

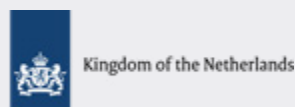
Closing the loop: Scaling circularity in Morocco's textile industry

*Conclusions from
the 2023-26
Morocco Textile
Circularity project*



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Acknowledgments

In 2023, IFC launched the Morocco Textile Circularity project, and established the Morocco Textile Circularity Exchange (the Exchange), a multi-stakeholder initiative that brings together Moroccan public institutions, industry experts, international technical partners, brands, manufacturers, collectors, recyclers, and development partners. Over three years, the Exchange worked to test the operational feasibility of circular textile value chains, generate environmental and economic evidence, identify regulatory and market barriers, and build a multi-stakeholder platform around textile circularity.

This publication compiles the Exchange's findings and key learnings, and sets out the strategic implications and regulatory requirements needed to advance circular models of production in Morocco's apparel sector.

This report was written by Robert Carmichael, author and editor, under the direction of Eleonore Richardson, Operations Officer at the International Finance Corporation (IFC). Throughout the drafting and consultation process, valuable inputs were also provided by IFC's Amine Kabbaj, Redouane Lachgar, Cristina Navarrete Moreno, Fatima Zohra Alaoui and Othmane Alaoui Benhachem.

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IFC also extends its sincere appreciation to Morocco's [Ministry of Industry and Commerce](#) and to [AMITH](#), the Moroccan apparel industry association, for their commitment and unwavering support from the outset of this initiative. We further acknowledge the strong collaboration of the [Ministry of Energy Transition and Sustainable Development](#) and FEDERCC, the Moroccan federation of collectors and recyclers, whose engagement helped advance a shared vision for textile circularity in Morocco.

The success of the pilot activities also depended on the hard work, active engagement, generous sharing of expertise, and sustained dialogue among all project participants, including collectors, recyclers, manufacturers, and international buyers.

IFC also wishes to recognize [Accelerating Circularity](#) for convening the meetings of the Exchange and for facilitating constructive dialogue among industry stakeholders throughout the initiative, helping to foster the collaboration and shared understanding that underpinned the project's progress. IFC would like to extend its particular appreciation to Karla Magruder, as well as Martha Willis and Petra Schweiger, whose technical expertise, guidance, and commitment were instrumental to the implementation of the initiative and the successful delivery of its pilot activities and stakeholder engagement processes.



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Foreword

As the global textile and apparel industry confronts mounting environmental pressures and shifting market expectations, Morocco stands at a pivotal moment. The traditional linear model of “take-make-dispose” is increasingly incompatible with the demands of international buyers, regulators and consumers. Across key export markets, particularly Europe, sustainability, transparency and traceability are set to become compulsory.

Morocco’s textile sector, long a cornerstone of its economy, has the opportunity not only to adapt, but to lead. The country generates a substantial volume of post-industrial textile waste, particularly cotton offcuts from garment manufacturing. Historically underutilized, this material represents a significant untapped resource. As IFC has long emphasized, these textile scraps should not be seen as waste, but as feedstock for a new industrial model – one that is rooted in circularity, resource efficiency and value creation.

The Textile Circularity Exchange (“the Exchange”) was established by IFC in 2023 with the goal of helping Morocco map these opportunities and, in conjunction with public and private stakeholders, to lay the foundations for action. Through research, stakeholder workshops and pilot initiatives, the Exchange has examined how textile waste is generated, collected and sorted, and how it can be reintegrated into production. The goal was not simply to improve recycling rates, but to build an integrated circular ecosystem – one that formalizes collection, strengthens traceability, supports innovation in recycling technologies and aligns with emerging international standards.

A core ambition is to position Morocco as an attractive destination for inward investment in circular textiles. As global brands seek reliable partners capable of delivering recycled content, transparent supply chains and lower environmental footprints, Morocco can offer proximity to European markets, a skilled workforce and an established manufacturing base. By strengthening the circular value chain – from waste collectors to advanced recyclers – the country can unlock new streams of investment, technology transfer and job creation.

However, this transformation requires collaboration across the entire ecosystem: industry associations, manufacturers, waste collectors, policymakers and international partners. It also requires a shift in mindset – from viewing circularity as a compliance exercise to recognizing it as a strategic growth opportunity.

This report reflects the progress made to date and outlines the steps still needed to realize Morocco’s circular textile potential. With continued partnership and investment, the country is well positioned to turn textile waste into economic opportunity, and to show how circularity can drive industrial resilience, competitiveness and sustainable development.

Eleonore Richardson

IFC Project Lead

Upstream Advisory – Manufacturing & Services, North, West & Central Africa

Executive Summary

Morocco's textile and apparel sector is a cornerstone of its economy: It employs 246,000 people, generates MAD67.8 billion (around USD7.4bn) in revenues and accounts for 11.4 percent of exports by value. As of 2025, official figures show 93 percent of textile exports go to the European Union (EU)¹. This integration with the EU constitutes the sector's greatest strength and its most urgent challenge: As the EU tightens its sustainability and circularity requirements for textiles, Moroccan manufacturers must adapt or risk losing a market that is fundamental to their survival.

The Textile Circularity Exchange ("the Exchange") was established by IFC in 2023 to help Morocco navigate this transition. Working with public and private partners including the Ministries of Industry and Energy Transition, the Customs Administration, industry federation AMITH, international brands, factories, collectors and recyclers, the Exchange set an ambitious mission: To engage the full textile value chain in the collaborative development of circular systems using post-industrial cutting waste – known as chute – from collection through to finished product. Its headline target was that 100 percent of post-industrial cotton would be recycled in Morocco by 2027.

Over its three-year life, the Exchange operated through a Steering Committee and four working groups, and held eight stakeholder workshops. Among the standout achievements were the commissioning of a real-world pilot trial to assess the viability of a circular approach to textiles, a Life Cycle Assessment (LCA) study to assess the environmental impact

of recycling chute into fiber, and a survey of Tangier's largely invisible collector ecosystem.

The Exchange's clear and consequential central finding emerged from this groundbreaking research: **Circularity in Morocco's textile sector is attainable.**

The program's outcomes also show that much of the infrastructure, know-how and commercial relationships required to make a circular approach work are taking shape, and pinpoints the remaining gaps that must be closed – gaps in regulation, in certain infrastructure needs, in brand commitment and in financing. Once these moving parts are in place, there is little doubt that Morocco's textile sector can achieve circularity at scale.

Not only will this secure the industry's future; the country's geographical proximity means it should benefit from opportunities to recycle textile waste from the EU – with the lessons learned from the program also able to help drive circularity in other industries. Crucially, the World Bank Group's most recent Country Private Sector Diagnostic (CPSD 2.0) for Morocco concludes that implementing these reforms to create a circular textile sector could attract US\$1.9 billion in additional private investment and create 30,800 jobs in the medium term².

The Textile Circularity Exchange: Exceeding expectations

The pilot trials, designed and implemented by non-profit Accelerating Circularity, successfully de-



monstrated the technical and operational feasibility of textile-to-textile circular value chains in Morocco through two fully traceable and evidence-backed pilot supply chains. Beyond the pilots themselves, participating companies applied the lessons and processes developed through the initiative to valorize more than 425 metric tons of chute during the pilot period, while also committing to a further 2,400 metric tons for continued valorization beyond the project lifecycle³.

The pilot trials also showed that circular supply chains are technically viable for cotton, with recycled-content fabric meeting commercial quality benchmarks, and revealed that the most significant constraint was not technical but commercial: Some brands that originally committed to purchasing recycled content did not follow through when it was available. Incentives and policy changes will be needed to close that action gap.

For its part, the LCA showed that using 20 percent recycled cotton would deliver immediate environmental benefits over conventional cotton, cutting the climate change impact 18 percent and water use 61 percent⁴.

Additionally, it concluded that increasing the recycled content to 50 percent or 100 percent would bring gains that exceed even those from organic cotton. Further improvements would come from Morocco's ongoing transition to green energy and by building domestic spinning capacity.

Finally, the collector survey revealed a sector that is over 80 percent informal, operates under precarious conditions and without legal recognition, and that provides a service that factories depend on daily⁵.

It concluded that, given the right institutional support, up to 75 percent of collectors could transition to formal status within five years. Without that support, meaningful change will not happen.

The Textile Circularity Exchange: A first for Morocco's textile sector

The Exchange was the first structured, multi-stakeholder forum of its kind in Morocco's textile sector. It brought together ministries, brands, factories, collectors, recyclers and others who had not previously discussed their needs, and in that way generated a better understanding of the constraints and opportunities of a circular system.

The program prompted the government to establish an inter-ministerial committee on textile circularity that will carry forward the work. It also developed practical tools in the form of a Chute Management Policy and a Sorting and Segregation Manual that are being rolled out to factories via AMITH and the School of Textile and Clothing Industries (ESITH), a textiles-focused engineering college. Additionally, the Exchange greatly expanded domestic understanding of the EU's rules on sustainability, which is vital in driving action.

Recommendations and the path ahead

The Exchange's recommendations fall into four main areas:

- **Regulatory reform:** Reclassify chute as an industrial by-product rather than waste; adapt the ATPA customs regime to enable brands to transfer ownership of chute to local factories; introduce Extended Producer Responsibility (EPR) under revisions to Law 28-00; and establish a dedicated HS tariff sub-category code for recycled textile materials.
- **Implement mandatory sorting in factories:** Phase in a national sorting standard over four years, with factory ratings and an eco-modulated environmental fee to incentivize compliance. Linked to this, boost training across the value chain.
- **Build a national traceability platform:** Morocco needs suitable digital infrastructure to meet the EU's Digital Product Passport (DPP) requirements and enable transparent, bankable waste flows.
- **Infrastructure and finance:** Develop domestic spinning capacity, invest in local recycling technology, extend the Green Invest mechanism to cover ESG certification costs for SMEs, and design order-linked financing for aggregators to improve their access to working capital.

Positively, the public and private sectors grasp the need to act. Youssef Fadil, Director-General of Industry at the Ministry of Industry and Commerce (MIC), says the ministry is fully committed to driving a circular agenda for textiles – with regulatory reform and a structured ecosystem for the collection and recovery of waste viewed as key requirements, and with the MIC supporting the need to develop traceability across the value chain.

Anass El Ansari, President of AMITH, says circularity will help the industry to reposition itself competitively, meet regulatory requirements and build a robust domestic recycling ecosystem that can ensure Morocco is viewed by buyers as a core partner going forward.

In short, the direction is clear. Morocco has the foundations in place to create a circular system for textile waste. With targeted changes to the regulatory and policy framework, sufficient investment and greater brand demand, the country and this vital industry can build a world-leading circularity system for textiles. The time to act is now.





Introduction:

From waste to value: Making textile circularity real

This report sets out the purpose, scope and findings of the Textile Circularity Exchange (the Exchange), which was launched by the International Finance Corporation (IFC) in 2023, and has operated in partnership with public and private stakeholders.

Textile Circularity Exchange

Mission

The Exchange's mission is to engage the textile value chain along with brands and retailers to collaborate in the development of circular systems using post-industrial material for mechanical and chemical recycling methods from collection through finished product.

Vision

- End-of-life disposition established for all post-industrial waste.
- 100 percent of post-industrial cotton recycled in Morocco by 2027.

