure 2: European Commission vision for textiles 2030

Source: From the authors, adapted from European Commission 2022

1) Circular design

A cornerstone of the EU Strategy for Sustainable and Circular Textiles is the introduction of ecodesign requirements, through the proposal for a regulation on ecodesign for sustainable products[5] aimed at making textile products greener and more circular. Extending the life of textile products including through product design is the most effective way of reducing their impact on climate and the environment (European Commission 2016). The regulation on ecodesign will likely be agreed by 2024 and come into effect by 2025 (UNIDO and Chatham House 2022, interviews).

With the new rules, products placed on the EU market, including imported goods, will have to be more durable, reusable, and reparable. This means for instance using durable materials and accessories, reinforcing seams and switches, providing clear care instructions, take-back services and second-hand retail. In addition, textile products would have to be made more recyclable. This refers to material composition, including the fibres blends, or the presence of chemicals of concern that hamper the recycling of textile waste. Further, an essential element of ecodesign is the use of recycled materials which reduces demand for new materials and resources, and helps divert textile waste away from landfills. There will also be further requirements to prevent the use of hazardous substances, with a particular focus on microplastics, given that textiles account for 35% of global microplastic pollution (EU 2018). The commission is preparing a first list of priority textile products for which specific requirements will be developed (interviews). This will likely include, among others, the products mentioned in the textiles strategy: personal and household textiles, carpets and mattresses.

[5] The proposal extends the existing ecodesign framework to include the broadest possible range of products, including textiles (European Commission 2022b).

While the details and scope of the ecodesign regulation are yet to be confirmed, there is a particular push towards fibre-to-fibre recycling, which means turning textile waste into new fibres that are then used to create new clothes or other textile products. This is considered crucial given that at present only 1% of used textile fibres globally are recycled to make new textiles (Ellen MacArthur 2017). While it is uncertain whether recycled textiles fibres would become a mandatory requirement, a market for recycled textiles is being stimulated not least through incentives proposed in the strategy such as mandatory criteria for green public procurement in the EU. Other likely measures include restricting the use of certain fibres, moving away from fibre blends that impede recyclability, introducing requirements for testing and design of textiles from synthetic fibres to reduce the release of microplastics (UNIDO and Chatham House 2022).

2) Transparency and traceability

The textiles sector is historically known for poor transparency and traceability, owing to the complexity of its global value chain (GVC). This makes it challenging to respond to and prevent environmental impacts along the value chain, keep track of materials (and substances of concern), and provide accurate information to consumers to make conscious choices. The EU has taken a comprehensive approach to address these issues, introducing a number of policy measures applying to but not specific to the textile sector, that improve the provision and tracking of information.

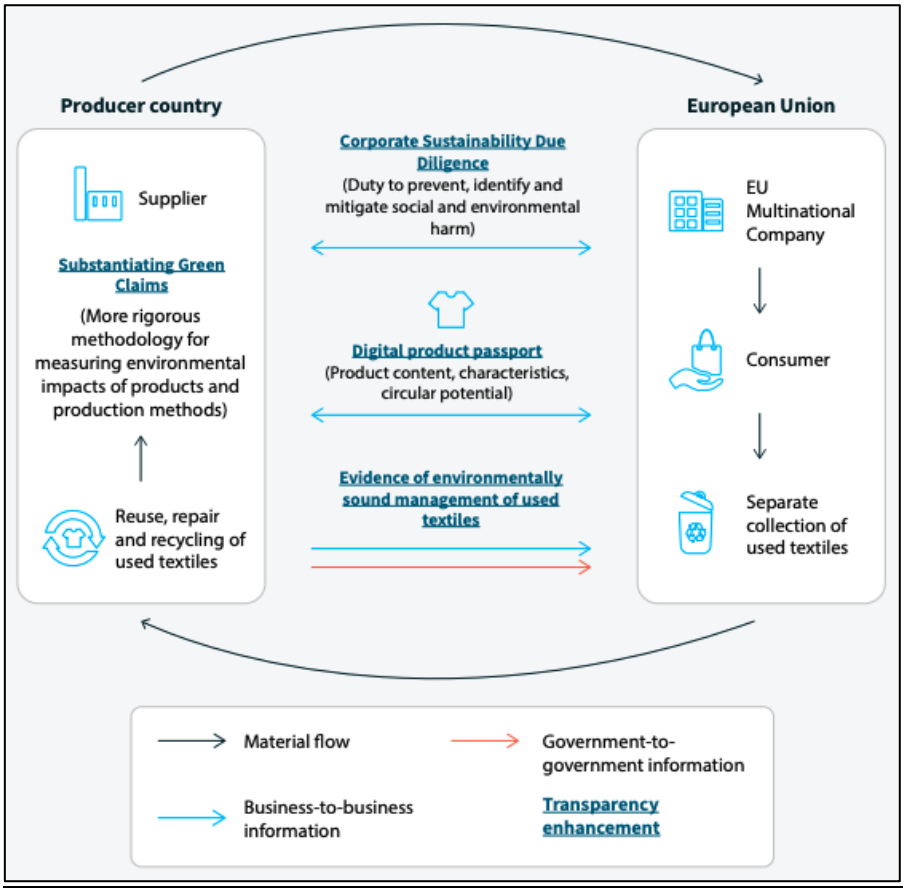
The ecodesign regulation will introduce digital product passports with a unique product identifier, which will provide actors along the value chain with information on circularity and environmental aspects of a product. While the actual requirements are yet to be finalised, these could include information about the product's composition, environmental impact, production processes, and potential for effective reuse (interviews). Such information can help businesses along the value chain, from manufacturers to recyclers, to access information which could boost the product lifetime, while also enabling consumers to make more informed decisions based on product sustainability (European Commission 2022c).

In addition, the 2022 Commission proposal for Empowering consumers for the green transition[6], and the upcoming proposal on Green Claims Directive (expected in March 2023)[7] are aimed to foster transparency by ensuring that environmental claims by companies meet certain minimum criteria, and are substantiated through approved methodology/standards. A particular cause of concern are the green claims made about the use of recycled plastic polymers in apparel that are sourced from used PET (Polyethylene terephthalate) bottles rather than from fibre-to-fibre recycling.

Furthermore, the 2022 proposal for a Corporate Sustainability Due Diligence Directive, introduces social and environmental due diligence obligations for all companies placing their products on the EU market, including textiles.[8] It consolidates the due diligence regulations which several EU member states already have in place. The proposal applies to all EU and non-EU large companies,[9] and also smaller companies[10] which operate in high-impact sectors, including textiles. These companies will be required to identify, prevent, mitigate, bring to an end and account for actual and potential adverse impacts on the environment and on human rights in their own operations, of their subsidiaries and across their GVC. Figure 3 summarises the main requirements coming from the EU.

[6] Empowering consumers for the green transition 2022/0092 (COD) .
[7] Substantiating green claim in "a European Green Deal".
[8] Proposal for a Directive on corporate sustainability due diligence and annex .
[9] Companies with more than 500 employees and more than 150 million euros global net turnover.
[10] Companies operating in high-impact sectors with more than 250 employees and a global net turnover of 40 million euros.

Figure 3: Transparency and traceability requirements to access the EU Market



Source: From Chatham House, UNIDO 2022

3) Export of waste

The exports of textile waste outside the EU have tripled over the last two decades, reaching 1.4 million tonnes in 2020. While trade in used textiles can extend the lifetime of products and provide affordable alternatives for people, there is growing concern over the harmful effects of dumping used textiles overseas. A large proportion of used textiles end up in landfills because of lack of adequate recycling and material handling facilities in the importing country, or due to their fibre composition, or low quality which prevents them from being reused and/or recycled (Ashraf and van Seters 2021). To prevent the export of textile waste from contributing to harmful dumping in third countries, the new EU rules related to waste shipment[11] will only allow export of textile waste to non-OECD countries if they express their willingness to import specific types of waste and demonstrate their ability to manage it sustainably. The European Commission is also considering the development of specific EU-level criteria to make a distinction between waste and certain second-hand textile products in an effort to avoid waste being dumped overseas.[12]

[11] Proposal on shipments of waste and amending Regulations (EU) No 1257/2013 and (EU) No 2020/1056.

[12] According to a recent report by the European Environment Agency (2023) the EU mainly exports used textiles under the Harmonised System (HS) code 6309 for worn textiles and clothing, and only a small amount is recorded as waste using HS code 6310 (used rags and textile scraps). However, a large amount of used textiles is exported without being properly sorted, with bales containing both scrap and reusable textiles being classified, including by collectors, under HS code 6309 (Watson et al. 2016).

