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RESEARCH ARTICLE

Two Sides of the Same Cloth: Exploring the Second-Hand Clothing Trade in Africa from a Circular Lens

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Abstract

While supporting local trade and clothing needs, the global second-hand clothing market in Africa has also been reported to have widespread adverse effects on environmental and socio-economic sustainability. This study provides a pioneering quantitative overview of the second-hand clothing trade in Africa from a circular-economy perspective. It begins with a summary of global trade, then analyses historical trends over 30 years (1990 to 2020) and describes current and representative trade flows within Africa using material flow and network analysis. Results reveal a consistent pattern of 15 times more imports than exports, with countries in West Africa, such as Ghana and Nigeria, and in East Africa, such as Kenya and Tanzania, leading as importers. Meanwhile, the United States, Canada, Germany, France, PR China, and the United Arab Emirates act as main exporters. Additionally, significant intracontinental trade was observed, with regional hubs in Togo, Tanzania, and South Africa. The insights indicate that trade activities are not circular, are characterised by significant trade imbalances, and place the burden on African countries. Due to inadequate policies and infrastructure, this situation undermines the net environmental benefits of circular systems and constrains sustainable waste management, just transition, and global governance agendas.

Keywords Anthropocene · Global Governance · Illicit Markets · North-South Trade · Textile Waste · Trade Wars

1. Introduction

The growing volumes of waste streams, particularly plastics, clothing, and electrical and electronic equipment (WEEE), pose significant environmental challenges (Cotta, 2020; Sun, 2019). The fashion industry, for instance, produces approximately 100 billion garments annually, with a substantial portion contributing to waste due to overproduction and underutilisation (Cobbing et al., 2022). The *Circular Economy* (CE) aims to respond to interrupt this cycle by keeping products and materials in use for longer, designing out waste, and regenerating natural systems. i.e., in a circular economy, economic growth would be decoupled from excessive material consumption (Barrie & Schröder, 2022; Haas et al., 2015; Yamaguchi, 2021).

As the CE concept and framework gain prominence in global trade discussions, waste trade activity is intrinsically connected to them (Moïsé & Tresa, 2023). The global waste trade has been a rapidly growing and lucrative economic activity. The global market surged between 1992 and 2012, with cross-border waste exports and imports rising from 45.6 million to 222.6 million tonnes (Kellenberg, 2015; Sun, 2019; Thapa, W. J.

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Vermeulen, et al., 2023). Moreover, in 2019, the waste trade was valued at 550 million tonnes, worth 315 billion USD (UNCTAD, 2021). Accordingly, as defined by Barrie and colleagues (2022), circular trade pertains to international trade transactions that "contribute to CE activities at the local, national, and global levels. This includes the trade of circularity-enabling goods, services, and intellectual property; second-hand goods for reuse, repair, refurbishment, remanufacturing, or recycling; refurbished and remanufactured goods; secondary raw materials; and waste, scraps, and by-products that can be safely recovered or valorised" (Barrie et al., 2022).

In practice, circular trade is already occurring within existing waste trading dynamics. Waste trade practices are characterised by high levels of waste recovery and exports from countries in the Global North, and by high levels of valorisation (or disposal) of waste imports in countries in the Global South (Bernard, 2015; Liu et al., 2018). Such trade is motivated mainly by the high capital investments required for waste separation; therefore, the attractiveness of destination countries for circular trade lies in their lower costs, driven by their reliance on less labour-intensive practices (Kellenberg, 2015). Proponents of waste trade argue that destination countries can use recycled materials as feedstocks to develop the manufacturing sector and related businesses, creating job opportunities. This would allow for the development of a domestic industrial base focused on producing low-value, low-quality goods and serving its target market in similar countries in the Global South. Overall, this would help reduce the environmental footprint of existing global trade (Pacini et al., 2021; Qu et al., 2019; van Beukering & Bouman, 2001).

That said, highly divergent regulatory frameworks, enforcement mechanisms, and inadequate waste management infrastructure have prevented the waste trade from delivering its intended benefits to the Global South. Instead, this trade has contributed to the growing and pervasive pollution of air, water, and land, threatening the natural environment, human health, and livelihoods (Asante-Duah et al., 1992; Cotta, 2020; Liu et al., 2018). Moreover, scholars argue that while traded waste goods can contribute to broader circular economy goals, they do not necessarily address the pre-existing imbalanced trade relations (Murdie et al., 2024). Critics also argue that the legal and illegal trade in second-hand and end-of-life goods, including hazardous waste, from the Global North to the Global South reflects a broader pattern of environmental injustice. These dynamics are described as forms of environmental racism, toxic terrorism/colonialism, garbage imperialism, and systemic exploitation (Okafor-Yarwood & Adewumi, 2020). The term 'waste colonialism' is often used to highlight the unequal and potentially exploitative power relations underpinning this trade, in which the Global South disproportionately bears the environmental and health burdens of waste generated in the Global North (Khare, 2024; Ricketts & Skinner, 2023). For instance, to date, the sustainability claims of 'circular trade' have not been fulfilled because they fail to comprehensively account for the global and interconnected impacts across the entire spatial system boundary, and neglect to evaluate the overall *net sustainability*[4] of pre-existing practices for key traded goods (e.g., plastic scrap, second-hand textiles or WEEE) on a global scale (Kok et al., 2013; Korhonen et al., 2018). Past scholarship has explored the dynamics and impacts of waste trade between the Global North and Global South (Bernard, 2015; Cotta, 2020), but challenges remain in studying global waste flows due to data scarcity and quality, accessibility, and limited transparency (Kellenberg, 2015; Thapa, W. J. V. Vermeulen, et al., 2023). A recent 35-year review (1985-2021) of transboundary waste movement found a strong focus on hazardous waste (45%) and on matters related to the Basel Convention until the 2000s, driven by high-profile toxic dumping cases. Post-2000s studies shifted to WEEE (27%), addressing its health and environmental impacts, while other waste streams, including plastic, textiles, and vehicles, received minimal attention—each below 5% (Thapa, W. J. Vermeulen, et al., 2023).

The African continent, in particular, has long been treated as a dumping ground for legal and illegal waste imports (Asante-Duah et al., 1992; Bernard, 2015; Okafor-Yarwood & Adewumi, 2020), which, combined with inadequate waste management systems, has undoubtedly worsened conditions due to waste-related environmental degradation (Beula & Sureshkumar, 2021; Grant & Oteng-Ababio, 2012). For instance, in the legal waste trade, the increasing car ownership in Africa is characterised by imported second-hand vehicles (UNEP-ITC, 2020) and research pointed out the common practice within the vehicle exporting activities of reporting the vehicles as being in 'top condition,' while in reality being 'cars without an engine' (Bernard, 2015). In addition, West Africa is a critical hub for WEEE imports (Breivik et al., 2014; Grant & Oteng-Ababio, 2012). Despite most countries having domestic regulations and being signatories to regional and international

[4] Global net sustainability refers to implementing sustainability strategies at a specific time and place, achieving positive results, and considering complex system feedback mechanisms that, somewhere now or in the future, negative impacts increase (D'Amato & Korhonen, 2021).

conventions, such as the Bamako Convention (which aims to curb the import and management of hazardous wastes into Africa), limited enforcement has led to an ongoing illegal waste trade (Abalansa et al., 2021). Although mapping these waste flows remains challenging, Africa remains a key destination for illegal waste from the Global North, with countries such as Côte d'Ivoire, Ghana, Guinea, Nigeria, Sierra Leone, Tanzania, Togo, Benin, and Senegal among the top importers (Eze, 2007; Favarin & Aziani, 2020).

Zooming in on second-hand clothing, Africa has a long history and a broad geographical spread of its trade, with various African countries reported as the most significant global importers by volume (Norris, 2015). In 2013, it was reported that 80% of the population in several African countries wore second-hand clothing (Palm et al., 2014). Moreover, an increasing number of studies and advocacy papers have identified the African continent as a prominent destination for the second-hand clothing trade (Hansen, 2014; Oxford Economics, 2024; Ricketts & Skinner, 2023; Sumo et al., 2023). Reports also indicate that second-hand clothing accounts for over half of consumer imports in many Sub-Saharan African countries (Brooks, 2013; Hansen, 2000). Despite its significance, trade remains poorly quantified in its aggregate and characterisation, motivating the need for closer examinations. As can be noted, while qualitative reporting on the positive and negative impacts of the second-hand clothing trade is available, quantitative exploration of trade flows is limited. (Brooks & Simon, 2012; Sumo et al., 2023), and, conversely, most studies present a skewed geographical representation. For instance, single-country studies include a study analysing Rwanda's second-hand clothing trade structure and evolution (Haggblade, 1990), a preliminary analysis of the market in Malawi, focusing on the local entrepreneurs' work (Mhango & Niehm, 2005), the study of the social networks and the historical changes in the business practices of second-hand clothing vendors in Tanzania (Ogawa, 2006), a mapping of the processes that characterize dressing up in second-hand clothing in Zambia (Hansen, 2000), followed by a discussion of the fate of Global North discarded clothing in African countries (Hansen, 2014), an investigation of the trade and labor dynamics of second-hand clothing produced in the UK and received in Mozambique (Brooks, 2013), an examination into Accra, Ghana's biggest second-hand clothing market (Manieson & Ferrero-Regis, 2023) and on the trade between Ghana and the USA (Ogunmefun, 2024a). In addition, studies with a regional focus encompass the investigation of the quality assurance issues that arise from second-hand clothes imported from Britain to West Africa (Abimbola, 2012), an examination of banning the imports of second-hand clothes and shoes as the solution to industrialisation in East Africa (Wetengere, 2018), and a study of Malawi, Mozambique and Angola to answer how much of second-hand textile sold for reuse is directly avoiding the purchase of new textile (Nørup et al., 2019).

So far, studies on second-hand clothing in Africa have largely emphasised the social, cultural, and labour interactions surrounding the trade, with limited attention to the environmental dimension and sustainability. Moreover, these studies are largely single-country or regional, qualitative or semi-quantitative, and with punctual temporal analysis. This pioneering study therefore aims to address this gap by quantitatively exploring the African continent's second-hand clothing trade, both historically and to date. We also aim to contribute to understanding whether the trade contributes to the environmental injustice that has been largely associated with it, from a circular lens, by answering the following:

I. What is the overall landscape of the global second-hand clothing trade?
II. How has the second-hand clothing trade in Africa evolved over the past three decades (1990-2020)?
III. How can we characterise the current dynamics of the second-hand clothing trade in Africa?