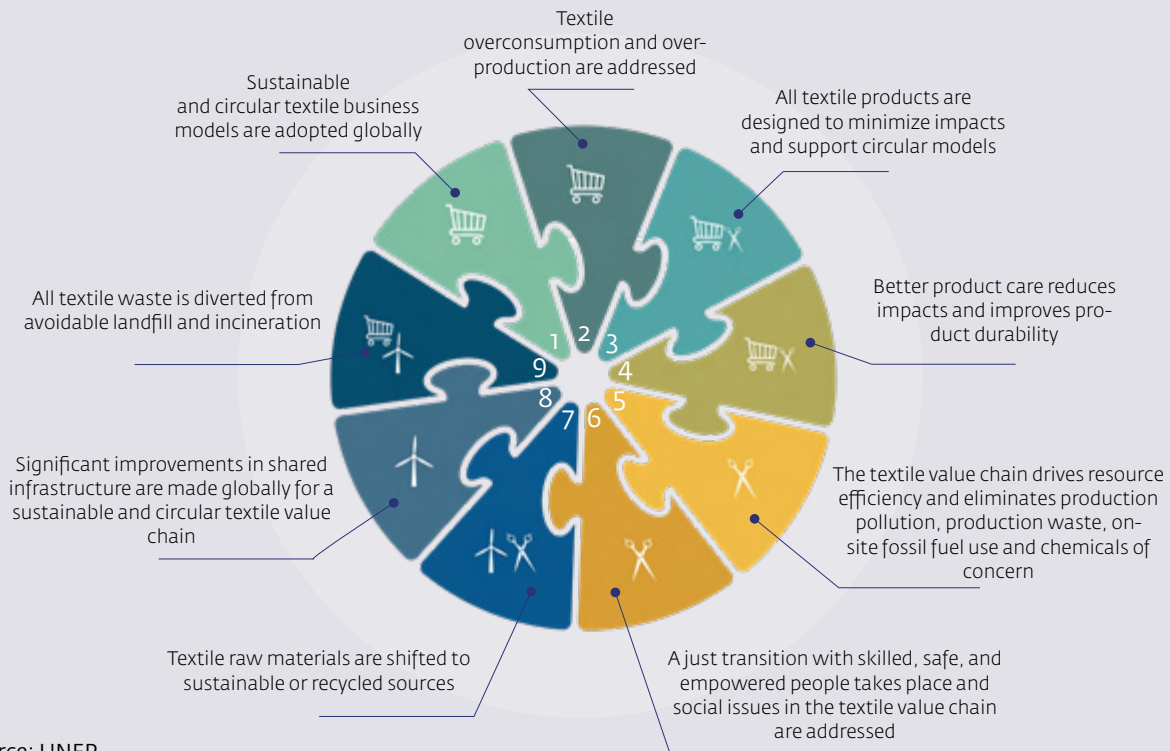
The report examines how circular economy principles can be applied to Morocco's textile and apparel sector, identifies barriers and opportunities within the current system and outlines practical steps Morocco can take to strengthen its competitiveness in a rapidly evolving global market. In that way it can become more resilient and take advantage of the opportunities on offer.

The global textile industry is, after all, under mounting pressure to reform. For decades, this sector has operated with a linear model: Extract raw materials, manufacture garments, sell them and ultimately discard them. While this system drove economic growth, it gave little thought to the significant environmental costs that were generated.

Increasingly, that matters: According to the UN Environment Programme (UNEP), the industry worldwide is a major contributor to global greenhouse gas (GHG) emissions (emitting between 2-8 percent of the total) and uses vast amounts of water (an estimated 86m Olympic-sized swimming pools-worth). Additionally, an estimated 92 million tons of textile waste is generated each year, with much of that ending up in landfill or incinerated. The global value chain has major social impacts too, with workers at risk of a range of ills including exploitation, forced labor and health risks.

As UNEP notes, "transforming the textile value chain into one that is sustainable and circular will allow us to address these environmental and social impacts, while also supporting people, prosperity and equity." That requires action from a diverse range of stakeholders including national and local governments, brands, industry and civil society (see chart).

Nine building blocks to create a more sustainable, circular textile value chain



Source: UNEP

When it comes to boosting sustainability and resilience, circularity is therefore crucial. Rather than treating waste as an inevitable byproduct, a circular textile system seeks to keep materials in use for as long as possible through reuse, repair, recycling and redesign. It aims to decouple growth from resource consumption, reduce environmental impacts and unlock new sources of economic value. Increasingly, circularity is not merely an environmental aspiration but a commercial imperative. Global brands and retailers are setting recycled content targets, demanding supply chain transparency and searching for lower-carbon production methods. Investors, regulators and consumers are reinforcing these expectations.

Nowhere is this shift more pronounced than in the European Union (EU), which has positioned circularity at the center of its industrial and environmental policy through initiatives such as the European Green Deal – whose goal is to make Europe the first climate-neutral continent – and the Strategy for Sustainable and Circular Textiles, which points out that five million tons of clothing is discarded in the EU annually, with just 1 percent recycled into new garments.

The Strategy for Sustainable and Circular Textiles

The strategy is at the center of the EU's approach to sustainability in textiles and seeks to create a greener and more competitive textiles sector. The European Commission's (EC) vision is a market in which textiles operate in a circular economy (see graphic).

The Commission's 2030 Vision for Textiles



-  **All textile products** placed on the EU market are:
- durable, repairable and recyclable
 - to a great extent made of recycled fibres
 - free of hazardous substances
 - produced respecting social rights

-  «Fast fashion is out of fashion» - consumers benefit longer from **high quality textiles**

-  Profitable **re-use and repair services** are widely available

-  In a **competitive, resilient and innovative textile sector** producers take responsibility for their products along the value chain

-  **Circular rather than throw-away clothes have become the norm**, with sufficient capacities for recycling and minimal incineration and landfilling

To that end, the EC has implemented or outlined a range of actions including:

- Set design requirements so textiles are more durable, repairable and can be recycled.
- Introduce a Digital Product Passport (DPP).
- Implement mandatory and harmonized Extended Producer Responsibility (EPR) rules for textiles across the bloc, with incentives for more sustainable design.

As the sidebar shows, producers will soon need to meet far stricter requirements around product durability, recycled content, eco-design, waste reduction and supply chain transparency. For textile-exporting countries, aligning with these standards will prove essential to maintaining and expanding market access.

For Morocco, this is crucial. Geographic proximity, integrated supply chains and longstanding trade relationships have positioned Morocco as a strategic sourcing hub for European brands that require speed to market. As a result, the EU is today by far Morocco's most important export market for textiles and apparel, accounting for 93 percent of these exports. However, as EU buyers demand greater sustainability, producers must show compliance on quality and cost as well as on environmental performance and traceability.

That makes circularity a significant challenge and a major opportunity for Morocco's textile sector. The industry is a cornerstone of the economy, generating substantial employment and export earnings, and producing significant volumes of post-industrial textile waste. A 2021 mapping study estimated that Morocco's textile and apparel sector generates 83,200 tons of textile waste annually, with around 62 percent originating from cutting processes during garment manufacturing⁶.

Nearly half of this waste comprises cotton-rich materials that could be recycled and returned to textile production.

Historically, this has not happened. Much has been downcycled, exported, informally traded or disposed of, which represents a loss of material value and economic potential. That is a missed opportunity,

because these production offcuts, deadstock materials and non-conforming goods are valuable. If collected, sorted and suitably processed, they could form the foundation of a local recycled fiber industry, reducing reliance on imported raw materials and strengthening supply chain resilience.

The Exchange was launched to help catalyze this transition. Working with public and private stakeholders, it mapped waste streams, engaged manufacturers and waste collectors, assessed business models and explored policy and investment needs. Its objective is to support the development of a more integrated, transparent and economically viable circular ecosystem that can meet international standards and generate value locally.

Ultimately, the report shows circularity is not simply about environmental compliance; it is about safeguarding access to critical export markets, attracting inward investment, fostering innovation and positioning Morocco as a competitive and responsible sourcing destination in a circular global economy. Textile circularity also matches Morocco's strategic priorities, which are found in policy documents such as the National Strategy for Sustainable Development (SNDD 2030), the National Waste Recovery Plan (PNVD), the Industrial Acceleration Plan (PAI) and the New Development Model (NDM). A circular approach also meets key international initiatives such as the EU's ESPR and DPP requirements, the Strategy for Sustainable and Circular Textiles, and international standards ISO 14040:2006 and ISO 14044:2006, which are used by firms to measure their products' environmental impact through their lifecycle.

Given that regulatory and market expectations will continue to rise, the transition that the Exchange has helped to put in place helps Morocco's textile sector move towards a circular approach to textiles – retaining value locally, strengthening industrial resilience, underpinning its long-term sustainability and growth, and positioning it to be more competitive in a fast-changing global market.

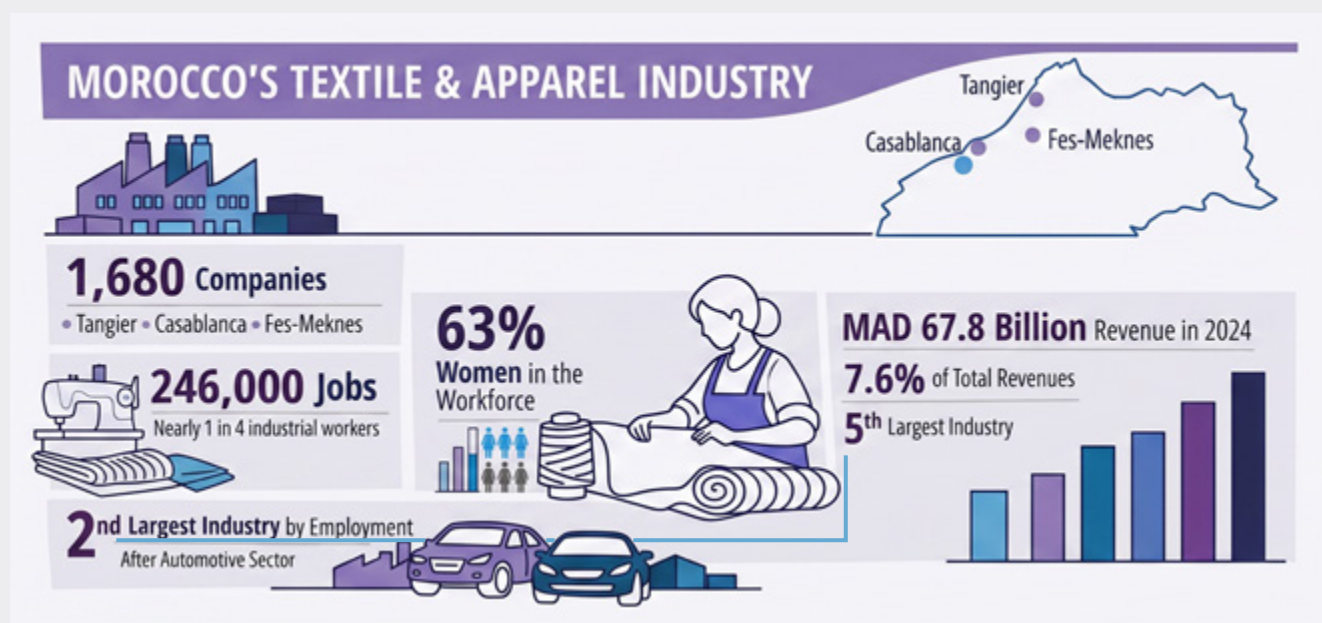


Part 1. The textile industry: Woven into Morocco's economic fabric

Morocco's textile and apparel sector is one of its most important economic assets. Some 1,680 companies – concentrated around Tangier, with Casablanca and Fes-Meknes also major centers – employ approximately 246,000 people who produce 1 billion items annually. Around 63 percent of textile sector

– which positioned it fifth behind automobile manufacturing, agri-food, chemicals, and mechanical and metallurgy⁹.

When it comes to exports, textiles command a larger share at 11.4 percent of exports by value¹⁰. The destination of those textiles is key: In 2025, around 97 percent



employees are women, by far the highest proportion of any industrial sector in Morocco⁷.

Textile's 23.7 percent share of industrial jobs puts it just behind the automobile sector and makes it the country's second-largest industry by employment⁸.

Its importance does not end there. Recent government figures show the textile sector (which includes leather products) accounted for 7.6 percent of revenues in 2024 – worth MAD67.8bn (around USD7.4bn)

of textile exports went to Europe, with 93 percent sold into the European Union; the bulk went to Spain¹¹.

This reliance on the EU is crucial, because the 27-nation bloc is focused on boosting sustainability and circularity in textiles by way of its Strategy for Sustainable and Circular Textiles, which was launched in 2022¹². If Morocco is to retain and expand its EU market share, it must adopt a more circular approach to textiles. Yet although it enjoys some significant advantages, it must

also overcome key obstacles. These are what prompted IFC to establish the Exchange: Retaining access to the EU market is fundamental to the sector's survival. And while there has been some progress, and while inward investment continues to flow (see sidebar), more is needed.

Driving inward investment in textiles in Morocco's RSK region

Hind Saidi is the Director of Investment Promotion at the Rabat-Salé-Kénitra (RSK) Regional Investment Center (CRI). In recent years, she says, she has noticed a meaningful shift in the questions asked by investors.

Where once their conversations with CRI – a full-service investment connector that links public and private stakeholders including ministries, industrial players and green energy providers – began by querying whether Morocco was serious about circularity, today they want to know how circularity will be implemented, its scale and the regulatory framework. This change in tone reflects steps that the industry and government are taking to meet the EU's sustainability requirements.

"International investors are more aware of the fact that we are in the process of alignment with international regulations," Saidi says. "When you speak the same language and we're all going in the same direction, it gives much more credibility to the evolution of circularity."