While textile scrap is increasingly being restricted, policy measures to improve the collection of textile waste in the EU are likely to result in an increase in waste exported out of the EU. The EU has introduced an obligation for member states (under the EU waste legislation) to establish separate collection of textile waste by 2025 (European Commission 2019). This has prompted several EU Member States to have in place, or consider introducing, EPR requirements for textiles. These policies require companies to pay fees for the textiles they sell which contributes towards the recycling and treatment of textile waste. To align the different policies the Commission will propose harmonised EPR rules for textiles as part of the revision of the Waste Framework Directive in 2023. As a result of these policies, it is projected that the textile collection rate could increase as much as 80% in 2030 (McKinsey 2022). Several studies have highlighted the significant economic potential of diverting second hand textiles away from downcycling and landfills into creating higher value products (McKinsey 2022, Fashion for Good and Circle Economy 2022, UNIDO and Chatham House 2022). While there is incentive for more recycling to take place in Europe, the sheer volume of textile waste will outstrip the EU's capacity to recycle and reuse textiles, and much will still be exported abroad. This, combined with the proposed changes to better sort textile waste and reusable textiles, creates opportunities for third countries to integrate more recycled content into their value chain.

4) Implications for partner countries

The changing EU policy landscape has implications for Kenyan exporters. EU policies are creating a demand for recycled textiles and are expected to lead to an increase in (better sorted) exports of second-hand textiles. This can create incentives to invest in recycling in Kenya and direct waste away from landfills into new higher-value products. However, accessing the EU market would require fulfilling the new requirements for ecodesign, necessitating an upgrade in technical skills, and investments in infrastructure and technology. Textile recycling, particularly fibre-to-fibre recycling, requires capital investment as well as ensuring a reliable supply of used textiles, while capacities would also need to be enhanced to make more durable and recyclable products. This can entail significant costs for exporters, with some even perceiving this as a barrier to trade.

With respect to traceability, a critical question for Kenyan producers would be the extent to which upstream actors would be required to provide information about environmental impacts and adopt risk mitigation strategies. Factory-level due diligence is considered increasingly important to hold brands accountable for social and environmental impacts, but it also means increase in costs for Kenyan producers (Ashraf and van Seters 2019). In the long-run, investing in traceability and transparency across the value chain would enhance the sustainability of the Kenyan textiles sector.

3. Kenyan textiles industry

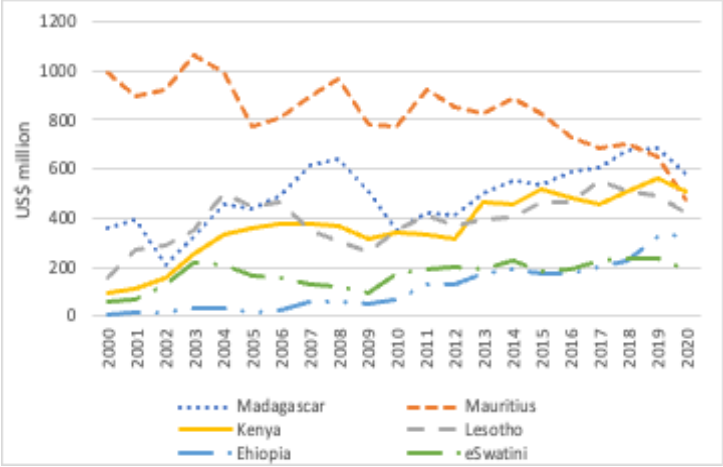
In order to understand what opportunities and challenges the EU's move towards circular economy brings for an exporting country such as Kenya, it is also important to understand the current context of the Kenyan (conventional) textiles industry as this shapes the potential market opportunities for the circular textile sector.

Apparel makes up an overwhelming majority of Kenya's overall textile exports (ITC 2015),[13] accounting for about 7% of national export earnings in 2020.[14] The country experienced a strong growth in exports in the 2000s through transnational (mostly Asian) and Indian-East African investors from the diaspora producing mainly for the US

[13] This refers to cutting of fabric and their sewing and assembly to make clothing and other accessories.
[14] See https://www.trademap.org/.

market[15] while a low but increasing share of exports is going to the EU[16] (Morris et al. 2016). Benefitting from and relying significantly on AGOA, Kenya is the second largest exporter of apparel in Sub-Saharan Africa after Madagascar (figure 4), with a comparatively high productivity (Whitfield et al. 2021).

Figure 4: Exports by leading African apparel producers



Source: Atlas of economic activity

A significant chunk of the activity takes place in the Export Processing Zones (EPZ) characterised by low-value Cut, Make and Trim (CMT) activities and a high proportion of imports of inputs (up to 93%), including machinery and spare parts as well as fibre and fabric (ITC 2015).[17] At the same time, 21 companies in this sector account for 80% of the overall employment in EPZs (Whitfield et al. 2021),[18] even though not all firms are equally productive - only three to four foreign firms accounted for 80% of Kenya's apparel exports in 2019 (Whitfield and Staritz 2020 in eds. Oqubay and Yifu Lin 2020).

Preferential market access remains the primary consideration of foreign investors in Kenya as is also observed in other countries (Calabrese and Balchin 2022). However, these firms, which dominate exports, have not embedded themselves in the local economy, partly given the temporary nature of AGOA market preferences,[19] and have relied on foreign networks of input suppliers (especially producing synthetic products given higher margins under AGOA, Morris et al. 2016; Whitfield et al. 2021; interviews). The organisation of the GVC, characterised by high volume and low margin production to take advantage of market preferences, means that buyers dictate on factors such as price,

[15] About 70% of exports go to the US market in 2015 (Government of Kenya 2015).

[16] Access to the EU market is constrained, previously due to the more restrictive rules of origin until 2011 (Tanaka and Fukunishi 2020), and due to lack of competitiveness - higher wages as well as lower productivity - compared to Asian producers like Bangladesh and Cambodia (Whitfield et al. 2021).

[17] As Altenburg et al. (2020) point out, clothing is a classic example of a buyer-driven GVC characterised by dispersed production networks coordinated by few lead (multi-national) firms who control activities with greater value addition like design, branding and marketing, while countries like Kenya are engaged in the low value-addition activities, leading to 'thin industrialisation' (Whitwalker et al. 2020). Buyers have typically shifted more tasks and risks to supplier firms, but given the small profit margins this has led to a supplier squeeze (Jensen and Whitfield 2022).

[18] Overall, there are some 170 medium and large, and over 74,000 small and micro companies in the sector (World Bank Group 2015).

[19] The unilateral nature of the agreement creates uncertainty for investors (e.g. preferences for Ethiopia were suspended over human rights concerns, and Mali, Guinea and Burkina Faso due to military coups). Kenya is pursuing the renewal of AGOA by the end of 2023 along with a parallel bilateral Strategic Trade and Investment Partnership (STIP, Onyango 2023).

quality and delivery time (ICT 2015) and there are limited linkages of the export-oriented apparel industry to the local textile industry.

Other segments of the textiles value chain including cotton, ginning, spinning, weaving and fabric finishing have not developed and seen a decline since the 1990s.[20] These segments are dominated by local firms that operate under several constraints.[21] Dominated by micro, small and medium enterprises (MSMEs), these firms have no links to the export sector which accounts for only 12% of the overall production in Kenya (Malicha and Njoroge 2020). Supply chain relations with the regional or continental yarn and fabric sector is also limited.[22]

The development of a textiles base, beyond apparel assembly, has been a key step towards industrialisation in all major economies (e.g. Whitfield et al. 2021; Calabrese and Balchin 2022; Istanbul Africa Trade Company 2019). In the context of Kenya, where competitiveness is rather driven by market preferences (e.g. Lu 2020),[23] there is an urgency to firstly localise the supply chain to develop a competitive domestic or regional textiles base through vertical integration and secondly to explore other export markets including the EU and through the newly established Africa Continental Free Trade Area (AfCFTA). Exporting to these markets involves adapting to requirements in export markets. In the absence of a dedicated strategy to bring these about, Kenya's comparative advantage may continue to lie in basic apparel products, for which (foreign) investors rely heavily on preferential access to the US market through AGOA with limited linkages to the domestic textile industry.

There are several challenges in the sector including

- supply-side constraints linked to the quality of inputs, economies of scale, outdated machinery,
- insufficient or inefficient infrastructure (logistics and electricity costs),[24]
- lack of financing and access to credit,
- human resources, mainly relatively high salaries but low skills,
- lack of coordination among the different value chain segments (information about potential suppliers),
- business environment including cost of doing business (burdensome administration, tax burden),
- unfavourable policy environment (trade policy, market access).