Following the introduction of the study's theme and research focus, the next section presents the research background, exploring the second-hand clothing trade and the circular economy globally and in Africa. The Materials and Methods section outlines the methodological framework and approach. This is followed by the presentation of the results, including an overview of global trends in the second-hand clothing trade, a quantitative analysis of historical trade trends in Africa from 1990 to 2020, and current (2020) representative trends on the continent. The final sections examine the implications of the results for circularity, trade relations, and the sustainability of resource management.

2. Background

2.1. Overview of the global second-hand clothing trade

The global second-hand clothing trade, encompassing textile garments, shoes, handbags, towels, sheets, blankets, and draperies, operates as a multimillion-dollar supply chain (Brunello et al., 2024). Unlike other value chains, charitable organisations are key stakeholders in this trade, particularly in the collection and redistribution of these items (Hansen, 2000; Mhango & Niehm, 2005; Nørup et al., 2019).

The end of World War II brought an economic boom in many countries in the Global North, leading to surpluses of second-hand clothing. Meanwhile, rising poverty and reduced purchasing power in the Global South, mainly in African countries, created growing demand for this commodity (Hansen, 2000, 2014; Siegle, 2011). Until the 1970s, charitable organisations in the USA and Europe primarily focused on collecting and donating clothes to meet the needs of people experiencing poverty, both domestically and overseas. However, by the 1980s, a surplus of second-hand clothing and continued demand from low-income populations led to the emergence of specialist second-hand clothing stores in the Global North. These stores introduced a for-profit element to the trade, transforming what had begun as charity-driven efforts into a business model that still purported to address the needs of disadvantaged populations. Charitable organisations remain the chief source of the second-hand clothing trade, driving international trade (Brooks, 2013). However, the landscape has evolved, with private businesses specialising in textile recycling and grading now handling 40% to 75% of surplus clothing volumes (Abimbola, 2012; Frazer, 2008; Hansen, 2000; Norris, 2015).

Since the early 1990s, the second-hand clothing trade has grown by more than tenfold (Hansen, 2014). The USA remains the world's leading exporter, shipping over 500,000 tonnes annually to more than 100 countries (Brooks, 2013). Meanwhile, Scandinavian countries have significantly increased their contributions to this trade, boosting second-hand clothing exports by 25% between 2011 and 2014 (Nørup et al., 2019). As such, the current global second-hand clothing trade operates as follows. Textile recycling and grading businesses prepare second-hand clothing acquired from charities or collection organisations. They then sort and grade the clothing by quality, type, and market demand. The sorting process determines each item's destination and value, grouping them into 50-kg bales in high- and low-quality categories. Unsorted bales are also traded. Based on quality, bales are sold to second-hand clothing dealers, who prepare them for shipment. The bales are then shipped to various destinations, categorised by quality: Japan typically receives the highest-grade, followed by medium-grade to Latin America, lower-grade to Africa, and the lowest-grade to South Asia (Abimbola, 2012; Norris, 2015). Figure 1 presents an overview of the second-hand clothing trade.

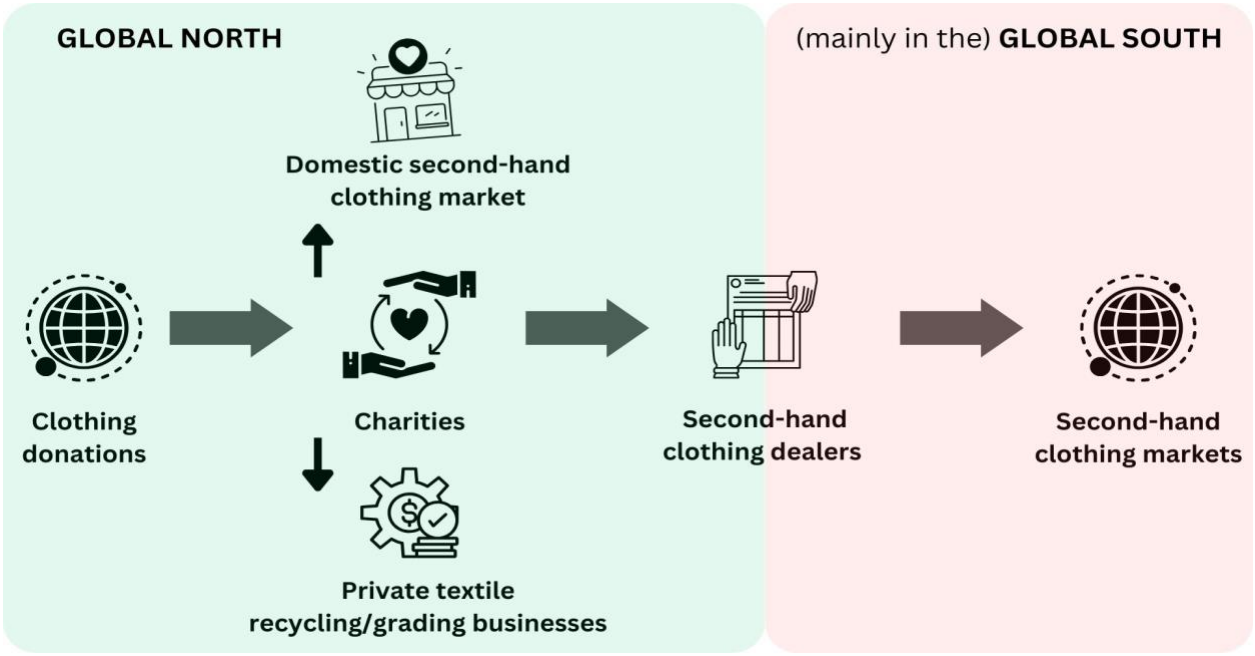

Figure 1. Global second-hand clothing trade stakeholders and flows

2.2. Africa and the second-hand clothing trade

The textile and apparel sector in Africa is characterised by significant production of raw materials (cotton farming) and exports, limited local manufacturing, rising imports of low-quality clothing, and substantial imports of second-hand textiles (Rademaekers et al., 2020). For example, the East African region saw second-hand textile and footwear imports rise from $100 million in 2001 to over $300 million in 2014, representing a quarter of the continent's imports (Calabrese, 2016). After structural adjustment programmes (SAP) reduced protections for domestic industries, African textile and clothing producers declined sharply and became increasingly reliant on second-hand clothing imports (Brooks & Simon, 2012).

The African Growth and Opportunity Act (AGOA) was introduced in response to this collapse, offering duty-free access to the U.S. market, raising African apparel exports by about 40% and non-oil exports by roughly 7%. However, gains were concentrated and heavily dependent on a single external market (Frazer & Biesebroeck, 2012). Similar preference schemes from other partners, such as the EU's Economic Partnership Agreements (EBAs), and Economic Partnership Agreements (EPAs), Canada's Least Developed Country Tariff (LDCT), Japan's Generalized System of Preferences (GSP) for Least Developed Countries (LDCs), China's zero-tariff programme, and the UK's Developed Countries Trading Scheme (DCTS), offered comparable duty-free access but led to narrow export structures with limited domestic upgrading (Kaplinsky & Morris, 2008; Nilsson, 2011; Whitfield et al., 2020). Export growth in these programmes has been driven mainly by foreign-owned companies operating in isolated production systems, characterised by limited local ties and significant instability when preferences shift. This has not reversed the structural weaknesses created by SAP-era liberalisation. Instead, it has reinforced an outward-oriented, low-value export model that cannot rebuild competitive domestic clothing industries, thereby sustaining Africa's continued reliance on imported new and second-hand garments (Brooks & Simon, 2012; Morris et al., 2022; Morris & Staritz, 2014).

For instance, in 2020, second-hand clothing imports into Africa ranked first by value, accounting for over 35% of the global total, USD 3.91 billion, followed by Europe and Asia, each at about 25% (*OEC - The Observatory of Economic Complexity*, 2024). In 2006, it was recognised that sub-Saharan Africa was the largest destination for second-hand clothing, driven by existing import regulations, regional traditions, and cultural norms around the body and dress. Conversely, in North Africa, second-hand clothing accounts for a small share of clothing imports (Haggblade, 1990; Sumo et al., 2023). While its significance and main benefit are linked to lower prices and access to clothing, its increasing prevalence generates vast amounts of textile waste. Due to waste management deficiencies, African countries are experiencing serious pollution and related issues from the mismanagement of textile waste (Manieson & Ferrero-Regis, 2023; Nkatha, 2023; Sumo et al., 2023).

2.3. Circular Economy and second-hand clothing trade

Trade in second-hand clothing involves collecting, processing, and exporting it as 'waste and scrap', as 'secondary raw materials', as 'goods for refurbishment and remanufacturing', or as 'second-hand goods' (Yamaguchi, 2021). Globally, textiles are among the most common forms of secondary raw materials and waste, scrap, and residues for the recovery trade types (Barrie et al., 2022). It provides the opportunity to transform waste into resources, contribute to achieving economies of scale in collecting waste destined for recycling and material and energy recovery, and channel waste and scrap to countries with a comparative advantage in sorting and processing it into valuable materials. In contrast, particularly as waste and scrap, they can be traded to destinations with insufficient recycling and waste disposal management capacity and to destinations with issues related to the illegal waste trade and the informal sector, making it critical to explore the dynamics of the second-hand clothing market (Persson & Hinton, 2023; Yamaguchi, 2018).