The RSK region is a key textile investment hub, boasting five free trade zones with more under development. In recent years, Saidi says, a major investment by China's Sunrise Group – a global textile player with operations across Asia – has underscored Morocco's attractiveness. (One of the project's two industrial units will be built in the RSK region¹³.)

Speaking when the MAD2.3bn deal was signed in 2025, Head of Government Aziz Akhannouch said the investment, which was expected to create 7,000 direct jobs, "underscores the confidence of foreign investors in Morocco and strengthens our position as a regional leader in the textile industry¹⁴."

Crucially for a circular system, says Saidi, this investment will boost the local supply of yarn and fabrics, thereby helping to create an integrated textile supply chain and reducing dependence on imported textile inputs along with lead times and logistics costs.

Saidi says investors are also attracted by the broader context. Morocco's renewable energy mix has climbed in recent years. Additionally, sustainability is embedded into Morocco's Investment Charter as a strategic priority, with incentives for projects that meet its environmental criteria¹⁵.

However, the task is not yet complete: The key missing element for a circular textile economy is a clear, concise regulatory framework that covers all aspects of circularity. That will help to build circularity, which itself represents a genuine development opportunity.

"A circular model would open the door for the creation of a new segment of activity, particularly in upstream process such as collection, sorting, pre-processing and material recovery," she says. "These activities have strong potential in terms of job creation, local value generation and SME development."

Success starts by tackling how the sector is structured. Despite its scale, Morocco's textile sector operates on a linear, import-dependent model, with around 99 percent of the fabrics used in garment manufacturing imported. The country owns very little of the upstream supply chain, with its value-add coming from the cut, make, trim (CMT) method.

Another challenge is the lack of significant domestic spinning capacity. Currently, most fiber that is recycled must first be exported to be spun into yarn, then reimported for knitting and finishing. This adds cost, carbon emissions and complexity, and fundamentally undermines the ability to build an economically viable circular system. Additionally, the quantities are significant: The sector generates about 83,200 metric tons of textile waste per year, most of which is downcycled (see sidebar) or ends up in landfill.

Downcycling: How not to be circular

Downcycling describes the process by which textiles are burned for energy, repurposed as rags or wipes, or redeployed as stuffing for mattresses or car seats. In downcycling, the material value of these textiles is lost.

Recycling, on the other hand, turns textile waste into new, high-quality fibers that can be spun into fresh yarns and fabrics. In this way, materials are kept in the loop, while the need for virgin resources is reduced. Two main technologies power textile-to-textile recycling:

- **Mechanical recycling** uses physical processes such as shredding or melting to break down textile waste into fibers that can be spun into new yarn.
- **Chemical recycling** alters the material at the molecular level through dissolution or chemical reactions to produce raw substances that can be used to manufacture new textile fibers and other products.

Textile waste management in Morocco: ATPA and Law 28.00

The large volumes of downcycled textiles are in part due to Morocco's main waste management legislation, known as Law 28.00, which covers a range of types of waste – including non-hazardous industrial waste, which is the category into which textile waste falls. However, it lacks sector-specific collection requirements and contains no recycling targets or extended producer responsibility (EPR) obligations for manufacturers. While amendments are expected to bring in EPR principles, these were not in force as at the time of this report's publication.

Law 28.00, though, is only one part of the picture. An additional complication stems from the customs treatment of imported fabric via the Admission Temporaire pour Perfectionnement Actif (ATPA) regime. Given that almost all fiber is imported and then made into garments during the CMT process, the ATPA regime applies to almost all textile waste.

Othmane Alaoui Benhachem, Consultant – Country Advisory and Economics, IFC, says the customs treatment of textiles under ATPA made sense given the focus of seeking to build an export-focused garment industry.

"And that's because ATPA lets an operator import inputs temporarily with the suspension of duties and taxes – on the condition that the resulting outputs will be re-exported," he says. "ATPA was designed to develop competitiveness and as an export promotion tool – so, the factory doesn't have to pay customs taxes and use their cash flow, for example. That was the main idea, and it has helped many exporters in Morocco."

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Othmane Alaoui Benhachem, Consultant – Country Advisory and Economics, IFC

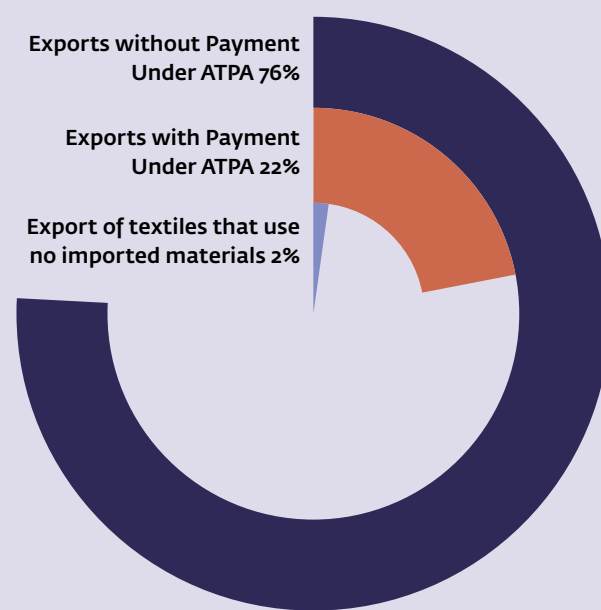
However, when it comes to circularity, the combination of ATPA's customs treatment of fabrics and Law 28.00's view of textile waste are problematic.

The ATPA regime

Most of Morocco's textile exports operate under ATPA, which has helped to position the country as a near-shore production hub for European fashion brands. ATPA rules, though, create barriers to circularity, depending on which ATPA route the imported fabrics take:

- ATPA with payment: The factory has ownership of the inputs and waste, subject to customs regulations (Articles 113 and 114).
- ATPA without payment: The inputs belong to the brand, and the waste can be re-exported, abandoned or destroyed.

Because most manufacturing for export is under the ATPA without payment approach (see chart), textile scraps generated during production have long been destroyed or abandoned – with a lack of local infrastructure making it hard to reuse or recycle offcuts easily.



Under ATPA's "without payment" regime, waste belongs to the brand, not to the factory, which leaves the latter with no legal right to valorize it. Additionally, the Customs and Indirect Tax Code states in Title IV, Chapter 4, Section 6 – the section on the tax regime for waste under the ATPA scheme – that certain types of industrial waste are "irrecoverable and of no market value." This list explicitly includes "scraps of fibers, yarns, fabrics, cuttings and accessories (textile sector)."

So, while ATPA has helped factories to make and export finished goods more efficiently and effectively and to build the sector, it and Law 28.00 have unwittingly undermined a circular approach: Textile waste is deemed to have no value and no in-country owner in law. As a result, most has been sent to landfill or incinerated to make energy for cement kilns.

That, though, is starting to change: More brands are waking up to the importance of chute – to their responsibility in terms of meeting their sustainability requirements and to the financial implications of valorizing it. The problem brands face, says Benhachem, is that they cannot easily send chute to the EU because it lacks sufficient recycling capacity.

“So they need other countries near Europe to develop their own recycling infrastructure – and that is not yet the case in Morocco because it’s a new industry,” he says.

Resolving that, he says, takes the conversation back to ATPA: Brands need to negotiate how to transfer ownership of chute to local factories.

“Brands and factories need to reach agreement on how to transfer ownership, so factories finally have the legal right to deal commercially with the chute. Without that, the Customs Administration won’t be able to do anything,” Benhachem says.

The importance of resolving the challenges around ATPA, Law 28.00 and the broader regulatory framework became apparent soon after IFC established the Exchange program and it became clear that this required a specific focus. To that end, the program drafted in IFC policy experts, including Cristina Navarrete Moreno, Senior Operations Officer, Country Advisory and Economics, IFC. She says the Exchange team needed a better understanding of policy points – and specifically to analyze textiles in the context of a circular economy.

“We looked at the current stage of legislation in Morocco, we looked at some of the new reforms that are about to take place – particularly in the EU – as well as best practices and the gaps that Morocco needs to fill in that regard,” she says.

One crucial reform quickly emerged: Law 28.00 would need to incorporate principles in the EU’s legislative framework. Additionally, it was essential to ensure textile offcuts were no longer viewed as waste, but as having value as that meant they were reusable or recyclable in some way. Changing regulations, though, can be complicated as responsibility for textiles transcends public bodies that include:

- Ministry of Industry and Trade: It develops and grows the textile industry, designing industrial policy, supporting manufacturers with incentives and training, and promoting Morocco as a near-shoring hub for European brands.
- Ministry of Energy Transition and Sustainable Development: It ensures the textile sector meets the relevant environmental and sustainability requirements. It sets rules on aspects including water use and pollution, encourages the adoption of renewable energy and promotes sustainability.
- Ministry of the Interior: Although less directly involved, it broadly supports the operating environment for textiles by, for instance, overseeing regional authorities that manage industrial zones.
- Customs and Excise Administration: The agency falls under the Ministry of Economy and Finance, oversees ATPA, manages imports of raw materials and controls the export of finished garments. It would also have a role in the export of material for recycling and any reimport of that recycled fabric.

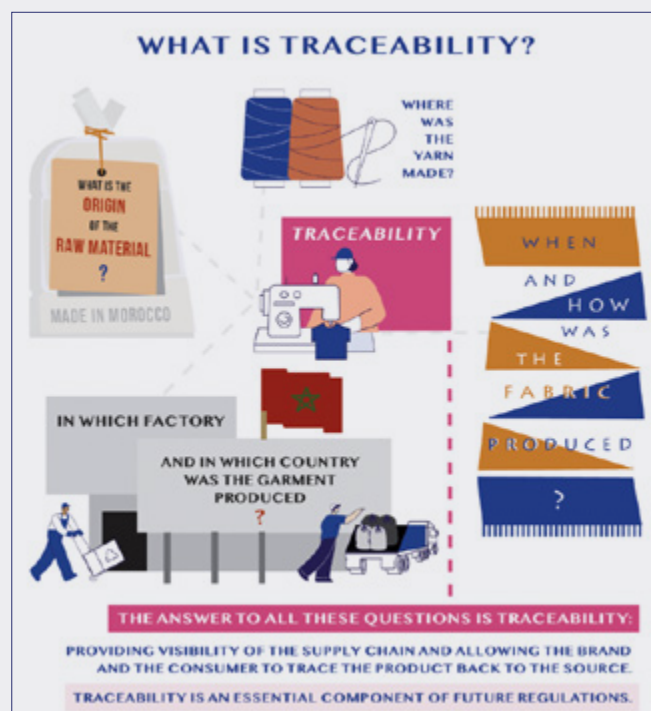
Moreno says the policy shortcomings that were uncovered highlighted a broader issue – a lack of dialog on operational and legal issues between the public and private sectors on the solutions that were needed to move the sector forward.

An important consequence, she says, was no shared vision of where the sector should be headed. Another was that the industry lacked the information necessary to build a circular system; one example, she says, is the need for a database of textile waste so factories could see the volumes of different types of available fibers, their price and therefore whether there was a market for their chute.

Market challenges in advancing circularity

From a circularity perspective, the designation of most chute as worthless contributed to a lack of structure in Morocco's collection and recycling system, which in turn made it harder to implement a more sustainable approach.

That linked to two other issues. One is the absence of experienced recyclers and the latest recycling technology, a situation that remains unchanged since IFC's 2023 report. (It is why the pilot trials undertaken for the Exchange had to rely on recyclers and spinners outside the country.) The other is the absence of traceability, which refers to the ability to trace the history, application or location of a material or product through recorded identifications.



Source: Segregating and Sorting Textile Waste for Textile-to-Textile Recycling, Textile Circularity Exchange

Although traceability solutions do exist, building a national system requires investment and cooperation between stakeholders including collectors, manufacturers, brands and public institutions. In its absence, the existing waste collection system is mostly unstructured:

- Factories collect post-industrial waste data on internal systems or manually.

- Waste is collected as part of ongoing contracts that lack insights into the types of platforms – if any – that collectors use.
- Each factory or collector uses its own system, which means a lack of visibility of the entirety of textile waste.

The lack of traceability means there is no way to know the provenance of most chute. In turn, this feeds into other market challenges that undermine circularity including the contamination of chute and problems segregating it into categories such as cotton, polyester or mixed blends.

A further challenge is that Morocco's textile sector is highly exposed to the EU, with many factories meeting the needs of a single client. That limits diversification, strains cash flow and results in job cuts when orders decline. Finally, the high price of recycled fiber is a barrier to a sustainable system, with brands often reluctant to pay more than a 10 percent premium over virgin fibers. A circular system needs buyers who will pay for its output.