These challenges (see Kimemia 2018; Malicha and Njoroge 2020; ITC 2015) in turn also have a bearing on the potential for the development of circular textiles because it draws on the existing capabilities in the sector. On the other hand, some circular practices, especially around production processes (see below), may also provide the necessary impulse to overcome some of the existing challenges for instance through the adoption of off-grid energy solutions which can keep the cost of electricity under control. We now turn to taking a closer look at the nature of existing challenges as well as new opportunities that circular practices offer.

[20] From its peak in 1984 when its 52 textile mills employed 42,000 workers, the sector shrunk dramatically in the 1990s as a result of the Structural Adjustment Programmes and increased competition from cheaper imports (Kimemia 2018).

[21] Locally-produced cotton is insufficient, and where available is of low quality. Some 14 fabric mills are vertically integrated but they operate at 40-50% capacity (Government of Kenya 2015), and depend on imported inputs for their limited exports since domestic fabric is generally not of export quality (Whitfield et al. 2021; ITC 2015). There are no standalone dyeing and finishing plants (Government of Kenya 2015) and very few accessory firms.

[22] Regional sourcing of yarn and fabric accounts for less than 5% of the total Kenyan requirements, mainly coming from South Africa, Tanzania and Ethiopia (Whitfield et al. 2021).

[23] While some actors are counting on external factors like growing wages in Asia, or Bangladesh maturing from the LDC status, or the war in Ethiopia to bring in business opportunities to Kenya, research suggests that these considerations are less important than productivity enhancement to attract investors (see e.g. Whitfield et al. 2021).

[24] Kenyan firms pay approximately twice ($0.18-0.20 per kWh) compared to the average cost borne by its competitors like Ethiopia ($0.05), Bangladesh ($0.07) and China ($0.08) (Istanbul Africa Trade Company 2019), but also compared to regional peers like South Africa, Egypt ($0.03), Morocco ($0.05) and Tanzania ($0.08) (KAM statement).

4. Entry points for circular textiles

The circular economy concept is gaining traction in Kenya. While government officials and private sector actors are largely familiar with it, there is greater focus on the later stages of circularity (i.e. recycling and waste management) than the earlier stages such as circular design. This mirrors the circular economy discourse in other parts of the world, including Europe, where recycling and/or waste management have received more attention (Ashraf et al. 2019). More broadly, there is an interest in addressing the environmental impacts of textile production to ensure compliance with international regulations, which is considered part of the efforts towards a circular economy.[25] This includes for instance preventing environmental degradation related to land, water and energy, which the textiles sector is notorious for (UNEP 2022).

There are certain traditional activities and business models in Kenya which, while not labelled as such, embody the key characteristics of a circular economy, and are often more advanced than in other countries (Turing 2021). For example, recycling by utilising used clothing in the production of blankets has been happening for many years (interviews). Repairing and remaking garments is also a prevalent business practice. However, these activities mostly happen on a small scale, in the informal sector, and are not productive or competitive for exports.

While Kenya does not yet have a comprehensive circular economy strategy, circular economy principles are being integrated into other strategies and policies. The Green Economy Strategy and Implementation Plan 2016 – 2030 promotes a circular economy by supporting economic resilience and resource efficiency, sustainable management of natural resources and development of sustainable infrastructure (Government of Kenya 2016). With the Sustainable Waste Management Bill (Government of Kenya 2021), Kenya has joined the growing number of African countries introducing EPR policies. The EPR policy does not cover the textiles sector at present, but there is a provision to include further sectors in the future, which may include textiles (interviews).

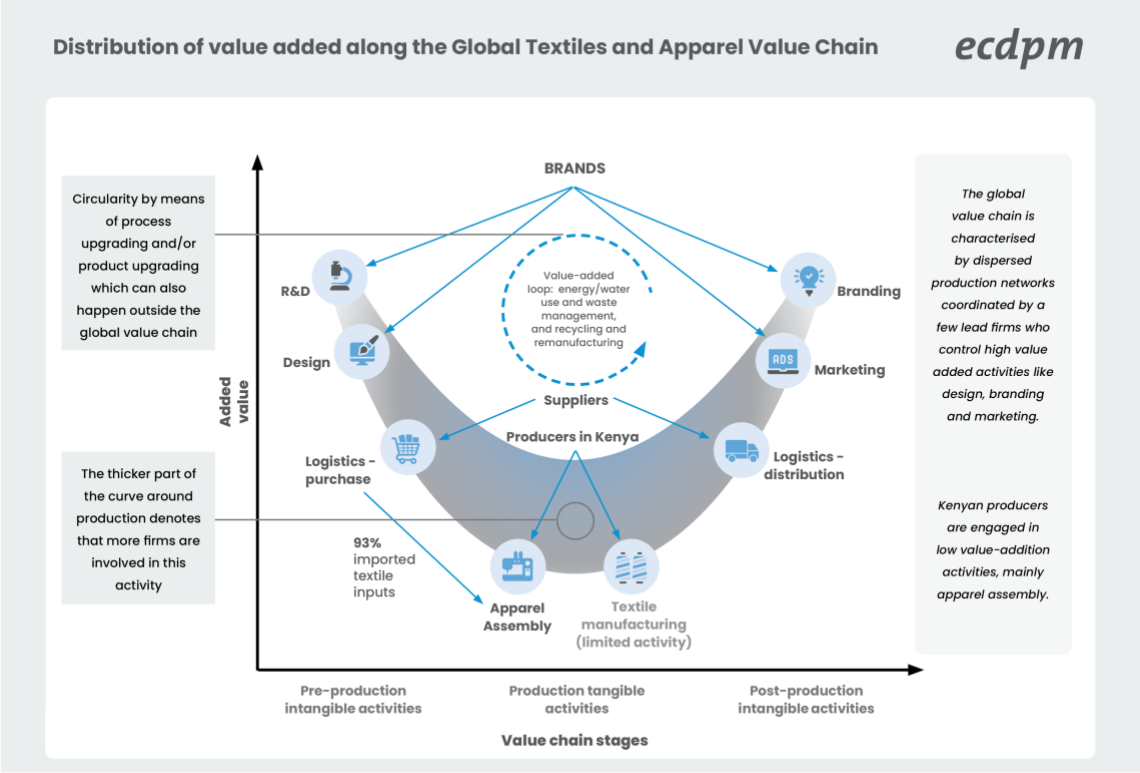
The EU's policy changes towards a green and circular economy provide somewhat unique opportunities to upgrade Kenya's textiles value chain. As the figure 5 below shows, Kenya currently is mostly engaged in low value activities of production, specifically apparel assembly, with little design activity. However, Kenyan firms could embrace environmental upgrading by adopting circular practices to strengthen their competitiveness and capture more value in the GVC. As discussed below, these could include product upgrading by building local recycling capabilities and investing in ecodesign which would require developing a wider domestic textiles base (through vertical integration), as well as process upgrading by adopt energy-efficient solutions to create (independent) value added loops and capture the evolving international market for circular textiles.[26] Such upgrading could meet several objectives, namely allow Kenyan firms to penetrate this high-value (EU) market, address sustainability challenges in the domestic textile industry, and reduce Kenya's dependence on AGOA preferences. This however calls for a concerted industrial policy effort to bring about desired and ambitious changes.

The rest of this chapter focuses on the relevant entry points for the textiles value chain in Kenya, where there is potential to address pertinent circularity issues to ensure long-term sustainability and access the EU market. Figure 6 provides a snapshot of these entry points. The first category is related to product upgrading through circular design which includes aspects of recycling, alternative fibres and durability of products. The second set of entry points looks more closely at production processes, while the third highlights transparency and traceability.

[25] Some statistics provided by Prashar (2022) include the following: one kg of fabric generates an average of 23 kilograms of greenhouse gases. Plant cotton is linked to water depletion and its cultivation (3% of global agricultural land) accounts for an estimated 16% of all insecticides and 7% of all herbicides. Each year 1.3 trillion gallons of water is used for fabric dyeing, and it takes about 10,000 litres of water to produce enough cotton for a pair of jeans.