Furthermore, second-hand consumption is crucial for reducing resource use and, consequently, environmental impacts. For clothing, it has the potential to reduce CO_2 emissions, chemical pollution, and water and land use associated with producing new clothes (Persson & Hinton, 2023). A CE for post-consumer textiles includes (1) avoiding unnecessary textile consumption, (2) reusing textiles in different ways to prolong the life of the article, and (3) recycling textiles (Martvall & Gustavsson, 2025). While those actions usually take place domestically, trade is also significant. Within a recently proposed conceptual framework and indicator set for monitoring progress towards a circular economy, which covers all dimensions of a CE and the whole lifecycle of materials, products, services, trade interactions, and development, two of the four building blocks address trade. One is the *Material lifecycle and value chain*, and the other is the *Socio-economic*

opportunities. In this context, the second-hand clothing trade, linked to the CE, is significant for natural resource and waste management, as well as for economic development, supply security, and international trade (Brooks, 2025; United Nations Economic Commission for Europe, 2024). On the one hand, the specific indicators consider material imports and exports, the physical trade balance, and the material intensity of trade flows, using material flows accounts and trade data to clarify how trade can drive CE policies and how CE policies can influence trade. On the other hand, they consider the trade volume of recovered, recycled and recyclable materials to represent the importance of the domestic market and global participation in a circular economy (United Nations Economic Commission for Europe, 2024).

3. Materials and Methods

We conducted a descriptive analysis of the global second-hand clothing landscape, followed by trade-flow and network analyses to examine the dynamics of second-hand clothing trade across Africa.

First, to clarify the global trade landscape and trends, data on second-hand clothing for the past decade, 2010 to 2020, was retrieved from the Observatory of Economic Complexity (OEC), an online data visualisation and distribution platform focused on the geography and dynamics of economic activities (*OEC - The Observatory of Economic Complexity*, 2024). The results were examined for the top 10 countries worldwide during the study period, by trade type (imports and exports). By selecting the 2010 to 2020 period, we aim to provide a contemporary snapshot of the second-hand clothing trade and its key global players.

Subsequently, trade information for each African country was retrieved from the United Nations (UN) Commodity Trade Statistics (Comtrade) Database, known as UN Comtrade, which provides international trade data from official, self-reported national sources (*UN Comtrade: International Trade Statistics*, 2024). The data for 1990, 1995, 2000, 2005, 2010, 2015, and 2020 were downloaded in 2024 and revised in 2025. The analysis begins in 1990, as no datasets were available at UN Comtrade prior to that year. The five-year period up to 2020 was selected based on available analyses and the authors' resource capacity, and it was assumed to be representative and to provide insight into the status of the second-hand clothing trade in Africa. A five-year analysis enables robust trend interpretation, providing comprehensive historical context to capture both short-term and long-term changes (Haile et al., 2020; TABLEAU, 2026). Moreover, a quick assessment of the dataset beyond 2020 revealed several reporting irregularities, including missing data for some countries, particularly in 2021 (presumably related to pandemic disruption) and in 2024-2025, which may not yet have been submitted. During the analysis period, missing data, reporter years, and apparent anomalies (e.g., extreme per-ton values) were removed following an initial analysis.

The Harmonised Commodity Description and Coding System (HS) used for the analysed materials is HS 6309900, which covers "worn clothing and other worn articles." Here, we acknowledge that, because this database is based solely on nationally reported trade data, there is a potential for the omission of actual trade amounts and values, misclassification, and informal or illicit trade, leading to under- or overestimation or understatement of the results. Another aspect to consider regarding the selected HS 6309900 is the potential for classification ambiguities, as it is widely acknowledged that the definitions and classifications of “waste”, “scrap”, and “secondary materials” vary across countries (Yamaguchi, 2018). Barrier and colleagues (2002) also highlight that misclassification of goods is one of the critical issues that needs to be addressed in realising the CE and circular trade (Barrie et al., 2022). For these reasons, a higher level of uncertainty in the results is acknowledged, and further country-level and global alignment follow-up research is warranted. Additionally, HS 6309900 aggregates worn clothing and other worn articles but cannot distinguish quality levels, garment types, or “true second-hand” from potentially misreported new items. The results were presented in aggregate, focusing on the top 10 African countries for each period and trade type.

Finally, a social network analysis (SNA) was performed using Gephi to generate net-weighted flows and trade dynamics for the top African players for each trade type in 2020, as a representative current-year snapshot and a scoping and illustrative network rather than a complete representation of African SHC trade. SNA uses nodes (points) as subjects and edges (lines) as flows between nodes and relationships among them, using a network model and graph theory (Ackermann & Eden, 2011; Park et al., 2015; Vance-Borland & Holley, 2011). As for the network characteristic, it is directed and weighted by tons. The *degree centrality* metric was selected because it measures the number of connections or edges a stakeholder, in this case a country, has with other stakeholders (Otte & Rousseau, 2002). In network analysis, degree centrality is critical because it reflects a

country's importance and connectivity. Other common metrics include *closeness centrality*, the average distance from one country to all others in the network, which reflects its capacity for information sharing; and *betweenness centrality*, which quantifies how often a country acts as a connector between two others along the shortest path, reflecting its critical role in controlling communication flown (Kong et al., 2019; Peng et al., 2018). The results at this stage focused on the top five countries for each trade type in 2020 to reduce complexity and support a viable analysis.

4. Results

4.1. Current global second-hand clothing trade

Figures 2 and 3 present the export and import trends of the top global players in 2010 and 2020. In 2010, the top ten exporters were the USA, the UK, and European countries – such as Germany, the Netherlands, Belgium, Italy, and France – as well as South Korea, Canada, and Japan. Cumulatively, the trade value was about USD 2.2 billion. A decade later, in 2020, the trade value increased by 25% to USD 2.7 billion, with most of the previous country leaders remaining. The most significant entrants were PR China (excluding Hong Kong), Pakistan, Poland, and the United Arab Emirates, replacing Canada, Japan, Italy, and France.

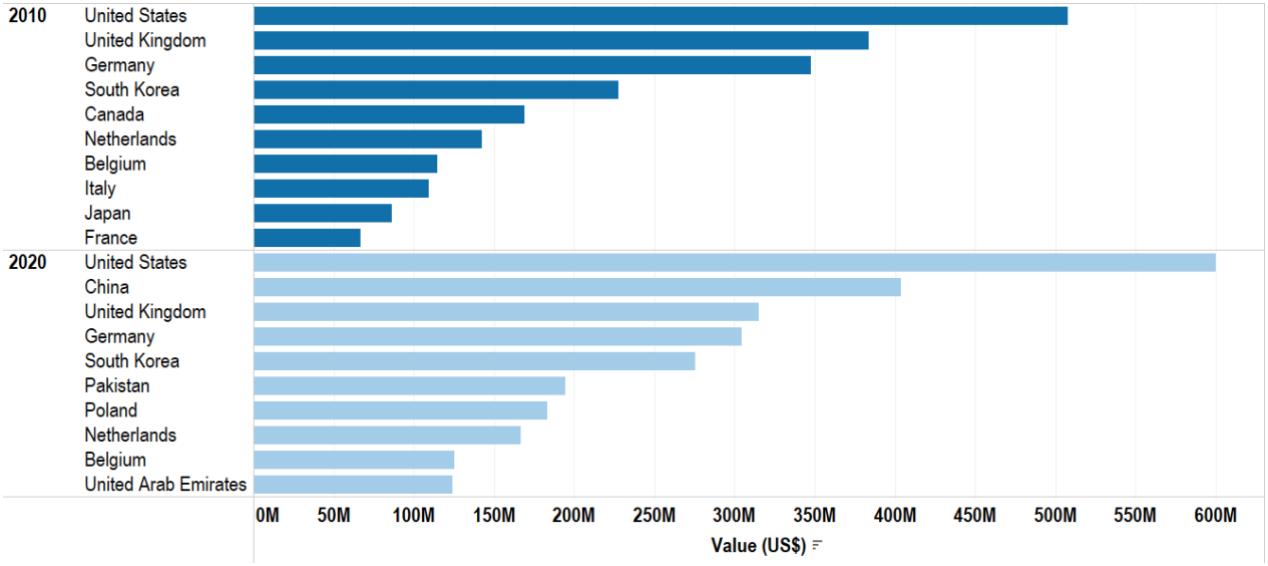

Figure 2. Top 10 global exporters of second-hand clothing in 2010 and 2020

In 2010, the world's leading importers totalled around USD 1 billion in trade value, led by Africa (Ghana, Kenya, Tunisia, Benin, Cameroon, Tanzania), Eastern Europe (Poland, Russia, Ukraine), and Pakistan. Fast-forward to 2020: there was an approximate 30% increase to 1.3 billion USD, with the United Arab Emirates, Nigeria, and Malaysia joining the list of top importers, while Tunisia, Benin, and Cameroon exited.

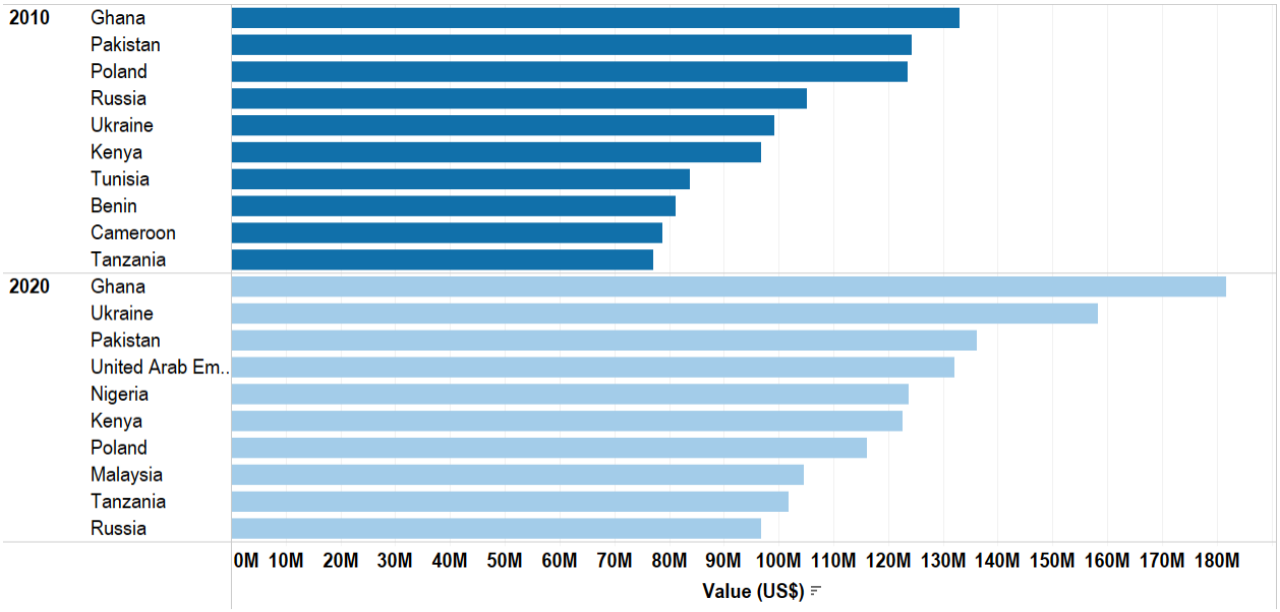

Figure 3. Top 10 global importers of second-hand clothing in 2010 and 2020

4.2. Historical trends of the second-hand clothing trade in Africa

Figure 4 shows trends in the second-hand clothing trade across Africa from 1990 to 2020; disaggregated country-level results are presented in Figure S1 of the Supplementary Information.