Beyond ATPA and Law 28.00: Further policy and regulatory issues

Aside from Law 28.00 and ATPA, Morocco faces other regulatory challenges. First, public incentives to invest in machinery, including capital-intensive solutions for recycling, spinning and weaving, are insufficient, with reimbursement only after investment. That puts a cash flow strain on firms interested in recycling textile waste and leaves them at a disadvantage with competitors in other countries.

Second, a circular textile system must include all actors, with waste collectors a case in point. They are an indispensable part of the ecosystem, gathering the chute on which a circular system would depend. However, as Part 5 of this report shows, most are poorly integrated into the value chain and operate in a legal and economic gray zone. Additionally, shifting to a more formal role would bring concerns for many. Most operate informally and without safety nets, and any restructuring of the collection system would bring questions about income stability

and taxation. Collectors also face other challenges including precarious working conditions, limited access to healthcare and societal marginalization, with their contribution undervalued and their voices largely absent. Failing to account for their welfare would mean the system was neither truly circular nor genuinely sustainable.

Finally, building a circular textile system requires overcoming technological constraints, with necessary solutions including a digital platform to track and monitor waste, and a national register for manufacturers, recyclers and collectors. It is also essential to increase in-factory awareness and skills around textiles and recycling.

The need to act: Aligning with EU market requirements

Morocco's geographical proximity, production-hub status for European brands, deep supply chain integration and privileged political relationship – formalized through the 2022 EU-Morocco Green Partnership – explain why around 93 percent of Morocco's textile exports go to the EU, and why Morocco has strong incentives to align with the bloc's sustainability requirements (see sidebar).

The sustainability six: EU legislation most relevant to Morocco's textile exporters

Six major pieces of legislation will affect Morocco's textile exports to the EU. Additionally, some EU nations have enacted laws that apply to textiles or have implemented legislation ahead of the EU-required deadlines.

EU Strategy for Sustainable and Circular Textiles (2022): The policy framework for textiles.

Ecodesign for Sustainable Products Regulation (ESPR): The central piece of legislation, with full enforcement for textiles possible by 2028.

Digital Product Passport (DPP): Under the ESPR, the DPP will eventually be mandatory, with data-readiness and traceability needed to access the EU market.

Revised Waste Framework Directive: This introduces mandatory extended producer responsibility (EPR) for textiles across all EU member states, with EPR schemes established by 2028.

Empowering Consumers for the Green Transition Directive (EU 2024/825): This will apply from September

2026 and will raise the evidential bar for sustainability marketing.

EU Green Claims Directive: Once finalized, this is expected to impose strict substantiation rules on environmental claims made about products.

For more information, see the recent regulatory report from IFC.

Alignment is a work in progress, in part due to hurdles within Morocco, but also because the EU's ecodesign and sustainability requirements are still developing. As the EU's rules tighten, Moroccan exporters will face a growing set of challenges that they must address.

"This regulatory framework is something that is not going to fade away – the circular economy is a key component of our competitiveness agenda," say officials at the EU Delegation to Morocco. "The regulations are going to become more stringent, so exporters to the EU market will have to adapt. The ones that will be the most advanced will have a competitive advantage. This is something they should take on board now in their investment decisions."

"This regulatory framework is something that is not going to fade away – the circular economy is a key component of our competitiveness agenda. The regulations are going to become more stringent, so exporters to the EU market will have to adapt."

Officials at the EU Delegation to Morocco

The EU officials say several structural issues stand out. These include the regulatory gaps that limit the adoption of more circular practices – particularly around textile waste management – as well as limited frameworks that govern recycling and circular flows within the industry.

Additionally, the EU officials say, when it comes to future potential sustainability requirements, Morocco will likely need stronger monitoring, reporting and verification systems to measure the sector's carbon and environmental footprint. Industry stakeholders will also need greater capacity.

Positively, they add, many manufacturers that export to the EU are aware of the need to comply and are taking steps accordingly. Not only has the Exchange contributed to a greater sector-wide understanding of what is needed; it has also highlighted issues including the management of textile production waste, regulatory gaps around waste ownership and treatment, and the need for better coordination between industry and public institutions. And, the EU officials say, it brought those to the attention of policymakers.

Marengtex: A circularity pioneer in Morocco's textile industry

One company leading in its approach to circularity is Tangier-based Marengtex, which manufactures for several major European brands.

Sales Manager Mounir Doukkali says the company's shift to circular manufacturing started in 2023 and was initially driven by requirements from a client to collect chute directly from the factory floor. Prior to that, Doukkali says, the factory used informal collectors who collected the unsorted chute for free.

The transition had its challenges, including training staff and changing established habits. Over time, however, the benefits became clear: better organisation, greater formality in what had previously been an informal process, and a modest but meaningful financial return from selling the separated waste by weight. Today, all Marengtex's chute is sorted and collected formally, with the company regarded as a circularity pioneer.

"We were ready and willing to cooperate, to coordinate with our customers and their requirements, because we know that without doing this, we'll be out of business," he says. "So, we have to do it, and we fulfil every requirement the customer is asking for."

Doukkali says most peers are positive about implementing a circular approach.

"They say: 'Let's give it a chance and try this,'" he says, adding that he is optimistic that the industry will meet the EU's requirements in time. "I'm sure all of those who have done so are happy now, and they can see the result like we do ourselves."

And while some factories will resist change fearing that a circular approach is too complex or might prove costly in terms of new hires and wages, Doukkali says they are a minority. Marengtex, he notes, did not encounter those issues.

Yet while the steps being taken by many factories are crucial, the EU officials say, much work remains to ensure transparency and traceability along the supply chain – particularly as regards meeting future DPP requirements. That will require better data systems and improved monitoring. And as the EU's sustainability and circularity rules tighten, and although some specific details are still being defined, "the overall direction is clear."

"Manufacturers will need stronger oversight of their supply chains and clearer evidence of compliance with sustainability standards," the EU officials say. "This highlights the importance of preparing early and remaining informed about regulatory developments."

Significantly, they add, there is no plan to include textiles in the EU's Carbon Border Adjustment Mechanism (CBAM), despite reports to the contrary in some media in Morocco.

"CBAM is basically mirroring the Emissions Trading System (ETS), so it covers energy-intensive industries and electricity production," they say. "But textiles in the EU are not covered by the ETS and therefore [are not currently] covered by CBAM – which remains limited to six products: steel and iron, cement, aluminum, fertilizers, hydrogen and electricity. That doesn't mean there might not be some carbon emission requirements for textile products in the Ecodesign for Sustainable Products delegated acts, but there is sometimes this misinterpretation about the sectoral coverage of CBAM."

Although CBAM does not apply to textiles, the EC has reserved the right to progressively expand its scope, says Redouane Lachgar, Industry Consultant, Morocco Textile Circularity, IFC. This means CBAM might one day cover textiles, he adds, which is why it makes sense for the sector to monitor the situation.

The key challenge lies in the DPP, which is scheduled to enter into force in 2027, and which will require full traceability and environmental disclosure for products in the EU market, with that information including factors such as their carbon footprint, recycled content and conditions of manufacture.

"Morocco's positioning as a nearshoring hub for European brands – particularly French and Spanish buyers – makes this regulatory shift directly relevant," Lachgar says. "Moroccan manufacturers and exporters will increasingly be asked by their clients to provide product-level environmental data as a condition of sourcing."

Already, he says, France – the destination for 18 percent of Morocco's textile exports – is moving from voluntary sustainability disclosure to enforceable transparency. Via measures introduced under its AGECE framework, for instance, and the rollout of environmental labeling for textiles, products will increasingly be expected to carry a standardized environmental score based on their lifecycle impact. The current voluntary phase of publication is set to end later this year, after which third parties may be permitted to calculate and publish a brand's environmental score if the brand does not disclose it. Among other challenges, this suggests the logic behind the DPP is becoming a fast-emerging commercial reality.

Positively, Morocco's structural advantages including its geographical position and its push for green energy are helpful, though Lachgar warns they are insufficient on their own. Success requires putting in place the means to ensure traceability; delaying until 2027's deadline could see the industry cede ground to competitors which are already acting. In short, while it is sensible to monitor changes to the carbon tax, says Lachgar, it is vital to implement the transparency infrastructure that access to the EU will require.

Case study: Fruit of the Loom: Achieving zero waste to landfill

Fruit of the Loom, which manufactures textiles in Morocco, is a brand with sustainability at the heart of its operations. Part of the Berkshire Hathaway Group, the brand's global Fruitful Futures sustainability plan underpins its view that sustainability "is both a business imperative and vital momentum for our potential as a global family of brands¹⁶."

Sean McCaffrey, Director of Textiles, Morocco, says the brand's operations in the country are well-positioned to support circularity, with none of its textile waste going to landfill since 2010.

"All of our textile waste is sorted in-house, it's categorized in-house, collected by our recycling partner and reused in various industries – such as non-wovens, which are used as filling in the automotive industry and other applications," McCaffrey says.

Its sustainability efforts are an ongoing effort, with the Morocco operation using process improvement initiatives and optimization to cut water use from 16.26 liters per pound in 2019 to 10.95 in 2024. The brand also focuses strongly on energy use and, McCaffrey says, is working with a partner in Morocco to supply its operations with green energy.

"We have a team of process experts who are continuously looking at industry practices, at new technologies, and are working with our internal teams and working with our suppliers to optimize processes, to reduce our water and chemical demands – without compromising quality or efficiency," he says.

Looking ahead, Fruit of the Loom – through its Fruitful Futures program – has committed to a continued increase in the use of recycled, circular and sustainable fiber, though McCaffrey notes that a key challenge is sourcing enough good-quality recycled fiber locally: "We must ensure there's a reliable source and a consistent supply."

That requires establishing domestic spinning capacity, which is a critical infrastructure gap, because without that the recycled fiber cannot be turned into yarn locally, which is vital for circularity. And, he says, while the availability of recycled fiber is improving steadily through technological advances, volumes remain far short of industry needs to integrate recycled content at a commercial scale.

That aside, McCaffrey says the brand wants to introduce circularity with recycled fibers from its production fed back into the production chain – and is optimistic that can happen.

"Industry and legislative standards will continue to drive the advances needed for [improved] textile recycling technology," he says. "I'm convinced we will find that integrating recycling fibers in the next few years will become more common, more widespread, and that will be driven by legislation and by demand from consumers."



Part 2. Beyond the blueprint: IFC's mission to build a circular textile economy

The decision to establish the Exchange was shaped by a straightforward yet urgent logic: If Morocco's textile sector can meet the EU's sustainability requirements, it will retain its most important market, grow its exports and strengthen its competitive position.

Launched in September 2023, shortly after IFC's thematic review of the country's textile sector and the opportunities for circularity, the Exchange had a clear mission – to engage the full textile value chain, including brands and retailers, to collaboratively develop circular systems using chute, covering mechanical and chemical recycling methods, and from collection to finished product. The vision: To establish end-of-life pathways for all chute generated by the garment sector, with a headline target of 100 percent post-industrial cotton recycled in Morocco by 2027. To that end, it defined four clear goals:

- **Collaborate** with the local industry on the development and implementation of systems to create textile-to-textile circularity within Morocco.
- **Define** the recycling flows for cotton, polyester and blended feedstocks from waste through finished products.
- **Transform** textile waste into raw materials within Morocco so that it is no longer incinerated or sent to landfill.

- **Deliver** commercial products based on a cost-effective circular textile supply chain.

Achieving this required more than good intentions; it demanded coordinated action across a range of actors. To that end, the Exchange brought together stakeholders including government ministries, trade bodies, industry associations, brands, factories, aggregators and recyclers via a Steering Committee and four dedicated working groups: the Business Model Working Group, the Data and Materials Working Group, the Pilot Working Group and, a later addition, the Policy Working Group. This structure reflects a fundamental truth: Building a circular economy is a collaborative exercise that no single actor can deliver.

Running pilots in key areas was at the Exchange's heart, allowing the program to test circularity in real-world conditions and generate the data necessary to advance the case for broader adoption. This was not without its challenges: Notably, it soon became clear from the working groups and workshops (see sidebar) that stakeholders were discussing policy needs, including the need for reform along with legal clarity on certain issues – and that the Exchange needed to incorporate these. The Policy Working Group was established to bring together stakeholders, including from government ministries and the customs agency, with IFC's specialized technical assistance unit providing additional help.