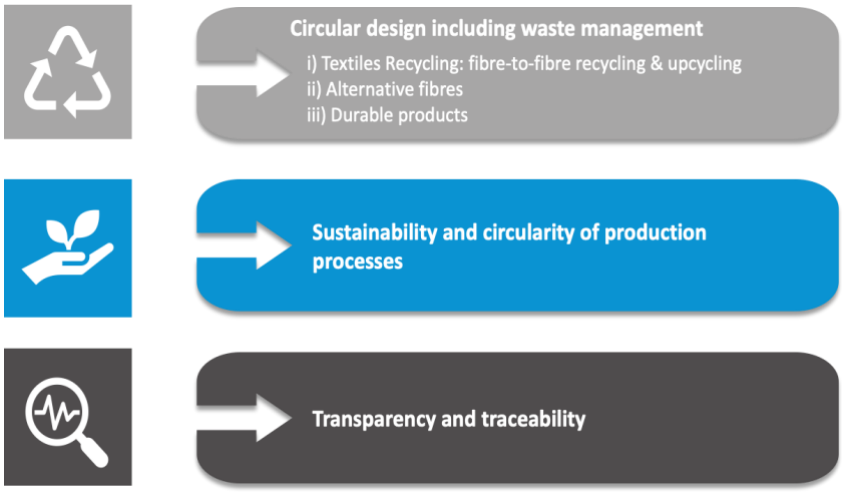
[26] Product upgrading refers to new design to substitute environmentally harmful components, recycling and re-use of waste, while process upgrading refers to upstream production inputs (e.g. energy) being substituted for efficiency, reduction of waste, optimisation of material flow (Lema and Rabellotti 2023).

Figure 5: Distribution of value added along the global textiles and apparel value chain



Source: Authors based on Fernandez-Stark et al. 2011

Figure 6: Entry points for circular textiles



Source: From the authors

1) Circular design including waste management

Designing circular textiles products is about introducing recycled content, using sustainable fibres, and creating more durable and repairable products. As such, wastage is "designed out" since products last longer and are more easily recycled and reused, while textile waste is diverted back into the loop to create new products. While designing does not currently take place in Kenya and firms import most of the inputs from overseas, there are nevertheless opportunities. This section will discuss the entry points for circular design in Kenya which can happen through textile recycling, alternative fibres and durable products.

i) Textile recycling

Building recycling capacity is a cornerstone of enabling more circular design. In Kenya, some recycled fabrics and accessories are flown in from outside the country for exports (interviews), suggesting potential demand for recycled inputs in the export-oriented industry. Seizing this opportunity will require investing in recycling infrastructure, ensuring a reliable supply of textile waste, and enhancing capabilities for spinning and fabric production. Recycled content can be included to create new textiles by i) using recycled fibres (such as polyester, nylon, and cotton) which are blended them with virgin fibres and ii) upcycling by transforming existing textiles into new products and/or and using other recycled materials (such as PET bottles, though there are sustainability concerns, see below) to make textiles.

a. Fibre-to-fibre recycling

While fibre to fibre recycling is very rarely happening across the world,[27] Kenya may have an "early mover advantage" as recycling technology is improving rapidly and costs are going down (Ahiable and Triki 2021). It is home to an award-winning fibre to fibre recycling model, although only sorting and gathering of textile waste happens in Kenya while the actual recycling takes place in Belgium (interviews).[28] At present the model only allows for white, pure cotton recycling, sourced from pre-consumer waste (at the production stage). There is an opportunity to expand on these initiatives and support investments in fibre recycling technologies in the country, eventually allowing recycling for mixed/ coloured materials and of post-consumer waste.

Building recycling capacities requires a stable supply of textiles waste. With respect to pre-consumer waste, close cooperation between textile manufacturers and other relevant supply chain actors including aggregators and recyclers will be important to facilitate the sorting and separation of waste. This could include sharing information about fibre context and recyclability. Better communication with brands is also essential to encourage sourcing of recycled inputs. In addition, as mentioned above, improved sorting and pre-processing of textile waste is needed, which being a labour-intensive activity, has significant potential to create jobs. In the long-run capabilities to (collect and) recycle post-consumer waste would be essential, as discussed in the next section. The box below provides an example of a successful recycling project in Ethiopia.

[27] At present the high cost of recycled fibres compared to natural and synthetic virgin fibres, as well as the difficulty to separate fibres produced in the current linear production system means that only 1% of fibres are being recycled (Ellen MacArthur 2017). The limitations of the current technology in terms of fibre composition and purity, also requires significant investments in collection, sorting and pre-processing (McKinsey 2022).

[28] Closing the Loop on Textile Waste in Kenya.

Box 1: Bottom Up! project supporting fibre to fibre recycling in Ethiopia

Bottom Up! was launched by Solidaridad, the Danish Ethical Trading Initiative, and MVO Nederland with the support of the EU, to support the development of a more sustainable and ethical cotton and textile supply chain coming into Europe. Through project interventions in factories and cotton farms in Ethiopia, the initiative is attempting to build the capacity of workers and management in this industry to produce in line with best environmental and social practices. Under the initiative, one firm, ETUR Textile PLC, manufactures 100% pollution free regenerated fibres, regenerated open-end yarns, and circular knitted fabrics and garments. The vertically integrated firm recycles about 6,000 tons of fabric, and about 1,000 tons of cotton spinning leftovers, every year to create new recycled products (Solidaridad 2022). The firm only engages in pre-consumer waste recycling. The input material is 100% cotton clips and cuttings: remnants of knit clothes production from garment manufacturers all over the world. The main export products of EUTR are finished garments - T-shirt, Polo-shirt, hoody, sweaters, leggings, jogging suits, pyjamas for children, ladies and menswear. ETUR supplies buyers in the EU and North-Africa. However, exports in recent years have been impacted by the disruptions of the COVID-19 pandemic as well as political instability.

The commercial viability of fibre recycling also depends on stronger capabilities in terms of spinning and fabric production given the need to blend the recycled fibres with virgin fibres. Recycled fibres lose certain properties such as their length and tenacity, which means that they typically need to be blended with virgin fibres to retain quality. As simply exporting recycled fibre may not be feasible or competitive (interviews), the need to strengthen the domestic or regional textiles base to produce recycled fabric or finished textiles, as explained in Section 3, becomes crucial. Thus, localisation/regionalisation of the textile value chain will not only create opportunities for greater value capture, but also pave the way for circular operations to target the EU market.

b. Upcycling

While investing in fibre-to-fibre recycling is a longer-term investment, other forms of recycling can provide more immediate opportunities to design circular products. This includes upcycling of textile waste into other textile products (such as turning old t-shirts into bags or bedding), and using other recycled materials (such as plastic bottles) in new textile products.

Recycling using textiles

Textile recycling in Kenya is mostly limited to cascading or downcycling, which means that textiles are shredded to be used, for instance, in mops, or reused as rags (interviews). While this is not ideal,[29] it is still better than sending used textiles to landfills. Only about 12% of post-use textiles globally are sent for cascaded recycling, while 73% are incinerated or landfilled (Changing Markets Foundation 2021). In Nairobi alone an estimated 20 million kg of textile waste are landfilled every year suggesting an urgency to prevent waste and conserve value as much as possible. It is also relevant to note that these types of recycling activities are mostly concentrated in the informal sector which also creates jobs, particularly for lower-skilled workers.

Recycling of used textiles to create new products of higher or equal value (upcycling) is a preferred option both from a circular and economic perspective. Recycling (including upcycling) of textiles is happening in Kenya, but at a small scale compared to the high volumes of waste. Textile recycling companies are looking for ways to collect clean textiles in big volumes which will enable them to achieve scale and create a sustainable business model (RVO 2021). With respect to pre-consumer waste (waste generated in factories), several companies send their scrap materials to

[29] Recycling in any form should not be the first step in keeping resources within the loop without, ideally, first looking at ways to reuse and repair textiles, which ensures that the materials are kept in use for a longer time without having to disintegrate the products (PBL 2021).

the blanket industry, which appears to be a dominant player in the recycling sector (interviews). There is scope to better promote this type of higher value recycling and enhance its potential for exports. Box 3 highlights examples of Ethiopian exporters recycling textiles waste into new products.

Box 2: Examples of upcycling from Ethiopia

Some companies in Ethiopia recycle textile waste into new textile products, particularly blankets, such as Yirgalem Addis Textiles PLC and DH Geda blanket factory PLC. These companies are sourcing waste from their own production process or importing it from elsewhere. While there is enough supply of textile waste in the country, it is a challenge to get the right quality that is properly sorted according to materials and colours (interviews). A key driver for using (pre-consumer) waste is to lower production costs, which highlights the importance of aligning the incentives of producers with the goals of a circular economy.

While there are also some initiatives to collect and recycle post-consumer waste (used textiles), such as Africa Collect Textiles,[30] this is a more challenging endeavour. This is because collecting and sorting used textiles, which comes from numerous sources, to create a reliable flow of material, is more difficult compared to pre-consumption waste, over which textile firms have some oversight (interviews). Given the lack of infrastructure for sorting and collection of post-consumer textiles in Kenya, some recyclers such as blanket factories import particular types of textile waste, even post-consumer waste like sweaters from Turkey and Morocco (interviews) since they can trace the imports back. There is a need for better sorting and collecting textiles from different avenues, particularly post-consumer waste which is available in abundance in Kenya.