Over the past 30 years, more than 301,000 tonnes of second-hand clothing, valued at more than USD 274 million, have been exported from Africa (on the left). The export trend has risen steadily, peaking in 2015 at approximately 102,000 tonnes, valued at USD 83.2 million. However, in 2020, exports fell sharply to 27,500 tonnes, corresponding to USD 29.7 million.

During the same period, Africa imported over 4.54 million tonnes of second-hand clothing, valued at more than USD 3.33 billion (on the right). Similarly, second-hand clothing imports rose steadily from 1990 to 2015, peaking in 2015 at approximately 1.56 million tonnes, valued at USD 1.07 billion, before declining in 2020 to 789,000 tonnes, valued at USD 695 million. Reports suggest this reduction was likely tied to shifts in consumption patterns during the pandemic and associated lockdowns (Bhattarai, 2021; Kim & Woo, 2021). Nevertheless, a quick appraisal of the 2021 UN Comtrade data indicates a recovery in trade with Africa, mainly imports, signalling a return to business-as-usual trade levels.

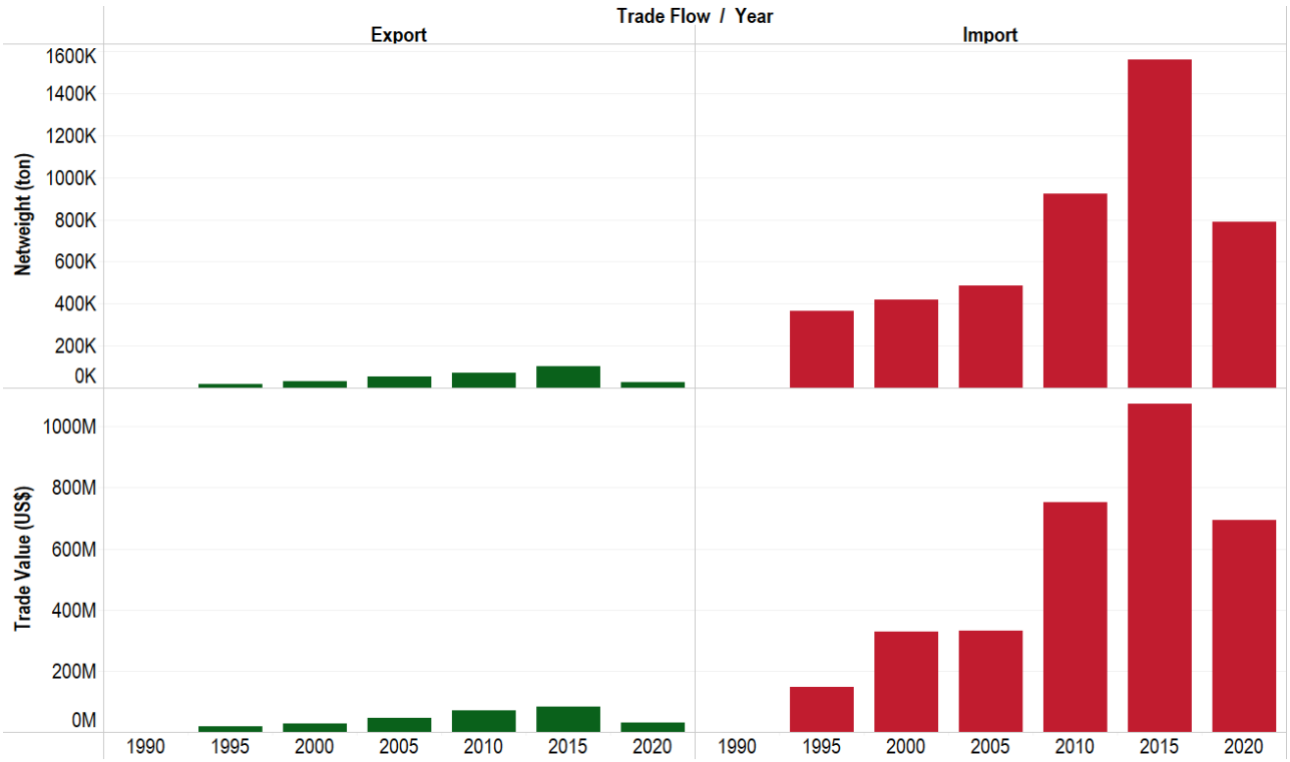

Figure 4. Net weight and trade value amounts of export and import of second-hand clothing in Africa for 1990-1995-2000-2005-2010-2020

During this period, the continent's leading exporters by weight were Niger (28%), Tunisia (26%), and Ghana (12%), with average trade values of 637 USD, 882 USD, and 244 USD per ton, respectively. However, when considering the monetary value per ton, Ethiopia (7,975 USD per ton) and Cabo Verde (5,605 USD per ton) stood out, consistent with a previous suggestion that these countries exported a smaller volume of higher-valued goods, resulting from additional value-adding activities such as sorting, cleaning, or repairing before export, which increased the value per ton (Frazer, 2008). By weight, the leading importers were Tunisia (10%), Angola (9%), and Kenya (9%), with average prices of 643 USD, 338 USD, and 892 USD per ton, respectively. Meanwhile, Seychelles (7,909 USD per ton), Ethiopia (6,982 USD per ton), and the Reunion Islands (5,376 USD per ton) were the highest-priced imports per ton.

Figures 5 to 10 show the top 10 country-level historical changes in weight from 1990 to 2020 – the size of the circles represents each country's share of total traded weight.

The leading exporting countries changed little over time (Figure 5-7). They were led by North African countries, such as Tunisia and Niger, with a few from Sub-Saharan Africa, such as Togo and Uganda. New exporters, Kenya and Tanzania, were introduced in the 2000s (Figure 6). This starkly contrasts with the importer landscape, which has been more dynamic and regionally diverse (Figure 8-10). Between 1990 and 2000, Tunisia and Sudan were the most prominent importers, followed by Kenya and Tanzania. In the subsequent decade (2000-2010), while Tunisia remained a significant importer, Sudan's imports decreased significantly, and countries such as Ghana, Tanzania, Kenya, and Benin emerged. Lastly, between 2010 and 2020, the trend of the previous decade persisted in Tunisia, Ghana, Tanzania, and Kenya, with Togo and Cameroon added. It is worth noting that since the 2000s, second-hand clothing imports have gradually become more prevalent in the Southern African region, as evidenced by growth in countries such as Angola and the Democratic Republic of the Congo (Figures 9 and 10).

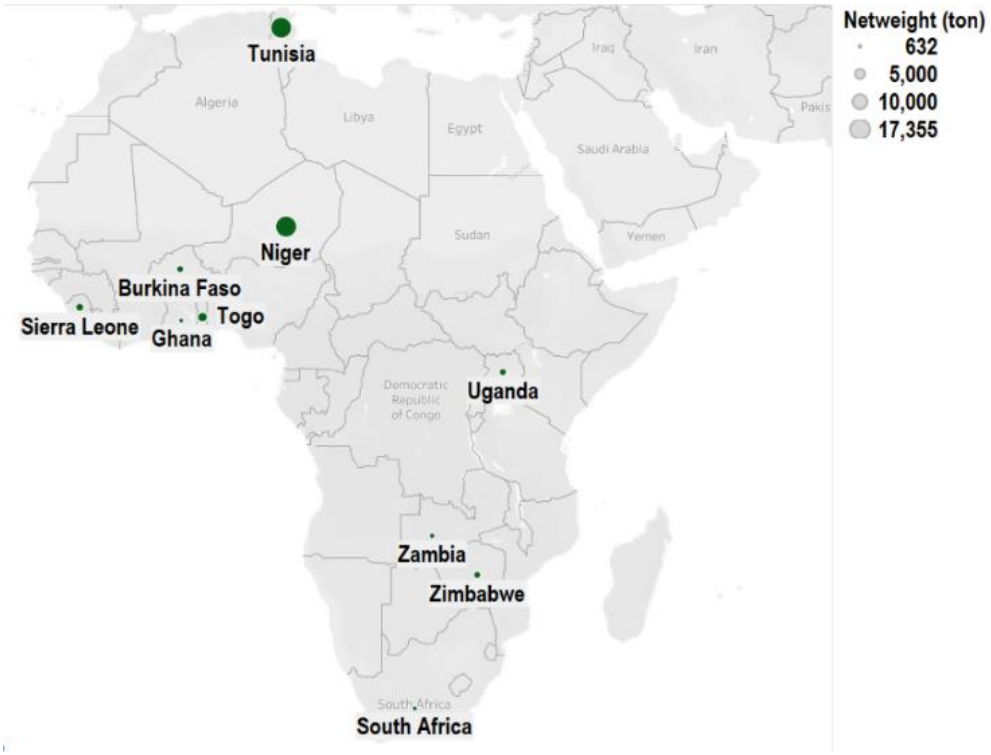

Figure 5. 1990-2000 Africa's second-hand exports (top 10 countries by weight)