Shared visions: Three years of Textile Circularity Exchange workshops

Over the life of the Exchange, eight workshops were held to understand issues and overcome challenges. A major achievement was not just the workshops' success in achieving those goals, but the way this was done – bringing together for the first time the range of participants whose collaboration is vital in building a circular textile system.

Workshop 1 (26 September 2023)

The inaugural workshop was attended by brands, recyclers, collectors and aggregators, and set the stage for the Exchange program. Attendees heard a presentation on traceability, another on policies that would affect the textile industry, and participated in discussions to determine the path forward.

Workshop 2 (19 April 2024)

The second workshop brought together brands, factories, a formal collector and recyclers to hear about the introduction of the Exchange. It also included a training session on sorting and preparing chute for recycling as well as traceability requirements. Participants took part in an open discussion about the program and visited a factory to see its cutting unit, recycling unit and knitting unit.

Workshop 3 (15 May 2024)

The third workshop created the metrics and goals for Accelerating Circularity's three-month waste management pilot and established the need for training to support implementation. It also determined the recycling types, the recyclers that would take part and identified the LCA provider.

Workshop 4 (8 October 2024)

The fourth workshop focused on Morocco's laws, standards and tax regime, and created the program's foundations by considering the importance of stakeholder contributions, initiatives by recycling association FEDERCC and recycling technologies. Finally, it co-created trial supply chains and feedstocks, and outlined potential challenges that could affect the trial.

Workshop 5 (December 2024)

This was the major policy workshop for the Exchange, with attendees including senior members of ministries and agencies, the EU, AMITH, brands, factories and recyclers. It included presentations on circularity by Fruit of the Loom and Inditex, a discussion on laws and regulations, as well as a presentation by the EU on the Green Deal and its implications.

Workshop 6 (9 April 2025)

The sixth workshop included a presentation by Inditex on its direction, reviewed recycled fabric samples, discussed the quality limitations of recycled materials, identified key system gaps within Morocco's recycling ecosystem and aligned on a traceability mechanism for the trials. It also saw the official launch of the Textile Circularity Exchange's Training Manual, which was developed with Accelerating Circularity and has been used to train future trainers to help factories better sort, track and valorize post-industrial textile waste.

Workshop 7 (7 October 2025)

The penultimate workshop focused on Morocco's textile waste collection ecosystem via a panel discussion, with further discussion on the policy outlook for circular textiles in the country. Other topics included the short-term commercial impacts of circularity, both positive and negative, and a review of the LCA study's trial supply chain and its implications.

Workshop 8 (22 April 2026)

The closing workshop of the Exchange program brought together multiple stakeholders to hear a range of practical and policy recommendations by IFC, with targeted measures to promote circular investments and traceability. Accelerating Circularity presented its pilot study results and recommendations to advance circularity, including the need for greater collaboration and training programs, and the necessity for in-country yarn-spinning facilities and advanced recycling processes.

In short, the Exchange represents a wide-ranging consultation and coordination exercise unlike anything previously attempted in Morocco's textile sector. By bringing together parties whose collaboration is essential to creating a functioning circular economy, and by grounding that collaboration in real-world pilots rather than theoretical frameworks, it has laid the groundwork for a transition that serves manufacturers, brands, workers and the environment.

The workshops helped to refine the Exchange's focus and approach, and contributed to the four core areas tackled by IFC and our partners:

- The pilot recycling trials. These constitute the Exchange's focal point and tested the feasibility of circularity in the value chain in Morocco and beyond. These were conducted by Accelerating Circularity and are covered in Part 3 of this report.

- The LCA report was commissioned to assess the environmental benefits of recycling chute into blended recycled garment fibers. The LCA is covered in Part 4.
- The Tangier survey on formal and informal collectors, with the latter a crucial and largely invisible part of the recycling chain for chute in Morocco. The survey and its findings are outlined in Part 5.
- Finally, the Exchange generated a series of key recommendations to drive the reforms necessary to build a circular textile system. These can be found in Part 7.

IFC's engagement in Morocco's textile sector is driven by interconnected objectives that go beyond assisting the sector to comply with EU regulations. While the structural challenges facing the sector and the need to align with the EU's tightening legislative framework on textiles are part of the picture, IFC

sees its work as part of a broader opportunity to build a more sustainable and self-sufficient local economy.

By supporting the development of circular textile infrastructure, the Exchange aims to strengthen Morocco's industrial base, adding new pillars to the textile value chain, creating skilled employment and building in-country expertise that does not currently exist at scale.

There is also a longer-term trade opportunity: Morocco's proximity to Europe makes it well placed to receive and process post-industrial textile waste from other countries, feeding recycled materials back into local and regional supply chains. For brands that source from Morocco, a credible circular supply chain is increasingly a commercial asset and offers an important response to the expectations of environmentally conscious consumers and the scrutiny of sustainability-focused investors.





Part 3. Real world, real waste, real results: Putting circularity to the test

Overview

The Exchange's goal is not just to theorize about implementing textile circularity in Morocco, but to test it in real-life. That required mapping chute streams against available recycling technologies. To that end, Accelerating Circularity – a non-profit whose mission is to build circular systems in the textiles industry – designed a pilot programme to trace the journey of chute from factory floor to finished fabric and, in doing so, to test the feasibility of textile-to-textile recycling in Morocco.

In setting out to establish whether circularity would be viable, the trials examined if chute gathered from factories could be processed through an entire circular value chain – from collection and aggregation through mechanical and chemical recycling and then to finished product – with the materials and processing kept within Morocco where possible. This meant the pilot used actual materials and partners, and dealt with genuine supply chain constraints as it sought to meet its target of 1,200 metric tons of chute valorized or committed by the end of 2025.

Sourcing the offcuts was a major challenge, says Karla Magruder, Founder and President of Accelerating Circularity, because “while one factory might have some material, it wasn’t enough to run the trials.” Therefore, the materials first needed to be aggregated then sorted and sent to a recycler. Further questions followed.

“How do we get it spun into yarn? What are the logistics? Are we moving goods in small quantities or do we do it in bigger quantities? What capabilities are in Morocco and what aren’t? And how do you deal with all the policy issues around chute?” Magruder says of the challenges.

A further challenge was getting stakeholders to participate – specifically factories that typically operate on tight margins, and for whom sorting waste is an extra cost in terms of labor, training and time. Although some brands offset these costs by paying sorting fees, only a small fraction of the chute – primarily that of high-purity cotton or polyester – holds recycling value. Given Morocco’s fast-fashion manufacturing base, much of the rest consists of complex blended fabrics that current recycling technologies cannot easily handle.

“We saw a multitude of blended fabrics, and those aren’t going to be recyclable anytime soon,” Magruder says. “There’s enough fabric to go into recycling to make it useful – no question about that – but the volume of material is so big and the fraction that can go into recycling is small compared to the fraction that isn’t [recyclable] at this point.”

Another challenge was to ensure demand for what was recycled.

“In the end, demand was a real challenge,” she says. “We could have done more trials with the available materials, but we couldn’t because nobody’s going to run the trials unless somebody’s going to buy it at the end.”

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**Karla Magruder, Founder and President,
Accelerating Circularity**

While the pilot's focus was factories in Tangier, the main manufacturing hub, infrastructure gaps in the local value chain meant some steps required exporting materials for processing, principally to Türkiye and Spain, then reimporting the finished yarn or fabric. This flagged a crucial shortcoming in Morocco's bid for circularity: A fully localized circular supply chain does not exist and requires investment.

Lastly, the pilot focused on three main fiber types that can be recycled and that reflect the composition of waste generated in Moroccan factories: 100 percent white and greige cotton, 100 percent colored cotton, and polyester-based blends. (Although the pilot tried to do the same for mixed blends, there was no interest from brands to procure those materials.)

Each material has distinct technical and logistical challenges, and each was tested via specific supply chain configurations. This variety was intentional as the aim was to map the complexity of real-world chute rather than cherry-pick the easiest materials. Each stage of the process was documented, with data collected on material specifications, volumes processed, quality outcomes and costs.

Key findings

The pilot showed a circular approach to textiles in Morocco is technically viable, particularly for the cotton supply chain where chute was successfully collected, mechanically recycled into fiber that was then spun into yarn, knitted into fabric and in some cases made into finished garments.

Importantly, the fabrics produced via this circular approach met standard commercial quality benchmarks on a range of performance tests, from dimensional stability to color fastness. This is crucial for the success of a circular supply chain given the longstanding perception that recycled content means compromising quality. The pilot showed this

is not necessarily the case, with fabric incorporating recycled content performing comparably to conventionally produced fabric.

Case study: Greige cotton – from factory floor to finished garment

Greige cotton (unbleached and undyed) provides one of the most complete circular journeys in the pilot, with the chute segregated at source by the garment manufacturer as part of its existing waste management processes. The material that was collected was a mix of offcuts and fabric rolls, which was transported to a local recycler where it was mechanically processed into raw fiber.

This fiber was then shipped abroad for spinning and blended with virgin cotton (20 percent recycled:80% virgin cotton) to achieve a commercially viable yarn count before returning to Morocco for fabric and garment production. The finished fabric passed all required quality tests, with analysis using an established testing methodology for recycled cotton returning results that ranged from medium to very good across key parameters.

Outcome: The greige cotton trial showed a nearly complete circular loop is achievable, with the missing link being local spinning capacity, not recycling capability. The trial also revealed a more practical lesson about packaging: Some of the fabric rolls were transported without protective wrapping. As a result, they arrived partially soiled, which lowered the quality of the material. A simple operational fix that wraps rolls together rather than individually would prevent this outcome at a low cost.

Costs

A major factor was the small scale of recycling in the pilot, which meant increased costs due to small-volume shipments, fragmented logistics and a lack of domestic spinning infrastructure. Positively, this implies that a more developed circular ecosystem with a fully localized supply chain would lower fabric costs significantly – though achieving that requires building the necessary infrastructure.

Additionally, the environment benefits of recycling mean conventional cotton's negative externalities – its water- and energy-use, which are typically borne by society and the environment but not by players in the value chain – are largely avoided.

Uptake

A consistent theme was a disconnect between stakeholders' willingness to participate in a circular system and the incentives they have for doing so. Factories, collectors, recyclers and fabric manufacturers were keener to engage than brands: Seven brands initially committed but some withdrew when it came time to integrate recycled content into product ranges. This is a market alignment problem, not a technical failure, which suggests a heightened role for incentives.

Martha Willis, a consultant for Accelerating Circularity, says this proved to be among the most difficult barriers the trial encountered.

"Circular supply chains depend on brands signaling clearly what they want – color, composition, end product – so that waste can be segregated accordingly," Willis says. "Instead, brands were largely unable or unwilling to specify their needs, leaving suppliers developing materials speculatively and receiving little useful feedback. Many in the supply chain grew frustrated by the cycle of development without commitment."

Technical considerations

Willis highlights two technical findings from the trials. The first was that fiber length, which is widely used as a proxy for recycled cotton quality, means little without knowing how it was tested – because different testing methods produce significantly different results. This means choosing the right benchmark is crucial.

"And that is something that, particularly for people that haven't worked with recycled materials before, is very important to know, because for example even with the spinner they're asking for measures of fiber length, and those aren't really applicable to recycled materials – and that's because they've not really worked with recycled materials before," Willis says.

The second finding was the substantial loss of material in the recycling process itself, which must be factored into commercial calculations: Shredding during mechanical recycling loses 15 percent of the material, with more lost during spinning due to

the high proportion of short fibers – though the precise amount depends on the facility that does the spinning and the recycled fiber itself.

Case Study: Colored cotton – technical success, market friction

One trial focused on black cotton cutting waste sourced from a single garment manufacturer's segregation process. The material followed a similar route to the 100 percent greige cotton, with the chute collected, shipped to an overseas recycler, processed into fiber, spun into yarn that incorporated recycled cotton and recycled polyester, and returned for fabric production.

Testing found that fiber quality results were lower for the colored material than for the greige, which reflects the additional variables introduced by dyeing and by the composition of the offcuts. Nevertheless, the yarn spun well and met performance standards across all tested parameters, with that result in part due to the blending with polyester, which compensated for shorter recycled fiber lengths.

The trial also revealed a contamination risk that even sophisticated segregation processes cannot fully eliminate. A small proportion of polyester content was detected in what had been intended as a pure cotton stream, with that error traced back to the factory sorting stage despite clear protocols being in place. The lesson: It is vital to conduct pre-recycling composition testing if a circular supply chain is to function reliably.