Second-hand clothing, also called mitumba, constitutes a large part of the overall supply of textiles in Kenya. Kenya is one of the largest importers of mitumba in Africa, with a significant volume coming from the EU (Changing Markets Foundation 2023; European Environment Agency 2023; FibretoFashion 2021).[31] While an important source of revenue, jobs and affordable textiles for people (IEA and MCAK 2021), this industry also has negative consequences - about 20-50% of the imported second-hand clothing is unsold and of such bad quality that it is dumped into landfills or burnt (Changing Markets Foundation 2023). This waste contains cheap synthetic clothes and there is likely significant health and environmental impact due to microplastic leaching and contamination of water and soil (ibid).

As this section suggests, recycling can potentially avoid textiles from going to landfills by transforming these used textiles into new fibres (through fibre-to-fibre recycling mentioned earlier), fabrics, and other textile products (upcycling). Building on some of these avenues could also provide opportunities to bring in the informal sector, often dominated by women, who already engage in some collection and sorting activities. Better linkages between textile manufacturing companies and recyclers can help in creating a market for textiles waste. At the same time there is also a need to better understand the feasibility for recycling imported used textiles given varying qualities, mixed materials and difficulty of tracking information about the products. Relatedly, these potential interventions need to be complemented by more stringent regulation on what can be allowed to enter the country to create reliable input for recycling and avoid further adding to landfills.

Recycling using other materials

Beyond recycling textile waste to create new textiles (closed loop), there is also the option of using other recycled materials to create new textiles (open loop). There is an increasing volume of recycled textiles marketed in the EU with recycled PET (rPET). Incorporating more plastic in textiles also makes them harder to recycle, which goes against

[30] Africa Collect Textiles.
[31] Most second-hand textiles are first sent to Asian countries where they are sorted and processed before reaching Africa.

the principles of eco-design. Using rPET for textile recycling also reduces its already short supply for plastics value chain (NMWE et al 2022). To encourage more closed loop recycling (recycling of textiles) and to prevent misleading claims the EU urges more transparency on what the recycled component contains. Kenya has an rPET textile plant which is now also investing in bottle-to-bottle recycling.[32] While some players consider using ePET to make new textiles part of a phased approach towards incorporating more recycled content in textiles before more suitable fibre-to-fibre recycling technologies become affordable and accessible, this should not however be considered as a long-term solution, and should not divert attention from the critical need to address the issue of textiles waste.

ii) Alternative fibres

Beyond incorporating more recycled content in textiles, using sustainable alternative fibres is also an element of eco-design. Alternative fibres are materials that are used as substitutes for traditional fibres such as cotton, wool, and silk. These fibres (for instance bamboo or hemp) are often made from renewable resources and are biodegradable, reducing their impact on the environment compared to traditional synthetic fibres (Textile exchange 2022). Alternative fibres by definition also include organic cotton since it is a more sustainable and eco-friendly option compared to conventionally grown cotton. According to Fashion Revolution (2020), the scope for developing sustainable and alternative fibres such as sisal, jute and hemp in Kenya "is large and has great potential to grow". Designers in Kenya are considering alternate fibres, and students are interested in exploring the viability of these (ibid). However, a wider uptake of alternative fibres to develop the industry for export would require significant support in terms of research and development (R&D) to better understand their potential, overcoming capacity challenges and incentivising both the production and use of such fibres.

iii) Durable products

An important aspect of circular design is creating more durable products, which extends the lifetime of products and keeps them in the loop longer, postponing the reuse and recycling stage. The national standards body, Kenya Bureau of Standards (KEBS), already has some standards in place to ensure durability including specifications for fibre content, colorfastness, tensile strength, and other physical properties. KEBS is recognised as one of the leading standards-setting organisations in East Africa, and its standards are generally considered to be among the highest in the region.[33] While existing standards can certainly provide a stepping stone to increase the durability of products, there is scope for improvement especially to monitor and ensure compliance of these standards, as well upgrading/aligning them to international standards of durability.

Enhancing the durability and quality of products, however, would not be entirely straightforward. Kenya has focused increasingly on CMT activities, concentrated largely on bulk basics such as t-shirts and trousers, with limited high-end products being produced. According to manufacturers, expansion into the EU market is already challenging given stringent requirements, including in terms of quality, and they can be expected to become more stringent with the ecodesign regulation in the making (ITC 2015). Nevertheless, breaking into this category provides exporters the opportunity to move into higher value activities. This in turn requires strengthening of the textiles base so as to provide durable inputs

2) Sustainability and circularity of production processes

Apart from sustainability requirements of the *product*, EU policy changes, particularly on information requirements (such as for the digital product passport), also provide an incentive for Kenyan producers to invest in more circular production *processes.* This could include for instance sustainable use, or the greening of, inputs such as energy,

[32] Thrash Thread Textile - 3T.
[33] KEBS feted among top in Africa for certifying companies.

water and dyes, and proper waste disposal. These issues are likely to attract interest in exporting countries, given that they also help in reducing overall production costs (after the initial investments) and because of the interest of producers to comply with international sustainability standards.

Box 3: Initiatives to support sustainable production processes in Ethiopia

Brands such as H&M, Otto-group, KIK, Niddle and Decathlon already place specific requirements on Ethiopian suppliers with regards to the processes used in the production of garments. Ethiopia has several initiatives to encourage circularity in the cotton, textiles and apparel sector with actors such as UNIDO, GIZ, ITC, BMZ and others active in the country. An example is Reclaim Sustainability where firms are supported to reduce their material inputs and avoid/minimise waste through the introduction of Resource Efficiency & Cleaner Production. The Better Mill Initiative (2016-2022) also introduced good manufacturing practices to improve productivity and quality while tackling issues around pollution and waste management. These initiatives address social, environmental and economic challenges in the sector through awareness raising, capacity building, provision of improved inputs, business management systems (digitising records among other things) and other technical support.

Kanoria Africa Textile plc (KAT), a beneficiary of the Bottom UP! project, has been certified against the international standard of Zero Discharge Hazardous Chemical (ZDHC) through an improved chemical management system. KAT has a Zero Liquid Discharge (ZLD) plant where its industrial wastewater is processed and re-used (up to 90%) for its own production process.

Off-grid renewable energy

The high cost of electricity in Kenya is an important bottleneck for textile producers which drives up the cost of production. High power bills, coupled with sometimes unreliable electricity supply has pushed manufacturers, including in the textiles sector, to migrate off-the grid. While Kenya is a leader in Africa's renewable energy generation with 89.6% of its total electricity generation coming from renewable sources (KNBS 2022), textile factories often rely on expensive generators (interviews, Mckinsey 2015). Instead, off-grid renewable power could be a cheaper and cleaner alternative.[34] A number of companies are already moving in this direction, including textile mills, such as Thika Cloth Mills, and garment producers, such as Shona EPZ. Affordable and reliable energy is a key consideration to exploit the full potential of Kenya's textile industry since its operations are energy-intensive. However, finding renewable energy solutions may be expensive for individual firms. Similar arguments can also be made for wastewater management. That is why it is relevant to look at EPZs which house many firms close to each other.

Circular processes at the EPZ level

Given that industrial parks and EPZs house account for the majority of Kenya's textile exports, these infrastructures are important avenues for introducing circular processes in production. By sharing renewable energy solutions as well as wastewater management systems, EPZs can target several firms at the same time to achieve environmental standards, rather than individual firms finding their own solutions. Such provision not only creates a market for environmental services linked to renewable energy and wastewater management, and innovations therein, but the sludge from wastewater treatment can also be used as an input into the cement industry or "mined for phosphate to create recycled inputs for fertilisers" (Jensen and Whitfield 2022), thereby creating an industrial symbiosis

[34] Ideally though off-grid solutions can cater to rural electrification thereby freeing capacity of the grid for urban and industrial users who can help the grid stay afloat (Steel 2018) as compared to utilities undertaking huge costs to cater to low-consumption rural households which affects their sustainability as shown in the case of Kenya (Taneja 2018).

(interviews). In doing this, the operating costs for firms could be reduced, while if produced at scale, it can also reduce the costs of inputs for other industries (Ibid.).