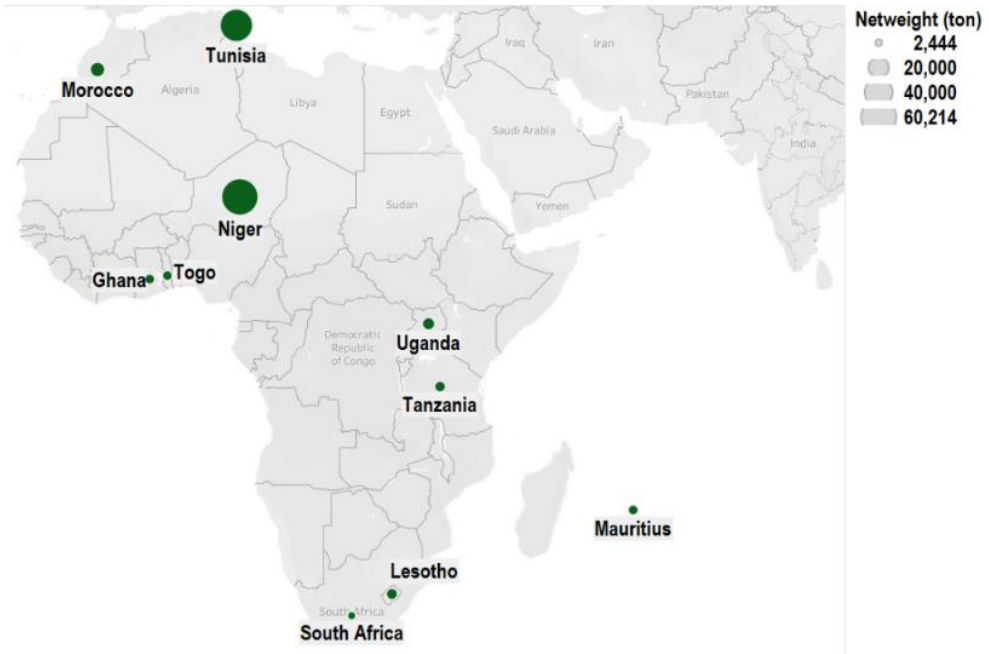

Figure 6. 2000-2010 Africa's second-hand exports (top 10 countries by weight)

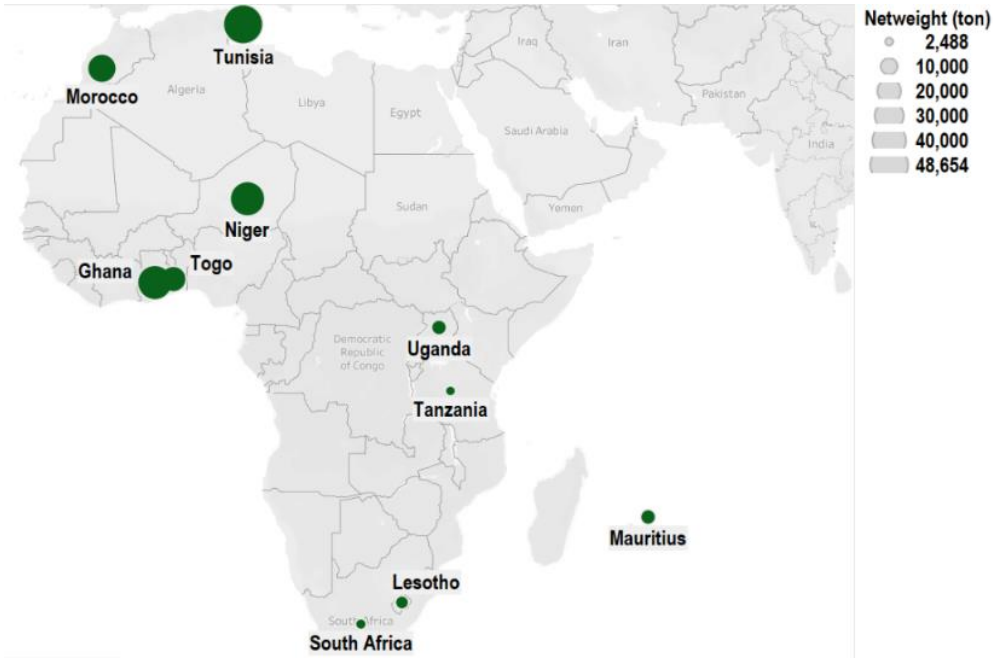

Figure 7. 2010-2020 Africa second-hand exports (top 10 countries by weight)

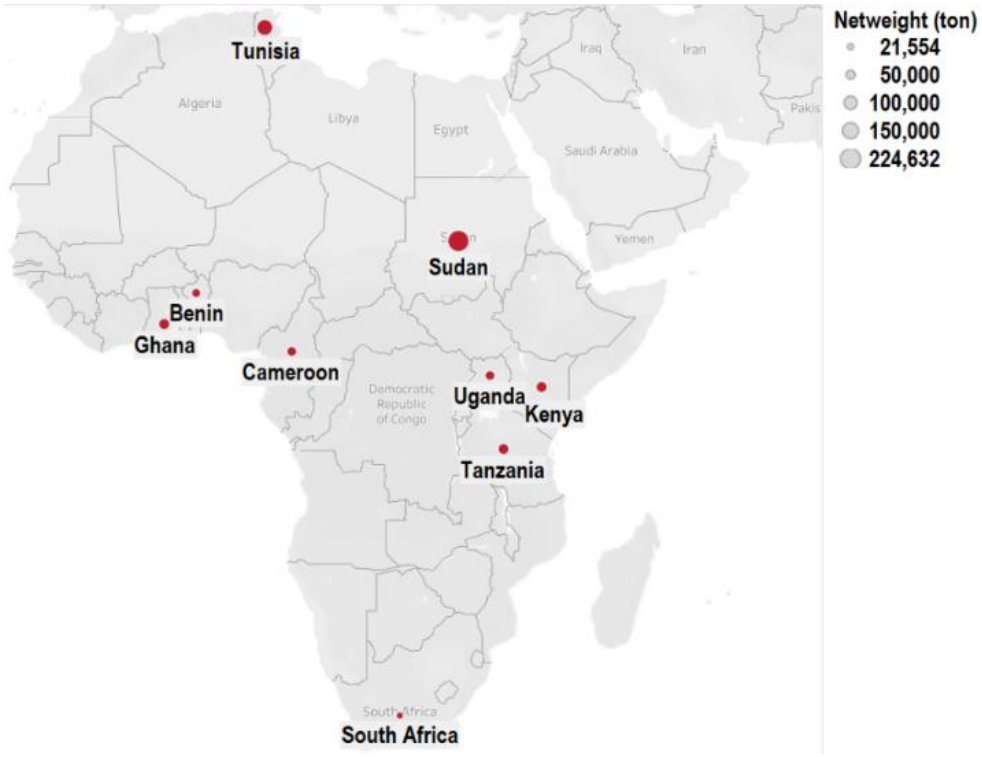

Figure 8. 1990-2000 Africa second-hand imports (top 10 countries by weight)

Figure 9. 2000-2010 Africa second-hand imports (top 10 countries by weight)

Figure 10. 2010-2020 Africa's second-hand imports (top 10 countries by weight)

4.3. Contemporary trade flows of second-hand clothing in Africa

The network analysis presented in Figures 11 and 12 focuses on Africa's top five countries by weight in the second-hand clothing trade in 2020.

In the figures, the nodes represent countries, and the edges represent trade flows among them. The nodes vary in size according to a country's prominence and centrality in trade connections (degree centrality—the number of connections an element has with other elements), and the thickness of the lines represents the net weight.

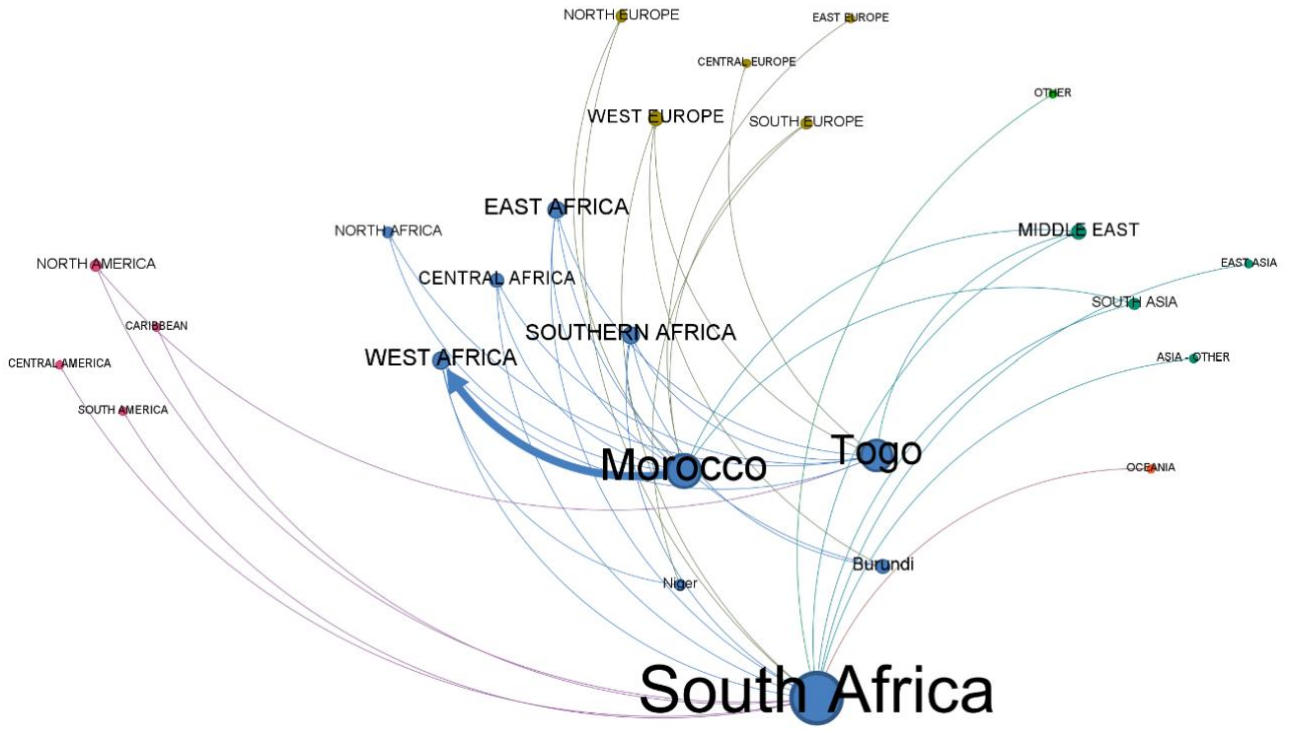

Figure 11. 2020 Africa export trade flows of second-hand clothing (top 5 countries by weight)

Figure 11 shows the dynamics of second-hand clothing exports from Africa in 2020. In total, 742 second-hand clothing transactions originated in Africa, amounting to 75,642 tonnes and representing 1.62% of global export weight. Exports are mainly within Africa, with over 50% going to West Africa, 18% to Central Africa and 13% to Southern Africa, followed by South Asia (10%) and the Middle East (4%).