Lessons learned

While the lack of brand uptake was one challenge, another was the cross-border logistics involved in sending recycled material abroad for spinning. That resulted in significant delays and documentation complexity, with unclear guidance and limited consistency in the handling of shipments.

Additionally, says Magruder, the large amounts of complex blended fabrics produced by Morocco's fast-fashion manufacturing base cannot currently be easily recycled – although, as she points out, additional recycling routes for these fabrics will arise as technologies develop. What is important is to ensure a fair solution between brands and others in the supply chain.

Beyond the critical need for brand demand, she adds, the pilot revealed problems at the sorting stage,

where the nature of the CMT business means fast turnover of materials.

“So, the factories don’t have space for holding chute – and if you can’t hold chute and aggregate it then that has to be aggregated somewhere else, and that means more transportation and more cost,” Magruder says.

Aggregators step up to deliver traceability and reliability

Morocco’s capacity to aggregate chute has increased significantly in recent years with private actors moving to fill the gaps in the circularity space. That is vital because aggregators serve a key role: They assess what has been collected and delivered to them, ensure it is properly segregated into material blends, then bale that for delivery to a recycler.

One such operation belongs to Spain’s CTR Solutions, whose Morocco facility opened in 2021. The company’s Tangier-based manager, Fatima Ezzahrae Elatlalti, says its contracts with major Spanish retailers means it uses their SNIP platform, a traceability tool powered by Wastex, which ensures each piece of chute is traceable.

That is key, she says, because traceability of materials is foundational for a circular system.

“With these brands we have that advantage because we use their SNIP platform,” she says. “It’s used by the garment makers, by the collectors, by us, by the transport company and the recyclers – we are all connected to the same system to ensure the traceability of all materials.”

The second aspect, Elatlalti says, is proper segregation. CTR Solutions uses a double segregation approach, with the first happening in the cutting room at the factory.

“So, each piece of fabric is cut and placed in bags, which are labelled. Once we receive them, we double-check with a second segregation where we empty the bags on to a conveyor belt,” she says.

Once chute has been checked for contaminants and sorted into material type, it is baled and sent either to a recycling facility in Europe or, if it cannot be recycled, to a consolidation facility in Tangier. Nothing goes to landfill.

While this second-stage segregation and quality control process initially relied heavily on manual inspection, CTR Solutions has progressively integrated technology into its operations through its collaboration

with Wastex. Together, they have been developing automated quality control systems designed to complement and enhance manual procedures, ensuring greater consistency, accuracy and traceability. By aligning operational expertise with technological capabilities, CTR Solutions is strengthening its position as a reliable partner capable of delivering high-quality feedstock that meets the requirements of recyclers and circular supply chains.

Elatlalti says one of the hardest challenges in setting up the system was raising awareness among factory workers of the importance of the proper segregation of chute; solving that required sustained education. Today, the main constraints are regulatory, not operational, with a customs export cap of 200 tons limiting what the company can collect and how fast it can scale.

Discussions with policymakers, though, are underway to resolve that and other customs issues – a conversation, Elatlalti says, that has been made easier by the Exchange program. Its focus on policy and regulatory change has, she believes, been its standout contribution.

Ultimately, the pilot revealed lessons across four key areas:

- Logistics and aggregation are important constraints. Small shipment volumes drive up costs and prevent economies of scale, while factories generally lack storage space for chute, which means frequent collections are essential. Positively, aggregation hubs in Tangier improved during the program, as did in-factory sorting.
- It proved more demanding to adapt existing processes. Testing methods, operational procedures and quality benchmarks are designed for virgin fibers and had to be adjusted across the value chain, with new processes requiring training.
- The lack of infrastructure is a significant gap. Although Morocco has mechanical recycling capacity, it lacks chemical recycling, which means chute must be exported. Even more important is the lack of local spinning capability, so all recycled fiber must be exported first before returning as yarn, which adds cost and carbon.

- The commercial case for circularity cannot be evaluated solely on financial terms. Environmental and social impacts should also be considered, while circular supply chains require demand from brands. Supply-side technical capabilities are essential but insufficient on their own; market demand for output is vital.

The pilot's overarching lesson is that the system works well in parts with a robust manufacturing base, established waste streams and increasingly the recycling capability and technologies to support a genuine circular textile economy. What it lacks is the connective tissue – the local spinning capacity, regulations aligned to a circular model, consistent brand demand and the scale to make each step economically self-sustaining.

The recommendations are clear: Bring spinning and advanced recycling infrastructure onshore; further

decarbonize the energy grid; standardize certification and training; and reform the classification of cutting waste to unlock regulatory and customs changes.

Furthermore, the data collection process, which covered specifications, volumes, prices and chain of custody documents at each step, revealed that traceability underpinned by invoice-based tracking does not meet independent certification standards. As EU requirements tighten, that gap will need closing. Additionally, the program developed two practical tools for factories: A standardized Chute Management Policy and a Segregation and Sorting Manual. Finally, participating companies applied the lessons and processes that the initiative developed and valorized more than 425 metric tons of chute, and committed to a further 2,400 metric tons for continued valorization beyond the project lifecycle.





Part 4. Measuring what matters: Proving the environmental case for recycled fiber

A central part of the Exchange was a cradle-to-gate Life Cycle Assessment (LCA) to determine the environmental impact of diverting post-industrial textile cutting waste from landfill and recycling it into fiber that could be used in making other garments. The main goal was to determine the potential environmental benefits of diverting this waste from landfills to mechanical recycling, then blending that output with organic cotton fiber to produce the finished fabric.

To that end, cutting waste was collected from garment factories in Morocco, sorted and stored locally, mechanically recycled into fiber at Reciclados in Morocco, then transported to Spain for yarn spinning before returning to Morocco for knitting, wet processing and finishing at Hallotex. The output was one kilogram of finished single jersey fabric.

Its core question was simple yet vital in assessing the viability of circularity in Morocco's textile value chain: Does incorporating mechanically recycled cotton into fabric production in Morocco deliver measurable environmental benefits when compared with producing the same fabric from virgin fibers?

The LCA, which was conducted by Green Story, a sustainability platform that works with brands on their net-zero journey, assessed this in the context of making the kilogram of single jersey fabric – a standard knitted textile used widely in garment manufacturing. The fabric was to be made from 20 percent mechanically recycled post-industrial cotton and 80 percent organic cotton (an 80-20 mix), produced in a hybrid Morocco-Spain value chain.

The study assessed three impact categories:

- Climate change impact measured in kilograms of CO₂-equivalent.
- The use of non-renewable energy, which the report describes as fossil resource use.
- Water use measured in cubic meters.

These indicators were selected as being most relevant to the Exchange's goals and to the EU's assessments of impact.

The LCA: Core results

The first step was to determine the impact of producing one kilogram of the baseline 80-20 single jersey fabric. The LCA found that doing so:

- Generated 11.3 kg CO₂-equivalent.
- Consumed 158.7 MJ of fossil fuel energy.
- Used 6.9 cubic meters of water.

It also found that this environmental burden is highly concentrated: Finishing, bleaching and scouring together account for over half of the climate change impact and around half of fossil resource use.

These impacts stemmed primarily from the need to generate steam, which required the combustion of heavy fuel oil and electricity drawn from Morocco's coal-intensive grid. (About 62 percent of Morocco's grid was coal-powered in 2023, though this share is declining as the country targets zero coal by 2040¹⁷.)

Yarn production in Spain contributed a further 13 percent to climate change and accounted for 22 percent of fossil resource use despite benefiting from Spain's comparatively cleaner grid. Finally, bleaching

(35 percent) and organic cotton cultivation (32 percent) were the largest contributors to water use.

Crucially, the collection, sorting, storage and mechanical recycling operations themselves – the circular infrastructure at the core of the program – each contribute less than 5 percent to any impact category.

Key finding: Recycled content outperformed conventional cotton

Having calculated the impact of producing one kilogram of 80-20 single jersey fabric, the LCA then compared how those numbers stacked up against three alternatives:

- Comparative 1: 100 percent organic cotton fabric produced entirely in Spain.

- Comparative 2: 100 percent conventional cotton fabric produced entirely in Spain.
- Comparative 3: A similar 80-20 fabric to the baseline, but with all sorting-to-finishing processes taking place entirely in Spain.

Its standout finding was this: Using just 20 percent recycled content saw the Moroccan circular supply chain outperform 100 percent conventional cotton production in Spain across two of the three impact categories. The Moroccan supply chain was 18 percent more efficient in terms of the climate change impact and 61 percent better on water. (See Comparative 2 figures in Table 1.) The use of fossil resources was about the same.

Table 1: Overall LCA results for 1 kg single jersey fabric made in Morocco - Spain hybrid value chain, made in Spain, 100% organic cotton fabric made in Spain and 100% conventional cotton fabric made in Spain.

	EF 3.1 Climate Change - total [kg CO ₂ eq.]	EF 3.1 Resource use, fossils [M]	EF 3.1 Water use [m ³ world equiv.]
Baseline: 20% recycled cotton-80% organic cotton fabric - Morocco, except yarn	11.298	158.743	6.899
Comparative 1: 100% organic cotton - Spain	11.197	143.272	7.808
Comparative 2: 100% conventional cotton - Spain	13.854	160.287	17.858
Comparative 3: 20% recycled cotton-80% organic cotton fabric - Spain	8.823	131.278	6.904

Note: The results for all three comparatives do not account for the impacts of transporting the finished fabric from Spain to Morocco for garment manufacturing, as this leg is currently outside the assessment's scope. In reality, this transportation would be required, increasing the environmental impacts particularly, climate change and resource use.

These results are significant because they show that the environmental benefits of avoiding conventional cotton cultivation outweigh the combined costs of a hybrid supply chain – even after factoring in the additional transportation costs required to move fabric across borders for value-added processing and the use of Morocco's carbon-intensive electricity grid. In other words, making one kilogram of an 80-20 recycled mix using a Morocco-based supply chain is still better than using 100 percent conventional cotton via a Spanish supply chain.

When it came to comparing the results against 100 percent organic cotton produced in Spain (see Comparative 1 figures in Table 1), the picture was more nuanced. The baseline fabric performed almost identically in terms of the climate change impact and 12 percent better on water use. On the other hand, fossil resource use was 11 percent higher in the Morocco supply chain baseline fabric – that is because Spain's grid is currently cleaner when it comes to energy-intensive processes like yarn-spinning.

A win for a Morocco-based recycling approach

The overall implication is clear: Even targeting a modest recycled content of 20 percent provides immediate climate change and water benefits over the use of conventional cotton and nearly neutralizes the carbon advantage of manufacturing in Spain using its greener energy supply.

Equally important, the LCA determined that using a higher recycled content delivered even stronger gains compared to the 80-20 baseline:

- Using **50 percent recycled cotton** cut the climate change impact by a further 8 percent from the baseline, fossil resource use by another 6 percent and water use by an extra 11 percent. Additionally, in this scenario the Morocco-based supply chain outperformed the 100 percent organic cotton Spanish version on both carbon and water.
- At **100 percent recycled content**, those reductions saw a 21 percent reduction from the baseline for the climate change impact, a 17 percent reduction for fossil resource use and a 29 percent cut for water use – with the additional improvements largely due to the fact that mechanical recycling entirely avoids the irrigation, fertilizer and land-use impacts of cotton cultivation.

Looking ahead, the LCA identified greening Morocco's grid as one of two crucial levers. By transitioning energy used in manufacturing to solar, the climate change impact of the supply chain would drop by 12 percent and fossil resource use by 7 percent.

The other lever is the need for domestic yarn-spinning capacity, which Morocco currently lacks. That would eliminate the Morocco-Spain transport loop for recycling and cut logistics-related emissions by 76 percent.

The LCA: Key lessons learned

Taken together, the LCA offers a powerful, evidence-based argument for circular textile production in Morocco. The recycling operations impose a negligible environmental cost, while the

environmental returns from increasing recycled content are clear, measurable and achievable without any change to the country's energy infrastructure.

Additionally, continuing to decarbonize the grid and building local spinning capacity would give Morocco's circular supply chain the potential to become one of the most environmentally competitive in the European market.

IFC's Eleonore Richardson says the LCA's findings were crucial in mapping the end-to-end textile value chain, which in turn highlighted opportunities to cut carbon, streamline logistics and lower production costs through the smarter use of technology and energy.

"Increasing recycled content remains one of the most effective and immediate ways to reduce the carbon footprint of textiles," Richardson says. "By replacing virgin fibers, we avoid the most emission-intensive stages – such as cotton cultivation and synthetic fiber production – while the impacts from collection, sorting and recycling remain comparatively low ... [bringing] substantial carbon savings even without changes to factory energy systems."