Box 4: Green industrial parks in Ethiopia

Ethiopia has five clothing-specific industrial parks with full facilities that respond to investor needs (Altenburg et al. 2020). This includes the provision of renewable energy at affordable prices (Jensen and Whitfield 2022). Similarly, these industrial parks also have wastewater management using zero-liquid discharge plants or advanced effluent treatment plants (Ibid.; interviews), which firms can access upon meeting clear requirements: filtering out big solid waste with a pre-screening unit, measuring equipment for their effluents, and paying the requisite costs (interviews). This is complemented by enforcement of restrictions on the use of harmful chemicals and substances as well as administration of industrial chemicals (Government of Ethiopia 2018 and 2018a). Apart from providing shared facilities to firms, industrial parks also allow for oversight to ensure that firms abide by environmental standards. While the sludge from the waste treatment can be used for brick-making or cement mix, this is not happening in Ethiopia given challenges related to lack of inter-industrial coordination, and distance between the locations where such sludge is produced and where it is demanded (Jensen and Whitfield 2022). As a result, the final solid waste from the ZLD waste treatment is currently being accumulated and stored awaiting further government guidelines.

3) Transparency and traceability

Designing and creating circular products requires an effective and transparent flow of information between different actors along the value chain. The ability to identify material composition is essential for recycling textiles, which necessitates information to be transmitted from actors engaged in fibre production to textile manufacturing and recycling (UNECE 2022). Transparent information about products also allows companies to make accurate claims so that consumers can make informed choices. In addition to information about the *products*, traceability can be a key enabler for creating more circular production *processes*.[35]

While improving traceability and transparency of the textile value chain has become a priority globally to address environmental and human rights issues (Ashraf and van Seters 2019), it can entail significant costs for exporters in Kenya, with some even perceiving this as a barrier to trade. In addition, getting more information on material composition of imported used textiles may be a challenge given that these arrive in bales. Nevertheless, efforts are being made globally to improve traceability and transparency. The UNEP is implementing an EU-funded project (InTex) in the textiles sector in Kenya, which aims to increase access to environmental and lifecycle data so businesses can make better-informed decisions. It involves training small and medium-sized enterprises (SMEs) on Product Environmental Footprint (PEF), a methodology created by the European Commission to measure and communicate on the environmental performance of a product throughout its life cycle.[36]

The Kenyan government recognises the importance of modern technologies in transforming the economy, and has developed a strategy on emerging digital technologies as well as a task force to encourage the adoption of technologies such as Artificial Intelligence and blockchain (Ministry of Information, Communications and Technology 2019). Recognising the potential of Kenya, development partners have also invested in this area. USAID for instance has supported the development of the blockchain technology in the agriculture sector in Kenya to raise incomes, reduce waste and improve food availability. Evidence specifically from the fast-fashion sector shows that lead firms

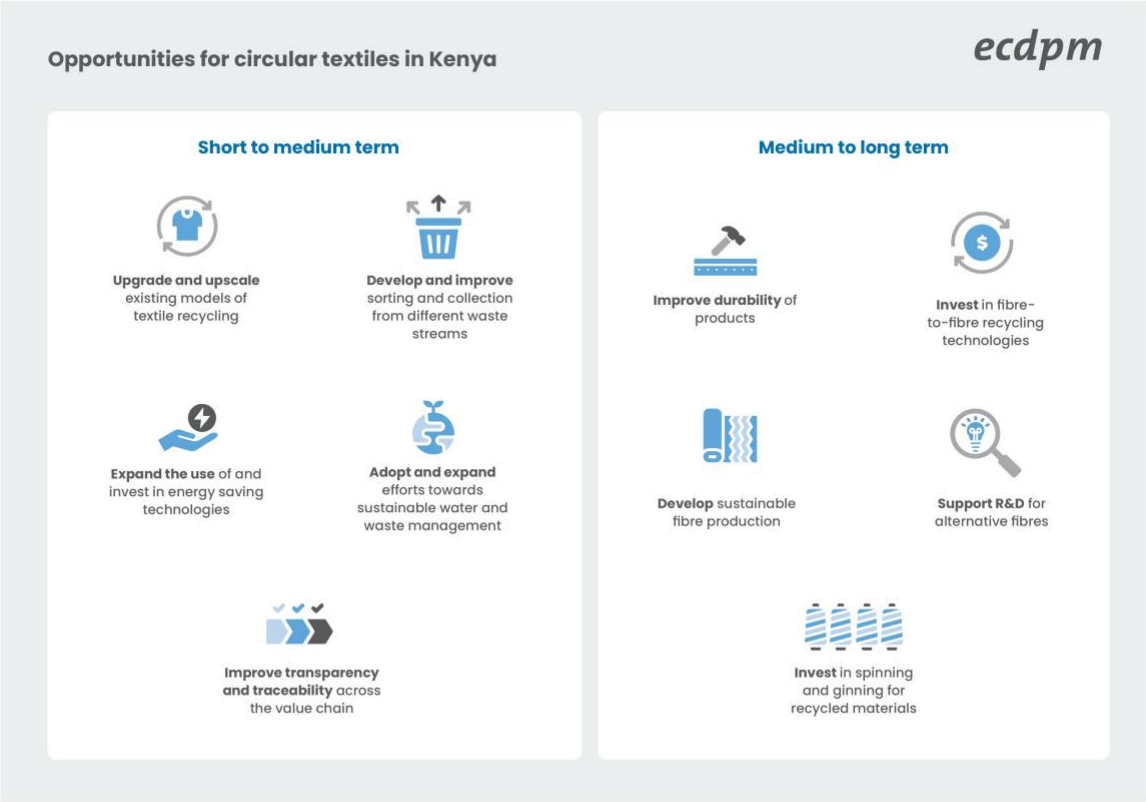
[35] Tracking resource use and waste generated at each stage of the production process, for instance, is important to understand the hotspots with respect to environmental impact, and to design more circular processes.

[36] InTex project.

are increasingly adopting this tool as a way to coordinate the GVC and reduce costs but also to consolidate their power and position "by increasing the transaction costs for buyer-switching since suppliers have to invest into buyer-specific digital infrastructure" (Lopez et al. 2021).

Figure 7 lays out the opportunities discussed above by classifying them into short to medium term priorities and the more longer-term entry points. In the short to medium term investments can be made in upgrading and upscaling existing models of recycling, better sorting and collection infrastructure, and improving the circularity of production processes - energy and (waste)water management. Transparency and traceability across the value chain would also be important here. In the medium to long term investments can be directed towards improving the durability of products, fibre-to-fibre recycling, development of sustainable and alternative (including R&D) fibres, all of which require strengthening of the domestic/regional textiles base. This may be through vertical integration as also observed in Ethiopia.

Figure 7: Opportunities for circular textiles in Kenya



Source: From the authors

Pathways for value chain upgrading

While this chapter so far has identified specific entry points where circular practices could be adopted, here we also point out two main pathways to leverage opportunities provided by the EU market for exports of more circular textile products (based on Jensen and Whitfield 2022; Lema and Rabellotti 2023). The first would be through process upgrading including more efficient use of energy and water. This can take place within the current configuration of

the GVC. The second avenue is product upgrading by supporting and building local recycling capabilities and investing in ecodesign. This may require firms to adopt independent strategies to strengthen their competitiveness but can allow them to achieve functional upgrading through vertical integration (Ibid.). Clearly, this second pathway is much more ambitious than a process upgrade, and requires a proactive strategy to upgrade the industry in a more bottom-up way, and can enable greater domestic value capture. Rather than mutually exclusive however, there are significant interlinkages between these pathways. Building more traceability and transparency is a cross-cutting requirement for both pathways. To bring out these complementarities, a dedicated industrial policy is necessary to effect wider changes. Here, lessons can be drawn from Ethiopia.

Box 5: Industrial policy in Ethiopia

Industrial policy has been a major driver in attracting investments into the sector by strategically targeting US buyers who have been encouraging their suppliers to invest in new emerging industrial parks (Alternburg et al. 2020). In fact, the first apparel industrial park in Hawassa was built in collaboration with PVH and some of its core apparel and textile suppliers using state-of-the-art factories and facilities, and attracting investments in a joint venture (Whitfield et al. 2021). Part of the industrial policy was the provision of amenities that respond to investor needs. Of the 13 industrial parks run by Industrial Parks Development Corporation (IPDC), five are clothing-specific with full facilities (Altenburg et al. 2020). The government also encouraged investments in the more capital- and technology-intensive textile sector where the Chinese, compared to other investors, have played an important role including in vertical integration (Ibid.).