The top five African exporters by weight were Togo (10,080 tons; 20 transactions), Morocco (8,210 tons; 36 transactions), Niger (2,671 tons; 3 transactions), Burundi (1,218 tons; 8 transactions), and South Africa (1,216 tons; 41 transactions). For Togo, Niger, Burundi, and South Africa, the majority of transactions were with their respective neighbouring countries. For instance, 46% of Togo's second-hand clothing exports went to West Africa (i.e., Niger and Nigeria). In contrast, the two main non-continental destinations were Lebanon (4%), Canada (2%), and the Netherlands (1%). That said, Niger also appears to export second-hand clothing primarily to Nigeria. Burundi mainly exported to East Africa (i.e., Tanzania) and Central Africa (i.e., DR Congo), and South Africa's key export partners were in Southern Africa (i.e., Malawi and Zimbabwe). In the case of Morocco, while continental trade was also significant (52%), it had a broad export base in Europe (i.e., the Netherlands, Belgium, and Spain), the Middle East (i.e., the United Arab Emirates), and South Asia (i.e., Pakistan and India).

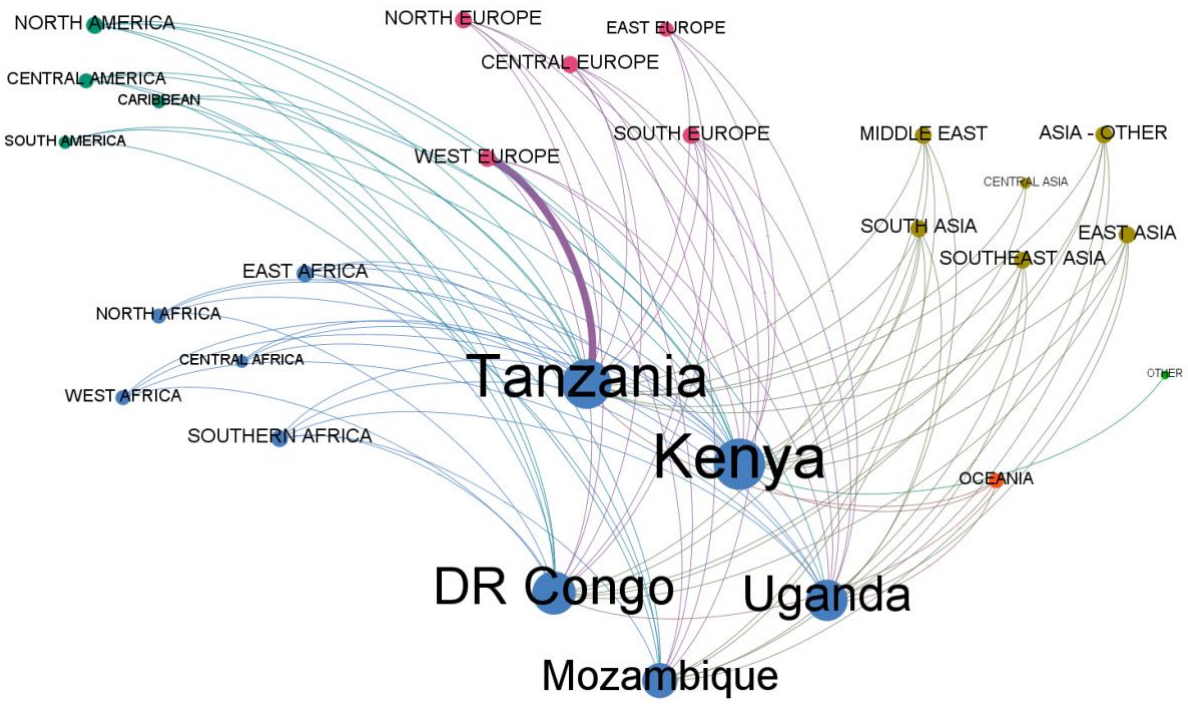

Figure 12. 2020 Africa import trade flows of second-hand clothing (top 5 African countries by weight)

Figure 12 shows the 2020 dynamics of second-hand clothing imports into Africa. In 2020, 1,571 second-hand clothing import transactions were recorded in Africa, totalling 1,098,067 tonnes, representing 28.3% of the total weight of global imports. Most imports come from South and East Asia (over 20% each), followed by North America (11%), the Middle East (11%), and Southeast Asia (9%). Less than 0.5% of trade is intra-African.

The top five African importers by weight in 2020 were Mozambique (191,571 tons; 42 transactions), Kenya (121,446 tons; 120 transactions), DR Congo (99,783 tons; 72 transactions), Tanzania (92,247 tons; 88 transactions), and Uganda (78,654 tons; 81 transactions). Unlike African exporters, who trade primarily within the continent, these major importers received substantial volumes of second-hand clothing from outside Africa – 99% of imports came from outside the continent. Key exporting countries include Canada, PR China, Germany, Lebanon, Malaysia, Pakistan, the United Arab Emirates, and the USA.

5. Discussions

5.1. Global trade dynamics and power relations

A closer look at the global trade figures for 2010 and 2020 reveals a persistent and significant discrepancy between export and import values, with imports consistently leading. In addition, the increased uptake by importing countries has been attributed to the affordability of second-hand clothing, which has become a "desired and needed" commodity and, most recently, part of a lifestyle choice, especially with social media influences on thrifting (England et al., 2024; Hansen, 2000; Hodgkinson & Hoogendoorn, 2024). The findings also reaffirm and clarify that Africa, particularly countries in the West (e.g., Ghana and Nigeria) and the East (e.g., Kenya and Tanzania), is the dominant global importer of second-hand clothing, with a monetary market share of around 35%, a figure that aligns with previous reports (Acquaye et al., 2023; Sumo et al., 2023). The key trade partners are in the Global North (USA, Canada, Germany, and France), PR China, the United Arab Emirates, and Pakistan.

Furthermore, analysing the second-hand clothing *export-import ratio*[5] reveals elements of economic dependency and deficiencies in the value chain. The continent's average export-import ratio of 18 indicates a significant second-hand clothing trade deficit, underscoring Africa's role as the end-of-life destination for these global exports. Except for Lesotho (269) and Zimbabwe (145), all other African countries had an export-import ratio below 100. Mauritius (86) and Niger (70) stood out with higher ratios, though still well below surplus levels. Most countries fell within the range of 0.1 to 10. At the same time, Algeria, Chad, Guinea-Bissau, Mauritania, Sudan, and Congo had a zero ratio, indicating that they import more second-hand clothing than they export (Table S1 in the Supplementary Material). It is important to note that the ratio results are influenced by each country's reported data for the year under analysis (or the lack of data), which in turn may affect the extreme values. Overall, the import-export ratio results indicate that the ongoing second-hand clothing trade contributes to a high dependence on imports rather than fostering local textile production and self-sufficiency (England et al., 2024; Oxford Economics, 2024).

Scholars have long argued about the negative impact of second-hand clothing on Africa's textile sector, though this view has also been contested in a few forums (Sumo et al., 2023). Frazer (2008) reports a 40% decrease in production and a 50% decrease in employment between 1981 and 2000 (Frazer, 2008). Similarly, views are shared that point to the second-hand clothing trade as one of several reasons contributing to the decline of the local textile and clothing industry in East, West, and Southern Africa (Baden & Barber, 2005; Velia et al., 2006; Wetengere, 2018). Recent literature indicates that the industry in Africa employed 500,000 people in the past, while in 2020 it is reported to have left 20,000 people (Rademaekers et al., 2020).

To address these dynamics, regulatory efforts have been undertaken to drive change in trade. For instance, to protect the domestic textile sector, some countries impose import bans on second-hand clothing for commercial purposes, with exceptions for charity, while others set specifications for the conditions and restrictions on specific items (Brooks, 2013; Hansen, 2000). However, some countries that tried to enforce import regulations have faced fierce opposition and trade wars from export giants. In 2017, Burundi, Kenya, Rwanda, South Sudan, Tanzania, and Uganda, members of the East African Community (EAC), announced their intention to increase import taxes on second-hand clothing from the USA and, from 2019, to ban all second-hand clothing imports. In response, the USA denounced the ban, arguing it would affect the clothing industry and associated jobs and would violate the trade agreement that allows eligible African countries to export to the USA tax-free via AGOA. The USA also prompted a review and threatened to introduce trade sanctions on Africa. This led those EAC countries to back down from the decision in 2018, except for Rwanda. Rwanda opted to introduce higher import taxes, prompting the USA to suspend its access to AGOA for clothing exports (Esiara, 2018; Frazer, 2018; John, 2018; Reuters, 2018; The East African, 2022).

As can be noted, the trade dynamics behind second-hand clothing not only have economic and environmental implications, but also political and social underpinnings. Higher-income countries often have an unfair advantage when negotiating trade agreements. The imbalanced trade in second-hand clothing reflects the wealth inequality stemming from the colonial history of imperialist countries, which amassed wealth through resource extraction and environmental exploitation in their colonies. Yet, while it has been recognised in the debates that the environmental cost of the Global North's consumerism is being passed on to the Global South, a closer look at the global recycling system also reveals that recycled waste manufactured in the Global South becomes new consumer goods or packaging in the Global North (Gregson & Crang, 2015). It is crucial to examine whether this trend signals a shift from trade imbalance to economic interdependence, thereby informing policies that could shape the trade dynamics surrounding sustainable and just second-hand clothing. Such interdependence could withstand economic and political disruptions. Countries with growing sentiments of economic nationalism and deglobalisation, such as those from the EAC (O'Reilly, 2023), would prioritise resource security and push sustainability goals to one side, exacerbating the social injustice and environmental costs of the linear mode of production, consumption, and disposal (Barrie et al., 2022). Overall, the high volume of second-hand clothing speaks to modern consumerism. A radical change from consumerism to circularity, accompanied by stringent environmental policies and improved social services, could moderate the trade-off between the economic benefits and environmental costs of trading second-hand clothing.