Ultimately, Richardson says, the LCA delivered two key lessons.

Lesson 1: Recycle in-country

Logistics costs mean it is not cost-effective to export chute and then re-import that as fibers. However, building a local upstream ecosystem that can collect, recycle and transform offcuts into fibers, yarn and fabric would cut transportation-related impacts significantly: climate impacts by around 76 percent, fossil resource use impacts by 77 percent and water-use impacts by 73 percent. This would require major investments in upstream processes in Tangier.

Lesson 2: Localize, save, decarbonize

A fully localized value chain could reduce costs by around 13 percent relative to today's baseline, primarily through improved logistics and economies of scale. And although Morocco's current coal-heavy grid means this would not improve the climate impact, that will change as Morocco continues greening its energy mix.



Part 5. Collectors: The invisible front line of textile circularity

The third major study involved collectors, who are an essential part of Morocco's textile recycling sector – providing the link between factories and recycling companies as they remove, sort and hand over textile waste. Although they operate largely outside formal systems and typically work in precarious conditions, they provide a vital service that ensures the recycling ecosystem functions.

This service, though, is not well understood, which is why one of the Exchange's most pressing goals was to learn more about collectors and the realities of their working environment. The program studied collectors in the Tangier region to generate a detailed mapping and diagnostic assessment of the textile waste collection chain. In that way it sought to provide a better understanding of how flows are managed, identify the actors involved and assess the operational, social and economic realities of the sector.

The study covered the entire value chain, with particular attention paid to individual collectors. It examined the interactions between them, collection companies and recycling firms to learn, among other aspects, the types of waste streams managed, the sorting and traceability practices, and the challenges and opportunities that this would bring in developing a circular textile ecosystem.

Study findings

The collection ecosystem is comprised of a small group of formal businesses and a much larger informal network, with the survey finding that this

ecosystem, while vitally important, is fragmented and largely invisible.

On the formal collection side, the study identified seven firms that work across collection, sorting, conditioning and recycling. Some have invested in digital traceability systems and suitable machinery; some operate under international frameworks like Inditex's scheme; some specialize in fiber recycling, textile-to-textile processes or post-consumer recovery. However, this formal side comprises only a small part of the market.

The informal sector is the major player, accounting for more than 80 percent of collecting. The study's survey of 34 collectors found most are men over 35 who have spent years in the trade, with some running operations that employ up to 30 people. Given that factories need waste cleared quickly, collection rounds are frequent with each load totaling 300-500 kg per trip. Collectors handle a mix of waste streams: textiles (mostly polyester and polyester-cotton blends), plastic and cardboard.

When it comes to materials, the survey identified key differences between cotton and polyester waste streams that complicate the idea of a unified recycling value chain, says Nouredine Lachhab, the consultant who undertook the study. Cotton waste not only integrates more straightforwardly into textile recycling, with value tied to quality characteristics such as color and raw fiber condition; it is also far less commonly encountered as it is usually retained by factories or circulates in opaque channels.

Polyester, on the other hand, is frequently diverted to industries outside textile recycling, and has different processing requirements. Even at the production stage, Lachhab says, the streams were already segregated, which means there are multiple parallel value chains rather than a single unified one.

The implication, he says, is clear: Instead of forcibly trying to integrate all materials along a single pathway, Morocco should develop a cluster approach that connects textile recycling with other sectors that are best placed to use these materials.

The survey also highlighted the extremely poor conditions that informal collectors work under. Sorting and collection are done manually by color and fiber type in overcrowded rented garages and depots with little ventilation, no safety infrastructure and minimal protective equipment. Women typically sort while men handle transport and heavy lifting. Pay is low and irregular, with most collectors earning 500–1,000 MAD monthly, out of which they pay transport costs. Additionally, there are real risks to health.

The informal nature of the sector also has a major impact on traceability, given that it runs on verbal agreements and personal relationships. Lachhab says 94 percent of collectors keep no records in this informal yet highly organized system.

“People in the informal sector are people of their word – they honor their verbal commitments and their verbal agreements, and that matters enormously in the informal economy,” he says. “And this is an important element ... because if we can truly understand that then it makes the transition from informal to formal easier to navigate.”

The collectors: Essential, invisible and wary of change

In July 2025, a focus group bringing together 32 collectors, including representatives of the Al Boughaz association, met at AMITH’s headquarters in Tangier. Their shared feeling was that they play a central role in the recycling process, but that they go unnoticed at the institutional level.

“We are doing essential work for the factories, but we remain invisible. We need recognition and a space to work with dignity,” one participant said during the focus group.

Their top priority was for more secure workspaces. However, they also spoke of the need for material resources such as working capital, equipment and transportation, as well as legal recognition, social coverage and technical training.

These concerns were later brought into a broader multi-stakeholder discussion during the Morocco Textile Circularity (MoroccoTex) Annual In-Person Meeting held in Tangier on October 7, 2025. The meeting included government representatives, brands, factory owners and other stakeholders involved in the textile circularity ecosystem. During this event, the results of the survey on textile chute collection in Tangier were presented, followed by a panel discussion on the waste collection ecosystem.

One of the panel participants was Amina Benayad, who started her collection operation in Tangier ten years ago. Today, she has formal contracts to collect textile waste daily from garment manufacturers who lack the space to store what they generate.

Benayad says her journey was not easy, with the lack of recognition of her profession a major challenge. That has direct effects – for example, although she invested in shredding machines, she says bureaucracy and prejudices against collectors mean she has struggled to secure a suitable warehouse to formalize her processing activities and scale up her service. In a system with no legal category for what she does, administrative obstacles pile up.

Another challenge is being a woman in a male-dominated sector.

“I regularly face pressure to give up,” Benayad says. “Sometimes my clients are pressured not to buy from me directly ... but I have the support of my garment manufacturers who back me and value my work, my dedication and my consistency. With me, they know there is no risk of merchandise leaking.”

Benayad says the recent shift toward brand-approved collector schemes has hit her hard. A major brand’s consolidation of collection through two approved operators removed her from the higher-value waste streams she previously accessed from several manufacturers with whom she had worked for years.

“This has created real difficulties,” she says. “We are left with low-grade waste that [the brand] is not interested in, that has no market value and is generally destined for energy recovery.”

Benayad highlights two areas where change is needed. First, brands “should prioritize local collectors before bringing in people who do not know the ecosystem. We have the network and the expertise.” Second,

she wants the authorities to give collectors legal recognition. That, she says, would help people like her get operating licenses and access secure spaces inside industrial zones to store materials and work safely.

The path forward

The lack of formality in the sector does not mean it lacks potential. Informal collectors know their materials and markets, and move waste efficiently in a system that formal operators have not replicated. Yet while the collector ecosystem is open to formalization and traceability, players' needs differ: Those in the formal sector need technical upgrades, while informal collectors need recognition, training and institutional support.

Should informal collectors receive that support, says Lachhab, then as many as 75 percent could transition to become formal operators within five years.

"But it depends on the quality and depth of that structuring and the level of support behind it," Lachhab cautioned. "If things stay as they are and no actor comes to support them, or if there is no requirement introduced to impose change, then I don't think there will be a meaningful shift from informal to formal. Not even a modest one."

"If things stay as they are and no actor comes to support them, or if there is no requirement introduced to impose change, then I don't think there will be a meaningful shift from informal to formal. Not even a modest one."

Noureddine Lachhab, Consultant

Should that assistance be provided, however, the sector's willingness to change means the major driver behind implementing traceability will be market demand – with downstream actors requiring documented supply chains.

While that is one challenge, a second is that the pricing of chute is not standardized. While cotton prices track international commodity markets, other materials are valued according to local demand. The survey found that factories prioritize clearing space, which is why many collectors are compensated

primarily for removing waste and not with an eye on the value of the material. Collectors' incentives, then, are structured around the efficiency of their logistics and their ability to find buyers, rather than around the materials' quality or environmental considerations.

Overcoming these shortfalls, Lachhab says, requires tackling three structural gaps;

- **Infrastructure:** There is a lack of large-scale textile sorting centers, logistics are limited and operations are fragmented and small-scale.
- **Regulation:** There is no operational framework to integrate circular economy principles into the sector, and no clearly defined system of industrial responsibility. One proposal is to create a "shared industrial responsibility", which is distinct from the EU's EPR and, he says, better suited to the production-oriented sector.
- **Incentives:** While targeted support is helpful in the early stages, the system must become economically self-sustaining. Incentives should be deployed to catalyze the transition, not to subsidize it permanently.

For Lachhab, the priority should be to build one or more major textile sorting centers in Tangier. At the same time, it will be important to integrate collectors through structured systems and link sorting centers to industrial recyclers. By providing the right infrastructure, coordinating across institutions and devising training programs to create specialized roles such as textile waste technicians, the system can be set to scale.

Finally, Lachhab notes, there is a significant social dimension to the informal collection sector. Improving it is as much a question of social inclusion and working conditions as of environmental or economic performance. In other words, the solution lies not in sidelining the informal sector's workers but in building around them to create safer spaces, bring better equipment and provide legal recognition and training.

By doing this, and by taking the strengths of the formal and informal collectors – the formal providing

traceability and international standards, and the informal bringing proximity, responsiveness and high daily volumes – Morocco can create a coordinated circular textile ecosystem that leverages collectors' complementary skills to generate economic value and good jobs while building a strong foundation for the country's textile recycling capacity.

All together now: How to make circularity work for all

As the CEO and Founder of SERP Recyclage Maroc, and as the President of FEDERCC, Touria Sbiri Rehouane represents both operational experience and sector-wide advocacy. SERP is one of Morocco's most experienced formal recycling operators with nearly 300 employees and over two decades of activity, while FEDERCC brings together around 20 companies active in recycling and the circular economy sector.

Within the textile circular economy, FEDERCC acts as a bridge between collectors, recyclers, industry and public institutions. With deep knowledge of the realities on the ground, Rehouane believes Morocco's transition toward circularity must be built on inclusion, economic viability and social stability.

Today, she says, a large part of waste collection and sorting activities still relies on informal workers operating without contracts, equipment or social protection. Many have also lost trust after previous attempts at formalization failed to deliver tangible improvements to their lives. For this reason, informal collectors need concrete proof that integration into a formal circular economy system will improve their livelihoods. Without clear long-term incentives, the resulting taxation and compliance costs can appear as an additional burden rather than an opportunity.

Transport and logistics costs further complicate the situation: Rising fuel prices combined with the

relatively low value of many recyclable textile and waste materials continue to place significant pressure on collection activities and recovery chains.

Rehouane's message is clear: Morocco's circular transition – particularly in the textile sector – cannot succeed without protecting and empowering the people who perform the essential work of collection and sorting. If these actors are excluded from the transformation, the entire value chain risks weakening.

This means developing a system that works for everyone through formal employment opportunities, cooperatives and micro-entrepreneurship models, while ensuring fair compensation, safer working conditions and access to appropriate equipment. Circularity must create social and economic value, she says, not deepen existing vulnerabilities.

When it comes to traceability, FEDERCC members are progressively preparing for the new international requirements linked to sustainable sourcing and circular textile value chains. However, Morocco still needs stronger regulatory frameworks, digital infrastructure and industrial traceability systems to align fully with international standards, particularly European requirements.

The priority today is to build the necessary foundations: Structured collection systems, industrial infrastructure, digital traceability tools and inclusive policies capable of integrating informal workers step-by-step into transparent and sustainable supply chains.

With the right balance between regulation, investment and social inclusion, Morocco has the potential to become a regional platform for circular textile investment and a leading African hub for sustainable recycling, industrial circularity and green job-creation.



Part 6. Results, outcomes and early impacts

As the three-year Exchange program closes, its most significant finding is surely its conclusion that circularity in Morocco's textile industry is achievable. Given the centrality of textiles to Morocco's economy, this is a fundamentally important outcome.

In reaching this conclusion, the program also identified critical gaps that require closing; solutions to these are covered in the next section. This, though, was far from the end of its impact. Broadly, some of the Exchange's other major achievements include that it:

- Generated materials that staff in factories can use to ensure chute is properly segregated. Without segregation, a circular economy cannot operate.
- Raised awareness of the realities facing Morocco's invisible informal collectors, whose livelihoods depend on retaining their position in the recycling chain.
- Highlighted infrastructure shortcomings including a lack of spinning facilities and the need for traceability.

The Exchange had effects in other areas too. For Marengtex's Mounir Doukkali, it made stakeholders aware just how important it is to meet EU regulations. Now they know they must do this "or they will be out of business." Also key is that the Exchange sparked connections and conversations among stakeholders who would otherwise never have met – a conclusion reached by almost every other interviewee.