While there is some recycling activity, there is limited product upgrading in the Ethiopian textiles sector. However, rather than focus only process upgrading (reducing raw material, using renewable energy, recycling waste), the government has a much more integrated approach that combines process upgrading with functional (i.e. vertical integration using virgin materials) and inter-sectoral upgrading (i.e. vertical integration using recycled materials and linking with other industries for industrial symbiosis, Jensen and Whitfield 2022). This strategy was adopted to manage risks and capture greater value. While process upgrading is valuable it risks leading to a supplier squeeze (see footnote 17) as brands/buyers are unlikely to offer higher prices even though firms are likely to incur investment costs. On the other hand, functional and especially inter-sectoral upgrading can provide a higher bargaining position vis-a-vis buyers including for greater value capture (Ibid.).

5. Recommendations EU-Kenya cooperation

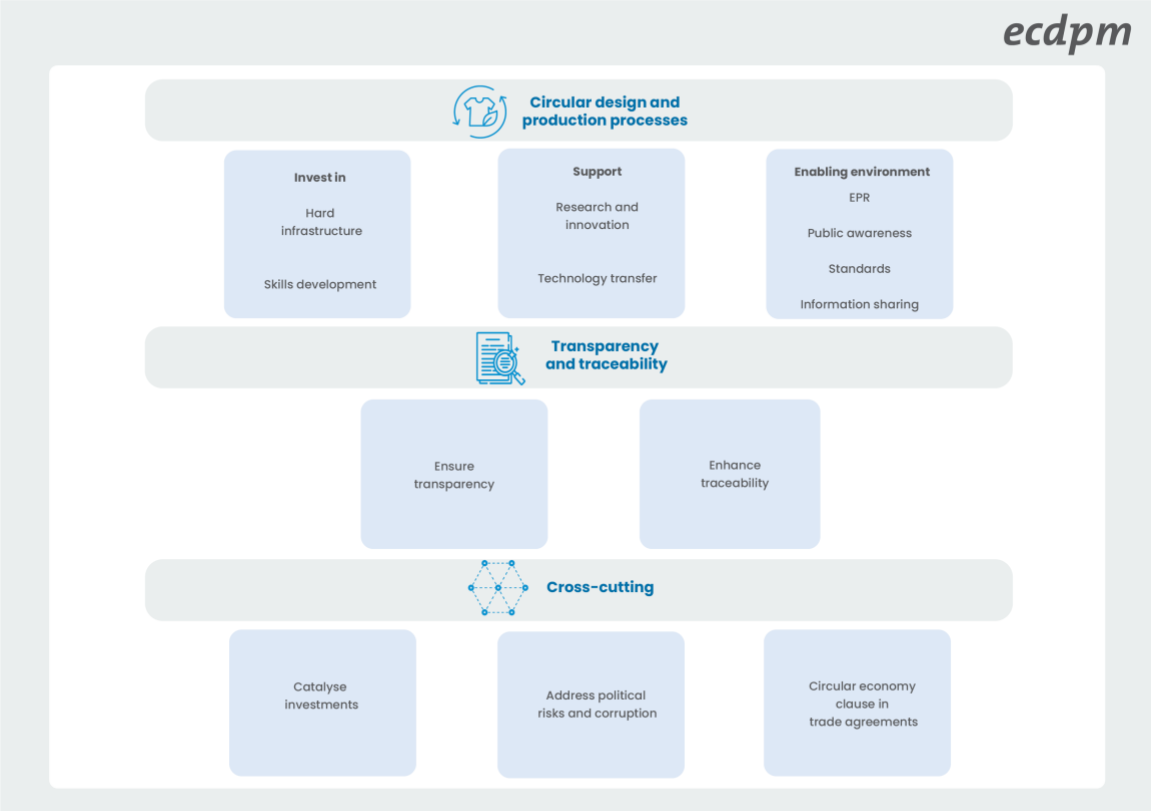
Kenya and the EU have a strong and long-standing partnership, which translates in the current multiannual indicative programme (MIP) with the implementation of two important flagships initiatives, including a Team Europe Initiative (TEI) on the European Green Deal with an indicative budget of EUR 188 million (European Commission 2021). This initiative focuses on five pillars with the first one being the circular economy, with the objective to ensure sustainable manufacturing and resource efficiency, develop and implement strategies and business cases to link value chains, reduce the ecological footprint and unlock green investments. In addition to this, the EU's Global Gateway strategy aims to mobilise investments in sustainable, green and quality infrastructures, notably in the digital, energy and transport sectors, which could help partner countries like Kenya adopt cleaner production processes, serving the circular and green economy.

Beyond the focus on the circular economy, it has additional objectives, which can support Kenya's circular textile sector. This includes support for renewable and accessible energy and sustainable infrastructure such as waste management (allowing for a more sustainable use of inputs in production processes). This is an opportunity for the Kenyan government, in collaboration with the private sector, to ensure that implementation of this programme, and

cooperation with EU partners more generally, effectively supports the textiles sector and more circular practices. Given the overall policy landscape on the EU side (section 2), the context in which Kenya's textile sector operates (section 3), potential opportunities and bottlenecks for circular practices (section 4), this section identifies avenues for greater cooperation between Kenya and its development partners in the EU in this space.

Importantly, these avenues and interventions within them are not mutually exclusive but instead build on one another to support the sustainable development of the textile industry, in line with Kenya's industrialisation ambitions. More specifically, these interventions require significant coordination and sequencing to make the Kenyan textiles sector productive, competitive and environmentally sustainable, and can be considered a part of a broader industrial policy/strategy.

Figure 8: Recommendations for EU-Kenya cooperation



Source: Authors

1. Circular design and production processes

Given the links between them, product upgrading and process upgrading are grouped together

Invest in hard and soft infrastructure:

- Investments in infrastructure: Provision of clean, and importantly, affordable electricity and efficient water management is central to the development of the circular textile sector. To make recycling commercially viable, investments are also needed in textiles collection, sorting and recycling facilities. Industrial parks provide an opportunity for shared provision of such services and also ensure that firms meet environmental standards as observed in Ethiopia. Kenya can seek collaboration with partners like the EU to finance such

infrastructures for process as well as product upgrading - e.g. off-grid renewable energy or waste water management, including through EPZ. This fits with the EU's Global Gateway that seeks to promote investments in infrastructure and economic partnerships. In addition, the Team Europe Initiative can provide a framework through which green investments such as those to promote circular textiles in Kenya could be attracted. Such partnerships with a green transition focus are already underway in some other countries like Morocco.[37]

- Skills development: Leveraging opportunities for circular textile production will require skills development. There is a need to understand the different technical aspects in order to actually implement these principles. Here, apart from drawing lessons from existing projects in Kenya like UNEP's InTex and the Africa Collect Textiles initiative, the exchange of experience among peers from other countries can also be valuable.[38] Building capacity among MSMEs should be a particular focus given that some of them are already involved in certain circular activities but operate in the informal sector and have low productivity. Technical and vocational education and training (TVET) is a priority area in the EU's MIP mentioned above. More specifically for circular textiles, there may be opportunities to be explored in collaboration with countries like Finland.[39] The SWITCH Africa Green programme in the integrated waste management (IWM) sector by focusing on circularity (e.g. municipal solid waste management, waste to energy, industrial symbiosis, among other things).[40] Given the special emphasis on inclusive development, the EU is also well placed to provide assistance on MSME development. It is important to take a gradual approach when implementing lessons learnt to avoid losing acquired skills and competitive advantage thus far in favour of big bang approaches.

Support innovation, technology transfer and build firm capabilities:

- Research and innovation: Given that the technology for circular textiles - whether related to recycling, or the use of alternative fibres is still at the stage of infancy, Kenya could play a role in pioneering research and innovation. This however requires close collaboration between existing stakeholders including those in the informal sector and academia, as well as investments into research and development. EU-Kenya cooperation in this area could involve collaboration between Kenyan and European universities by exploring opportunities under existing initiatives. EU-Africa academic collaboration already exists through initiatives such as the Erasmus+ programme, the Intra-Africa academic mobility scheme and the Marie Skłodowska-Curie actions of the Horizon 2020 programme (European Parliament 2019).
- Technology transfer and joint ventures: Adoption of circular practices for commercial purposes will require a significant injection of capital, access to technology and organisational skills for critical manufacturing capacities and building local supply chains. One way of achieving these objectives is through joint ventures with foreign firms. Given that attracting such partnerships has been difficult in the past, the Kenyan government could seek closer collaboration with its development partners, including the EU and its member states, to get prospective partners to Kenya. This requires close consultation with domestic firms that demonstrate the ability to make such partnerships viable and productive. There are projects involving such cooperation in other sectors like agriculture e.g. the Dutch Sustainable Inclusive Business Hub.[41]

[37] For more information see https://europa.eu/capacity4dev/tei-jp-tracker/tei/morocco-green-transition

[38] ITC (2022) highlights cases of entrepreneurs engaged in developing the local textiles value chain in Angola, or recycling second-hand clothes in Mauritius, or local fashion in Ghana. The Tony Blair Institute is embarking on a project to help establish a fibre-to-fibre recycling plant in Ghana and an UNIDO project to recycle textile off-cuts to blend with virgin materials in Tunisia under the EU's SwitchMed programme (SwitchMed 2022). The African Development Bank's Fashionomics is designed to provide opportunities for firms to network and develop skills. These opportunities can be further explored in light of the African Continental Free Trade Agreement (AfCFTA).