[5] The export-import ratio refers to the proportion of the value of exported goods and services to imported goods and services of the countries involved in international trade (Bisai & Mazumdar, 2018). It can be expressed by the coverage ratio (Export / Import) * 100 - when the coverage ratio is greater than 100, it indicates a trade surplus, while less than 100 indicates a trade deficit (TradeAtlas, 2021).

5.2. The intracontinental trade is *not a one-size-fits-all*

While intra-African trade is less prominent than trade with external sources, specific regional patterns are evident, particularly in exports. For example, notable trade connections exist between certain West African countries, such as Burkina Faso and Ghana, Niger and Tunisia, Niger and Morocco, and Benin and Togo. Similarly, Malawi, in southern Africa, imports clothing from South Africa, and Tanzania primarily sources imports from other East African countries. Interestingly, Tanzania also recorded 491 tons of re-imports, suggesting it plays a critical role as both a recipient and a transit hub, as Katende-Magezi (2017) also reported. Nonetheless, Tanzania's identical import and export values for second-hand clothing could also reflect statistical limitations, underreported informal trade, or simplified reporting practices. This highlights the complexity of tracking second-hand clothing flows in the global trade system, particularly in regions where formal and informal trade overlap. Moreover, for intra- and extracontinental trade in Africa, research suggests that import numbers may be significantly higher than reported and that illegal imports are common (Bernard, 2015; Brooks & Simon, 2012).

On the matter of the introduction of bans, there are also implications within the continent, including an increase in illegal trading and rerouting to less stringent African nations, an increase in dependence on the importation of cheap apparel from Asia, and the relegation of local consumers to high-priced, and most times lower-quality, domestically made apparel (Brenton & Hoppe, 2007; John, 2018; Rademaekers et al., 2020). Moreover, there is a broad understanding that illegal waste imports mostly and easily occur across shared borders, especially with countries that lack or have weak enforcement and inspection systems (Favarin & Aziani, 2020). For instance, stricter import markets such as Nigeria, South Africa, Zimbabwe, and Rwanda still face significant illegal trade with neighbouring countries (Brooks & Simon, 2012; Wolff, 2021). Large quantities of second-hand clothing and other textiles in Nigeria are attributed to smuggling, mostly from Benin and Togo (Abimbola, 2012; Okafor et al., 2021). Durban, the largest port city in South Africa, reports large quantities of second-hand clothing illegally entering from neighbouring Maputo, the capital of Mozambique (Velia et al., 2006). Similarly, coming from Chimoio, the capital of Manica province in Mozambique, second-hand clothing is smuggled into Zimbabwe (Hlongwana & van Eeden, 2023). In Rwanda's case, second-hand clothing is being smuggled from the Democratic Republic of Congo and Uganda, prompting experts to warn that if the practice continues, partner EAC countries will also be affected and that domestic policies promoting manufacturing will fail (Esiara, 2018). In addition, scholars have documented how porous borders, weak customs oversight, and rent-seeking opportunities enable illicit flows of textiles and garments into East Africa (Golub & Mbaye, 2009; Meagher, 2010). The findings are illustrative of an acknowledged governance issue that can arise when integrating the circular economy and its principles into domestic policies, due to concerns about introducing excessive trade barriers (Yamaguchi, 2018). Similarly, unclear rulings, poorly regulated circular trade, and ambiguous standards and classification schemes are understood to contribute to illegal flows of materials (Barrie et al., 2022; Yamaguchi, 2021). Therefore, addressing those issues, calling for context-based policies, and integrating robust data-reporting and transparency frameworks can support its progress.

There is a historical correlation among territories such as Taiwan, Korea, Singapore, Hong Kong, and PR China, in which significant industrialisation and socio-economic development were achieved through investment in and expansion of the textile sector (Brooks & Simon, 2012; Frazer, 2008). Indeed, the African continent's need to develop and revive its textile manufacturing has long been emphasised as a critical pathway to industrialisation, particularly given its abundant cotton supply and lower labour costs (Brenton & Hoppe, 2007). Nonetheless, the introduction of import bans motivated by protectionism, without robust investment in domestic textile sectors, can yield the opposite effect and face social (and political) opposition, as in Kenya and Uganda (Wolff, 2021), and Liberia (Sumo, 2022). Furthermore, researchers in Ethiopia highlight the necessity of the industry for consumers and livelihoods, rather than pursuing a ban (Khurana & Tadesse, 2019). Besides, a recent report uncovered the dichotomous reality in Mozambique, on the one hand, a country with a non-existent textile industry, and on the other hand, a second-hand clothing sector that provides over 1 million jobs, serves 85% of the population, and is a significant source of tax revenue (Consulting for Africa & Abalon Capital Limitada, 2025). This complex and distinct trade dynamic, characterising the relationship between second-hand clothing trading and the development of the domestic textile manufacturing sector, calls for a deep understanding of the nature of the problem and potential solutions, and the need to clarify and distinguish the causes and influencing factors.

Additionally, given that several African countries are engaged in re-export and re-import activities, the findings indicate that countries such as Ethiopia and Cabo Verde (as exporters), and Seychelles, Ethiopia and

the Reunion Islands (as importers), reported higher values per ton of second-hand clothing, which is suggested to be related to the higher quality of the materials (Frazer, 2008). The value of the textile materials is estimated based on the outcomes of the sorting and grading, which are technical activities requiring expertise (Lampel, 2020; Oxford Economics, 2024). Effective sorting therefore determines whether textiles are resalable or waste, the marketability of second-hand goods, and the overall profitability of the second-hand enterprise (Abimbola, 2012; Oxford Economics, 2024). Thus, there is an opportunity for African countries to not only focus on requiring higher-quality imports but also on investing in higher-quality exports, through the introduction of robust local sorting schemes and facilities handling second-hand clothing, which also enable quality down- and upcycling feedstock availability, significant profit-making, job creation and diversification of economic activities (Barrie & Schröder, 2022; Sumo et al., 2023). Moreover, import quality can be improved by introducing local and harmonised standards and classification procedures, including visual, physical and chemical tests, and involving all stakeholders, such as importers, traders, and customers (Diamond, 2023).

To manage and reduce the current high volumes of second-hand clothing imports, governments in African countries are encouraged to invest in measures such as lowering manufacturing costs to enhance profitability, improving infrastructure, and offering targeted incentives for industry development (Calabrese, 2016). In parallel, governments should consider implementing dynamic import caps that respond to demand as the local industry develops. For example, Frazer (2008) found that in Africa, second-hand clothing imports of less than 0.1 kg per capita had little impact on domestic apparel production (Frazer, 2008).

Regarding the relationship between CE trade and CE, research finds that if Europe and Africa shift towards CE, overall trade between the continents will decrease marginally; however, for Africa, this would lead to significant improvements in its trade balance (Rademaekers et al., 2020). Thus, investing in and enhancing local capacities and know-how for existing and new recycling and recovery activities can create new segments within the textile sector. Beyond importing and retailing, the value chain of the second-hand clothing trade includes washing, repairing, and altering clothes, all of which can be structured and organised to provide sustainable employment opportunities (Norris, 2015). Particularly in the context of circularity, researchers also call for a nuanced, context-specific understanding of the local fashion economy and of the critical role of indigenous cultural fashion practices in linking industry and tradition (England et al., 2024). These aspects are illustrated by the unique case of Africa Collect Textiles (ACT), which successfully implements a textile collection model in Nairobi, Kenya, and Lagos, Nigeria, tailored to each city's context (Kasper & Stroomer, 2021).

5.3. Circularity and sustainability threads

Compared with locally produced options, second-hand clothing imports are a key source of affordable clothing for over 80% of Africans. Reports highlight the durability and trendiness of these garments, as well as the branded or higher-quality items that may be unattainable in the local market, as drivers of rising demand. The second-hand clothing trade also provides income and profit for importers and local traders; the market also acts as a catalyst for entrepreneurship and job creation in the local informal sector, fostering entrepreneurial retailing activities and fueling innovation in the formal sector (Mhango & Niehm, 2005; Norris, 2015; Ogawa, 2006). Moreover, this trade supports government revenues through import taxes (Davis, 2024; England et al., 2024; Hansen, 2000; James & Kent, 2019; Kuiper, 2024; Sumo et al., 2023). Malawi and Ethiopia are examples of countries that formalised the second-hand clothing trade, which has translated into affordable clothing for their underprivileged citizens, a workable structure, and relationships among different sales channels, thus contributing to the growth of small businesses and livelihoods (Sumo et al., 2023).

Conversely, it is well documented that clothes traded for reuse also become waste, either because they have no market value for the importers, are inadequate for the local climate, or are of very poor quality and condition, including ripped and soiled waste rags (Brooks, 2012; Cobbing et al., 2022). Moreover, the rise of fast fashion has drastically altered the quantity and quality of second-hand clothing entering the market. As disposable clothing with shorter lifespans dominates global textile production, bales of second-hand clothing now often contain lower-quality garments. Reports indicate that at least 30% have no market due to their poor quality. This has led to an increase in volume to compensate for declining quality, as traders must sort through larger quantities to find higher-value, usable clothing (Sumo et al., 2023). Still, while the official data on the export-to-waste pipeline are lacking, there are limited studies indicating that this is indeed the case, with figures reaching 200 tons a day in Kenya, 6 million tons a week in Ghana, and 40,000 tons a month in Tanzania

(Brooks, 2015; Cobbing et al., 2022; Kinabo, 2004; Manieson & Ferrero-Regis, 2023; Rademaekers et al., 2020). Reports and imagery of severe air, soil and waterbody pollution, and critical public health and safety issues, such as deadly fires from second-hand clothing, have become increasingly prevalent in several African cities (Audibert, 2025; Hussein, 2025; Johnson, 2023; Khan, 2025). The trade in waste materials, such as second-hand clothing, from the Global North to the Global South, under low environmental standards and managed through cheaper labour practices, is understood as a new form of colonialism or ecological imperialism (Cobbing et al., 2022; Cotta, 2020). As such, the reality that African countries are already, or are becoming, dumping grounds for post-consumer textiles is at the centre of what is continuously contested, unjust, and environmentally racist in second-hand clothing trade dynamics (Manieson & Ferrero-Regis, 2023; Ogunmefun, 2024b; Wetengere, 2018).