"That's been very important. There were many hard discussions, strong discussions, trying to find solutions ... for the industry, for customs representatives and the government in general," Doukkali says. "Also, about issues between collectors, some of the recyclers, some of the brands. So, it's been very, very fruitful – everyone benefited."

Accelerating Circularity's Karla Magruder agrees that the Exchange brought together participants who had not previously met, allowing them to understand one another's capabilities and constraints, which greatly increased their interest in the program.

"The supply chain has been very engaged," she says. "They want things to work, and they know they're going to have to do this – they're going to have to provide traceability and transparency as the brands ask for it because of EU regulations."

For the EU, say the EU officials, the Exchange created a stakeholder community that was previously absent. As a result, the EU delegation now has a ready-made network of textile producers that it can more easily engage with on legislative developments in the coming years.

Practical outcomes: Waste recycled, knowledge shared

At the heart of the Exchange was the goal to transform perceptions of chute from waste to something with value. To that end, the Accelerating Circularity pilot:

- Exceeded its target: Beyond the pilots, it valorized more than 425 metric tons of chute, with a further 2,400 metric tons committed by participating companies for continued valorization beyond the project lifecycle – far above the pre-pilot target of 1,200 metric tons. These volumes are clear evidence that chute is a valuable resource, provided the mechanisms to achieve that are in place.
- Developed practical tools that factories can use in-house to advance circularity and equip them for high-value recycling, including a Sorting Manual and in-factory posters for workers tasked with segregating chute.
- Brand demand: The pilot showed a significant disconnect on the demand side, with some brands hesitant to integrate recycled materials into new garments even though Morocco has the technical capabilities to provide material to the requisite standard.
- Contamination risks: Some chute arrived contaminated or mislabeled, showing the risks of human error and highlighting the importance of implementing a standardized composition testing routine prior to sending chute for recycling.



The cover of the Sorting Manual (left) and an in-factory poster to raise awareness among workers.

The pilot also delivered several key findings:

- Financial challenges: The shift from low-value chute sales (such as for cement fuel, where chute is bought for around US\$50/ton) to high-value circularity (where chute can earn US\$400/ton) comes with short-term costs. These include operational disruptions, labor to sort chute, and infrastructure to digitally tag and store it.

For its part, the LCA showed using even 20 percent recycled cotton content brings environmental benefits over the use of conventional cotton. It also concluded that a fully localized supply chain using green energy could significantly outperform existing hybrid production models in Morocco.

Additionally, says IFC's Richardson, the Exchange brought increased interest from recyclers based outside Morocco.

"While there are still market constraints to be overcome – chemical recycling investments require strong volume commitments and predictable demand – these companies are keeping an eye on Morocco, indicating that while the country has not yet fully reached the conditions needed for large-scale investments, it is steadily progressing towards them," she says.

Finally, says Richardson, the robust institutional structures that the Exchange program helped to influence or create will remain in place to ensure sustained progress and oversight. Chief among these is the government's interministerial committee that it formed in response to a project report titled *Accelerating textile circularity in Morocco: Benchmarking and regulatory levers*¹⁸.

This high-level platform comprises representatives from key ministries and agencies, including the Ministry of Industry and Trade, the Ministry of Energy Transition and Sustainable Development, the

Customs and Excise Administration, the Ministry of Economy and Finance, the Ministry of Investment, Convergence and Evaluation of Public Policies, and the Moroccan Agency for Investment and Export Development (AMDIE).

"The steering committee is tasked with validating strategic directions and laying the groundwork for necessary regulatory reforms and to provide a coordinated governance mechanism," Richardson says. "They are designed to advance legal reforms from recommendation to implementation, ensuring that progress continues beyond the program's lifespan and that Morocco remains aligned with its strategic objectives."

In parallel, a private sector advisory group has also been established, bringing together representatives from textile manufacturers, including AMITH, ESITH, the General Confederation of Moroccan Enterprises (CGEM) and several textile companies. This platform aims to ensure continuous dialog between public authorities and private operators, while providing practical feedback on operational constraints, market dynamics and the feasibility of proposed reforms.





Part 7. From pilots to policies: Key recommendations to embed textile circularity

The Exchange's work brought a range of recommendations for players in the textile industry, and cover the three overarching areas where Morocco faces constraints in implementing circularity:

- Unstructured waste collection limits recycling.
- Limited working capital restricts aggregator growth.
- ESG certification costs lock SMEs out of higher-value markets.

A detailed list of the recommendations and the steps needed can be found in the report of the Country Advisory and Economics (CAE) unit of IFC and the World Bank.

Recommendations to solve for unstructured waste collection

Morocco's collection of chute is largely informal, fragmented and unsorted by fiber type, which means much of what is collected cannot easily be used by recyclers seeking to operate to international standards. Remedying this requires work across areas including taxation, regulation and digital infrastructure.

Recommendation 1: Reclassify chute under Law 28.00 and adapt ATPA for a circularity focus

Reclassifying chute from "irrecoverable waste without market value" to recognize it as a by-product would unlock investment in fiber-to-fiber recycling infrastructure and lower the country's dependence on imported raw materials.

Additionally, a dedicated HS tariff sub-category code is needed for valorized chute to ease the export of material for recycling and the subsequent re-import of that recycled material.

The ATPA regime needs to be adapted for circularity. A roundtable of government, industry federations and brands should craft a standard agreement under which ownership of chute would be transferred to factories so they could valorize it legally. Underpinning this with mandatory traceability via invoicing and digital flow declarations would help to build the conditions for reviving domestic spinning capacity – the critical missing infrastructure link – and position Morocco as a regional pioneer in circularity.

Recommendation 2: Gradually implement a mandatory sorting program for factories

A mandatory in-factory sorting program for chute, phased in over four years, would see high performers rewarded financially and the weakest penalized – creating a financial incentive for action.

Recommendation 3: Institute a national traceability platform

A national traceability platform for textiles, built around a new traceability standard, would enable environmental transparency, real-time monitoring and traceability of all textile waste flows along with oversight of imports and exports. It would also standardize waste registers across all operators and gradually bring informal collectors into a traceable

system – with traceable flows meeting DPP needs, creating bankable projects and unlocking green financing.

Recommendation to increase working capital access for aggregators

To build an integrated, higher-value textile supply chain, Morocco needs more aggregators – the companies that collect, consolidate and sort the chute. However, a shortage of working capital constrains their growth, with banks reluctant to lend against confirmed orders alone. Implementing an order-linked financing mechanism allowing banks to use confirmed export orders as collateral would support aggregators' cash flow and efforts to grow, which would strengthen integration across the supply chain and value chain.

Recommendations to ease ESG certification costs

ESG certification is becoming increasingly important to buyers as they seek compliance with standards such as GRS, OEKO-TEX and BSCI before they will enter commercial relationships. However, the costs of ESG certification, auditing and renewal are prohibitive for Moroccan SMEs, locking them out of higher-value markets. Expanding Morocco's Green Invest mechanism to cover ESG certification and audit costs would ease compliance costs, accelerate the sector's environmental upgrade and strengthen Morocco's credibility as a destination for large-scale sustainable production.

Other key measures needed for a circular textile market

The Accelerating Circularity pilot concluded that several additional measures were also necessary to help Morocco transition to a circular textile economy. These include:

- Building more efficient aggregation and sorting systems.
- Investing in circular technology – starting with local spinning capabilities.
- Strengthening collaboration across the full supply chain.
- Transitioning away from fossil fuel energy.
- Connecting chute supply with brand demand.
- Boosting training across the value chain.

In conclusion, although Morocco faces significant challenges – with regulatory and infrastructure gaps the most important to resolve – tackling them in a way that is suitable holds enormous opportunity. The goal is far more than improving the management of textile waste; it represents a wholesale shift to ensure chute is treated as a resource to be valued across its lifecycle. Done well, this will go far beyond compliance and position Morocco as a regional leader in circular fashion.





Morocco's journey to textile circularity: What next?

When the Exchange was launched, the key question was whether circular textile production in Morocco was even possible. Three years later, the answer is yes. The pilot trials proved it from a technical perspective; the LCA quantified its environmental value; the collector survey mapped the human infrastructure that underpins it; and the eight workshops and hundreds of conversations that shaped the program revealed an industry that not only understands what is at stake but that is moving in the right direction.

This is no small matter. Morocco's textile sector is deeply embedded in a linear model, shaped by decades of customs arrangements, informal practices and a focus on fast-fashion assembly for European brands. Shifting it toward circularity requires major changes – to laws, policies, infrastructure, commercial relationships and ways of working – and to do so simultaneously. The Exchange has made meaningful progress in all areas, and while it has not solved every problem – that, after all, was not its function – it has identified what is needed and shown the solutions.

Additionally, and as the CPSD 2.0 concludes, a circular approach to textiles would be economically attractive and could attract US\$1.9 billion in private investment and create 30,800 jobs. The Exchange also underscores a broader point: Decarbonization and competitiveness are complementary: Circular production lowers dependence on imported inputs, opens new revenue streams from chute, and creates

new activities across sorting, aggregation, recycling, spinning and testing. That makes it an investment with a return.

The value of a circular approach is one that both the public and private sectors recognize. Youssef Fadil, Director-General of Industry at the Ministry of Industry and Commerce (MIC), says the ministry is “fully and resolutely committed to driving the textile-clothing sector forward around the principles of circularity, which it regards as the foundation of a deep and lasting industrial transformation.”

This approach would see the textile sector benefit from a structured ecosystem for the collection and recovery of textile waste, which Fadil notes is the “cornerstone of a national recycling industry capable of initiating concrete investments in shredding, spinning from recycled fibers and non-wovens, thereby creating the conditions necessary for the development of technical textiles, which also must now become the sector's priority direction.”

“To remove the barriers to this momentum, reforming the regulatory texts governing textile waste is both a necessary and a priority undertaking to provide the sector with a legal framework that is fit for purpose, incentive-driven and aligned with the industrial ambitions being pursued,” Fadil says.

At the same time, he adds, the MIC intends to support the development of traceability across the value chain ahead of EU regulatory requirements, which would give Morocco's textile sector a structural advantage – and which, as he points

out, is a trajectory that matches the sector's strategic pillars: Access to new markets through competitiveness, moving upmarket and diversifying the product offering.

AMITH President Anass El Ansari says the industry grasps the importance of textile circularity as a strategic commitment.

"Against a backdrop of tightening European requirements, AMITH is engaging in the IFC-led textile circularity program as a lever for competitive repositioning," he says. "Beyond regulatory compliance, AMITH sees in the emergence of a national recycling ecosystem a structuring industrial opportunity: Valorizing material flows, reintegrating secondary resources into production and building a fully-fledged circular value chain."

By championing the Exchange's agenda, El Ansari adds, the industry body is positioning Morocco "as a credible and forward-looking industrial partner for European buyers committed to their own sustainability transition."

Amid a sea of positives, though, genuine challenges remain. For a start, while regulatory reform is urgently needed, it has yet to achieve the pace required. Additionally, more brands need to commit to buying recycled content. Also needed is a mix of public and blended finance to seed infrastructure, traceability systems, certification capacity and working capital guarantees that make everything else possible. Once this basic ecosystem is in place, private investment is far likelier to flow. The Exchange also highlighted the central role played

by informal collectors, who underpin the bulk of the collection system, yet who are largely invisible, undercompensated and unprotected.

None of these issues will resolve themselves, but it is notable that the requisite architecture is in place. The Inter-Ministerial Committee and the Technical Monitoring Committee, two bodies established in response to the Exchange's work, represent a commitment to carrying forward the reform agenda. Then there is the training infrastructure being rolled out via ESITH and AMITH to educate future trainers to help factories improve how they sort, track and valorize chute, and which is embedding circular practices in factories. Linked to this are the sorting standards and commercial pilots that the Exchange generated.

And while there is much more to do, that is to be expected. After all, a circular economy for textiles is a destination; the Exchange has helped to chart a course for the multitude of stakeholders who must contribute their part.

For Morocco, the opportunities are significant: The country possesses the industrial capacity, geographic advantage and political relationship with Europe to become a leader in sustainable textile production. By aligning national policy, boosting the engagement of brands and scaling its recycling infrastructure, the textile sector can move beyond downcycling to secure long-term market access and climate resilience. Looking ahead, then, the main task must be to build upon the foundations that have been laid.

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Closing the loop: Scaling circularity in Morocco's textile industry

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