[39] Opportunities in EU-financed Team Europe initiatives in Kenya.

[40] SWITCH Africa Green Programme.

[41] Kenya and the Netherlands working together towards circular agriculture in Kenya.

Policy and other support to create an enabling environment:

- Extended producer responsibility: Including textiles in Kenya's EPR could enable better collection and sorting of textile waste for reuse and recycling, as well as generate funds which can be reinvested in recycling infrastructure. Higher fees for firms placing non-recyclable products on the market would reduce the flow of such products, and better sorting can minimise waste ending in landfills. Given the experience of EU member states in implementing EPR policies, EU-Kenya cooperation could include technical assistance, policy dialogue as well as sharing of lessons, as already done with Denmark.[42]
- Public awareness: Apart from policy support to regulate what circulates in the market, circular textiles also require actions from citizens. Raising public awareness on the need and benefits of a circular economy, highlighting the role of reusing, repurposing, and recycling can go a long way in encouraging appropriate waste disposal. This also complements potential collection efforts to avoid waste-dumped landfills. Lessons can be drawn from the experience of the EU in effective public awareness.
- Production and product standards: There is a need for a common understanding in terms of language and metrics when it comes to 'circular textiles', including product and process. This entails a process of researching best practices to upgrade existing/adopt new standards related to recycling, production and product design. Kenya has experience in adopting national standards benchmarked against international ones such as Global GAP (Good Agricultural Practices). A similar approach could be adopted, if suitable, for the circular textile.[43] An integral part of this approach would be the provision of training to stakeholders. The KEBS could develop a reference book on existing global standards related to the circular economy. A nation-wide (i.e. harmonised) compliance framework could avoid fragmentation in procedures adopted by individual firms. Cooperation can be sought with the EU for support in developing and implementing the standards further. For instance with support from Denmark, the Kenyan government is implementing a compliance assistance program, which helps companies identify environmental risks in their operations and build their capacity to respond to the risks, focusing on low-hanging fruits.[44] In addition, Kenya could also advocate for better inclusion of the perspectives of producing countries in the development of upcoming international standards, as well as working towards mutual recognition of standards.
- Information sharing and matchmaking: Another avenue to promote circular textiles is the facilitation of B2B exchanges between EU countries and Kenya among actors along the value chain to enhance understanding and collaboration (Ashraf and van Seters 2021). Relatedly, to facilitate further knowledge flows between different stakeholders in Kenya, an information and lesson-sharing platform could be considered with firms, government, academia and other relevant stakeholders.

2. Transparency and traceability

- Ensure transparency: While this is important to be able to manage the risks more effectively by having greater visibility and leverage over own suppliers in the value chain, transparency has been a challenge in the textile sector. Initiatives to bring transparency range from industry initiatives to civil society and multi-government initiatives. They could cover all aspects of the textile value chain or single issues. The International Trade Centre (ITC) Standards Map24 provides an objective benchmark of different labels/schemes according to product/service, producing country and market covered. Similarly, Kenyan firms could also use UNEP and ITC's "Guidelines for providing product sustainability information" which aim to help producers make reliable claims about their products' sustainability performance and thus enable informed consumer choices (UNEP 2022).

[42] Danish partnerships spur circular business models in Kenya.
[43] Standards must be informed by business realities and enforced effectively through monitoring, evaluation and learning.
[44] Kenya's Potential For Sustainable Textiles.

- Enhance traceability: Consumers can only make informed decisions if they have accurate and reliable information. Traceability is also important to promote material recovery after use. As Kenyan exporters will increasingly need to ensure traceability to access the EU market, Kenya could seek cooperation with the EU for learning from ongoing pilot projects mentioned above, as well as draw good practices from other industries and internalise these best practices.

3. Cross-cutting

- Catalyse investments: The circular transition requires significant investments to inter alia adopt circular technologies, improve production processes and develop adequate monitoring and evaluation systems. At the same time, access to finance for the private sector is difficult: loans from commercial banks are often expensive and inaccessible (due to collateral or documentation requirements). In this context, European development finance institutions (DFIs) and public development banks (PDBs) can play a key role in helping provide affordable financing by leveraging risk-sharing mechanisms such as guarantees and blended finance, and attracting private finance. In particular, they could support the development of a circular technology upgradation fund, an SME fund to support recycling by smaller actors. This could be coupled to a technical assistance fund to ensure that supported firms have the required capacities to integrate circular technology and processes. In this context, the collaboration of DFIs and PDBs with donors and development agencies is crucial to ensure that interventions (investments, technical assistance and policy dialogue) is coordinated and coherent so as to deliver transformative and systemic impacts, at scale.
- Address political risks and corruption: While Kenya has made significant progress in ensuring a stable macroeconomic environment, concerns remain around exchange rate risks, among others. Social inequality and corruption could adversely impact investment decisions especially given the compounded risks of violence and ethnic tensions. Finally, the country's vulnerability to terrorism and related risks also may play a role in investor decisions.
- Include clauses on the circular economy including textiles in trade agreements: Kenya and the EU are currently negotiating the Interim Economic Partnership Agreement (EPA). The agreement aims to enhance trade and investment opportunities and help boost sustainable economic growth and job creation.[45] It is complemented by binding commitments on environmental protection, climate and labour rights. This is a good opportunity for Kenya and the EU to discuss and integrate environmental dimensions, including circular economy considerations, in their trade and investment relations.

6. Conclusion

This paper has argued that the EU's ambitious plans and measures to become a greener and more circular economy are increasingly translating into requirements for exporters to adapt their production to meet the new requirements in this market. While for Kenya, the textiles industry is a strategic sector to kickstart its industrialisation journey, firms are mostly engaged in low value-added activities with a need to expand the textile base in order to capture greater market share in the GVC and also diversify its export markets. The move towards a circular economy provides opportunities to carve out a niche in the EU market, also allowing for product and/or process, and functional upgrading. Translating this potential into concrete business opportunities would however need proactive support in terms of circular design and production processes, transparency and traceability and financing, serving broader industrialisation objectives. While discussing these under the recommendations, the paper also highlights that there are indeed several avenues for closer cooperation between Kenya and the EU in this regard.

[45] See: EU and Kenya advance talks on interim Economic Partnership Agreement with sustainability provisions.

Annex 1: List of interviewees

No.	Name, title	Organisation
1	Marieke Holscher, First Secretary of Economic Affairs	Netherlands embassy, Kenya
2	Eline Blot, Policy Analyst	Institute for European Environmental Policy (IEEP)
3	Karin Boomsma, director	Sustainable Inclusive Business
4	Arthur ten Wolde, executive director	Ecoprenuer.EU
5	Elmar Stroomer, founder	Africa Collect Textiles (ACT)
6	Vera Groeneveld, Policy Officer Circular Economy	Ministry of infrastructure and water management, The Netherlands
7	Valeria Bota, Head of Nature Protection & Restoration	ECOS
8	Sergi Corbalán, Advisor on International Trade	European Parliament
9	Mohammad Bakhtiar Rana, Associate Professor of International Business and Strategy	Aalborg University
10	Martin Gitau	BTT (importer) & Mitumba Institute and Research Centre
11	Kevin Thiong'o, CEO	Upset East Africa
12	Isaac Maluki, CEO	Shona EPZ
13	Jaswinder Bedi, CEO	Bedi Investments
14	Harjit Jassal, Business Development Manager	One Way
15	Representative	Thika Cloth Mills
16	Robert Orina, Chief Enforcement Officer	National Environmental Management Authority (NEMA)
17	Abel Kamau, Trade Policy Manager	Kenya Association of Manufacturers (KAM)
18	Nobby Macharia, Assistant Director-Enterprise Development at Micro and Small Enterprise Authority (MSEA) Anne Wamae, Technical Consultant-Textiles & Apparels	Ministry of Trade, Industry and Enterprise Development
19	Fred Nyongesa, Quality Manager	Water Resources Authority (WRA) Kenya

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