The problematic and compounding aspect is that, in Africa, most destination countries lack adequate waste management systems to handle surplus clothing that cannot be resold or reused. Furthermore, the growing trend of importing unsellable or unusable items places additional pressure on the waste management systems of importing countries (Kasper & Stroomer, 2021; Okafor et al., 2021; Sumo et al., 2023). Ultimately, textile waste pollutes local environments when it is dumped or burned indiscriminately, with serious consequences for the environment and public health. The synthetic fibres, mainly polyester, that make up most clothing items are oil-based, non-biodegradable plastics. Moreover, microplastics, which have been found in the blood, lungs, and gastrointestinal tract of humans, seep into the environment, then into the food chain, and back into humans, while the burned fibres are released into the atmosphere (Alimi et al., 2021; Masiá et al., 2022). A study looking at several sub-Saharan African countries - Cameroon, Côte d'Ivoire, Democratic Republic of Congo, Ethiopia, Mozambique, Uganda, Zambia, South Africa, Nigeria, Rwanda, Tanzania and Kenya, clarified that the recycling rate of textile waste is below 20%, and the primary treatment and disposal methods are open dumping, burying, and burning, whereas the percentage of textile waste in the waste stream was for the most part, amiss (Massa & Archodoulaki, 2024; Singh et al., 2023). In addition, Nørup and colleagues (2019) surveyed the replacement rate for second-hand clothing in Angola, Malawi, and Mozambique to understand the extent to which its purchase replaces the purchase of similar new items. They argue that the higher the replacement rate, the greater the environmental benefit. Compared to previous studies and a guesstimate for Sub-Saharan Africa of 85%, they found the replacement rates for the *clothing* category to be lower than expected, i.e., around 60% for Angola, 35% for Malawi, and 40% for Mozambique (Nørup et al., 2019). Those findings also highlight the significant amount of information that is unknown or underreported regarding the fate of the large surplus of textiles not absorbed by the local market. Besides, studies note that open-air markets in Nairobi, including Gikomba, experience recurring fires linked to overcrowding, combustible materials, and infrastructural vulnerabilities. Although traders recognise these environmental hazards and public safety threats, the trade's economic returns encourage continued operation under high-risk conditions (Ongoro & Muiya, 2023).

Therefore, it is crucial to clarify the comprehensive governance, qualitative, and quantitative aspects of second-hand clothing flows and their associated environmental and health impacts upon arrival in African countries, particularly from a CE and waste-management perspective. This will enable understanding of the current situation and potentially identify recovery, treatment, and disposal alternatives. In turn, assessments of the other options are also warranted, particularly those that align with local conditions and are more desirable in terms of circularity and sustainable waste management - repairing or recycling, remanufacturing, upcycling, or reusing (Ofori et al., 2025; Shirvanimoghaddam et al., 2020). Investment in closing the technology and equipment gap and in ensuring high-quality recycling materials (or feedstocks) are conditions sine qua non for working systems (Larney & van Aardt, 2010; Okafor et al., 2021). In addition, mapping and integrating the informal waste sector, which is prevalent in waste collection and sorting activities in African cities, is also a pathway to ensure high-quality feedstock (dos Muchangos et al., 2017; Sumo, 2024).

Addressing the high volume of imports, coupled with increasingly lower-quality garments, requires a combination of measures. In conjunction with the establishment of import limits, the introduction and harmonisation of standards can eliminate subjectivity in the classification of quality levels, which exporters primarily determine. Stringent and effective border checks and inspections should accompany the implementation of these standards. Standards ensure the quality and content necessary to scale up a resource-efficient CE (Moïsé & Tresa, 2023; Yamaguchi, 2021). Importers and exporters should work closely and in alignment through transparent channels. For instance, Abimbola (2012) reported on the second-hand clothing trade between West Africa and the UK, where quality control was ensured, and communication channels

spanning the entire supply chain were established. Importer agents directly assisted in the sorting activities at the exporting location (Abimbola, 2012).

Investigating and mapping the drivers and barriers to the adoption of circular alternatives is also imperative. Ghanaian researchers found that the accessibility and affordability of a wide range of products in the local market, together with enabling conditions for designers to store, assess, deconstruct, and develop new products, are key factors in advancing upcycling (James & Kent, 2019). What is more, Kenya and Tanzania offer successful examples of locally led initiatives emerging across the continent, in which designers and community organisers are engaging and empowering their respective communities by addressing overconsumption and developing indigenous circular solutions (Cobbing et al., 2022). In South Africa, a study identified a lack of funding and an educational gap on upcycling and remanufacturing as key barriers to consumer demand for sustainable fashion products (Monyaki & Cilliers, 2023). These aspects also underscore the need for behavioural change towards circularity through education and awareness-raising initiatives for textile waste generators. For instance, to reverse the incidence and impacts of fast-fashion growth, emerging economies are increasingly encouraged to promote collaborative clothing consumption among their consumers, via thrifting, renting, and swapping (Brand et al., 2023; Hodgkinson & Hoogendoorn, 2024).

6. Conclusions

Focusing on the second-hand clothing trade in Africa, this study quantifies its key features and trends. Between 2010 and 2020, the global trade value of second-hand clothing rose by 25%, with the United States, the United Kingdom, and European countries remaining the top exporters. Notably, new players, including China, Pakistan, and the United Arab Emirates (UAE), have entered the market. On the import side, Africa continues to absorb significant volumes of second-hand clothing, with countries such as Ghana, Kenya, and Tanzania leading the way. Between 1990 and 2020, Africa imported over 4.54 million tonnes of second-hand clothing, valued at $3 billion, while exporting 301,000 tonnes, valued at $270 million, resulting in a significant trade deficit. The specifics of intracontinental trade also highlight the significance of regional trade (with hubs such as Morocco in North Africa, Ghana in West Africa, Tanzania and Kenya in East Africa, and the DR Congo and South Africa in Southern Africa) and its contribution to ongoing smuggling activities.

The second-hand clothing trade in Africa, therefore, presents both challenges and opportunities within the framework of a circular economy. While trade on the continent offers affordable clothing to consumers with limited purchasing power, promotes resource reuse, and helps sustain livelihoods, it also raises critical concerns about power dynamics, environmental sustainability, and socio-economic inequalities. Africa's entrenched role as an importer, primarily as the recipient of large quantities of end-of-life clothing, is exacerbated by limited local recycling infrastructure, few opportunities to add value domestically, and the fate of dumping and burning. In the short term, attainable measures require governments to consider imposing limits on import volumes and minimum quality standards, and to establish a robust enforcement strategy. In addition, it is important to continuously educate and incentivise citizens to adopt reduction and reuse practices. In the long term, investing in infrastructure and technology to promote the recovery, recycling, and remanufacturing of textile waste is imperative. These efforts should include fair recognition of the informal sector's contribution and its rightful integration into the co-development of place-based solutions that also generate social, economic, and environmental benefits.

While this study clarifies the socio-economic and environmental aspects of the second-hand clothing market and their implications for geopolitical dynamics, it also reveals an interdisciplinary gap that calls for integrating sustainability studies and international relations (IR) to clarify the links between circular trade and security issues, particularly how circular trade can undermine the effectiveness of political institutions or exacerbate problems related to weak security enforcement and the rule of law. For instance, future research should examine the expansion of contraband markets and the smuggling routes that transport both new and second-hand clothing. These informal circuits distort local prices, impede industrial recovery, and create parallel economies that intersect with corruption and cross-border insecurity. Mapping these networks through border studies and fieldwork would clarify how contraband systems operate and how they reinforce the broader political economy of second-hand clothing in African urban centres.

Furthermore, while circular trade offers several economic, environmental, and social opportunities, negative impacts can arise in the absence of regulations and enforcement. At the same time, strict rules and

regulations can create barriers for trade stakeholders in lower-income countries and, in turn, contribute to increased illicit trade, as has been reported in several African countries. It is therefore important to investigate the trade-offs at play and what it means for each country to strike a balance between the benefits and risks of circular trade, taking into account their economic and geopolitical standing.

Comprehensively exploring the environmental perspective is also important; future research should examine the full life cycle of second-hand clothing flows, in particular, their fate as textile waste and pollution sources, and the environmental impacts of mismanagement. Similarly, an investigation into the public safety impacts is warranted, focusing, for example, on second-hand clothing markets, especially in dense trading hubs where waste build-up, informal storage facilities, and unsafe handling increase fire hazards. It is also important to investigate whether such fires result from structural neglect, accidental ignition, or deliberate acts driven by competition, land pressures, or disputes over market control.

Lastly, because the data were analysed at five-year intervals, a comprehensive dynamic trend is missing; therefore, year-by-year studies are needed to gain a detailed understanding of the second-hand clothing trade in Africa. Likewise, focusing on the most representative countries can affect the interpretation of centrality, potentially underestimating the roles of countries with lower centrality and of less prominent regional clusters. Therefore, future studies should conduct an all-country analysis or include countries that vary in trade prominence, socio-economic level, location, and other relevant factors to ensure diversity. Moreover, existing critical issues related to data quality and availability can be addressed by integrating statistical and uncertainty analyses and by conducting primary data collection, triangulating it with available secondary data.

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Authors' Contributions Letícia Sarmento dos Muchangos: Conceptualisation, Data curation, Formal analysis, Investigation, Methodology, Software, Visualisation, Writing - original draft, Writing - review editing. Jana-Chin Rué Glutting: Conceptualisation, Formal analysis, Validation, Investigation, Writing - original draft, Writing - review editing. Dahlia Simangan: Investigation, Formal analysis, Investigation, Writing - original draft. Diana Chebet Rotich: Investigation, Validation, Writing - original draft.

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Data Availability The data supporting this study's findings are available from the corresponding author, LSM, upon reasonable request.

Declarations

Competing Interests The authors declare no competing interests.

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AI Use The AI tool *Grammarly* was used to review the manuscript's spelling, grammar, and tone.

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