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Funded by the European Union

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

Circular textile value chains

Business case: Building an ecosystem for recycling pre-consumer textile waste in Egypt

The challenge

In Egypt, approximately half of the 212,000 tons of post-industrial textile waste generated annually by the textile and garment sector comprises cotton or cotton-rich materials[1]. At the same time, there is a shortage of waste available for recycling, particularly textile waste for spinning. In 2022, Egypt had to import 3,200 tons of textile waste and recycled fiber, 1,200 tons of rags, 1,800 tons of cotton waste (including recycled fiber), and around 150 tons of other textile waste[2].

Proper identification, segregation, storage, and collection of textile waste are vital for its transformation into a valuable resource and for ensuring a smooth flow through the recycling value chain. Segregating textile waste at its source enhances its quality and value, potentially generating revenue through the sale of recyclable waste at higher prices.

In Egypt, the efficient valorization of the available post-industrial waste streams is frequently impeded by ineffective collection and sorting practices at textile and garment companies, the primary sources of such waste. These limitations restrict the volume of waste available for recycling.

Efficiently segregated waste can be directly sold by textile and garment producers to recyclers through a shorter, more cost-effective route, avoiding duplicating efforts and providing greater market transparency and traceability. In addition, waste handlers can benefit from segregation at source as they can reduce their internal costs and focus more on waste aggregation from multiple sources and the provision of services to recyclers.

The scope of the pilot project

In 2020, the United Nations Industrial Development Organization (UNIDO) initiated the SwitchMed textile initiative in Egypt in close collaboration with the Ministry of Trade and Industry and the Ministry of Environment as part of the EU-funded SwitchMed / MED TEST III project. This initiative aimed to promote circular and more sustainable value chains in the textile sector. UNIDO analyzed different scenarios to support the development of circular value chains, specifically for post-industrial and pre-consumer textile waste in Egypt.

To support in improving the availability and quality of pre-consumer textile waste, UNIDO launched in 2022, a pilot project to enhance waste management by focusing on two key strategies:

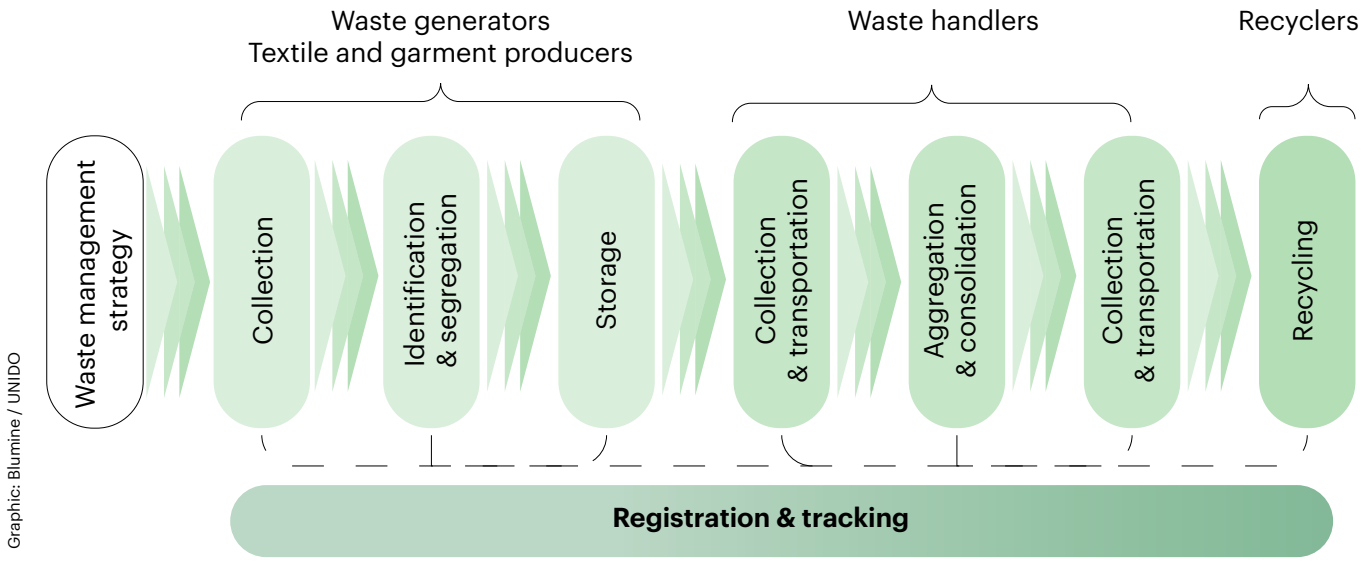
- Improving waste collection, sorting, and segregation at the source – directly within textile and clothing companies' premises, including training companies in efficient waste management methods and protocols.
- Streamlining waste handling within the recycling value chain by encouraging direct business relations between waste-producing companies and recycling firms.

The pilot project engaged on one side 11 textile and garment producers as producing post-industrial textile waste and on the other side three recycling companies interested in sourcing textile waste on the domestic market.

Training textile and garment producers to introduce an effective waste management protocol, including segregation at source, and the use of a digital platform for waste tracking.

1 Textile waste mapping in Egypt, Published by UNIDO 2022

2 UN Comtrade data https://comtradeplus.un.org/TradeFlow retrieved: 3 May 2024



Graphic: Blumine / UNIDO

Following an initial audit of the waste management procedures, a series of training activities were conducted at the textile and garment producers by a pool of international experts. Operators learned how to segregate, classify and store textile waste by colour and fiber composition. A manual on post-industrial and pre-consumer waste segregation, developed based on pilot experience and training, serves as an educational resource. The manual offers guidance on waste handling techniques, safety procedures, and environmental regulations, fostering awareness about sustainability.

Participating companies, including recyclers, received training on how to use a digital waste tracking platform. Participants were also granted free accounts on a leading platform for textile waste tracking to explore its functionalities. Many of the engaged companies effectively utilized the platform, providing valuable reporting data for the pilot.

The adoption of a digital platform aims to enhance waste management efficiency, accountability, and traceability. It facilitates detailed reporting and information sharing with waste buyers, handlers, and recyclers. Moreover, it streamlines storage, shipment, and delivery processes, while enabling closed-loop management of specific brand waste, ensuring accountability throughout the value chain.

Facilitating matchmaking between textile and garment producers, recyclers, and the trial of waste management protocols.

Each of the 11 participating textile and garment companies was introduced to the three recycling firms to provide technical specifications of the type of waste required for their processes. These recyclers faced a shortage of high-quality recycled fiber and, in some cases, had to resort to importing this waste.

Following the matchmaking process, two textile and garment producers successfully entered into a business agreements within the pilot project, initiating direct sales of segregated waste to the recyclers.

While some companies chose to continue working with their existing waste handlers, the implementation of the new waste management protocol led to increased demand for their waste, enabling an increased amount of waste directed toward recycling. Notably, some companies experienced significant price increases for their waste, with spikes of up to 300% recorded.

Thanks to the proper segregation introduced during the pilot project, from June 2023 to April 2024 a total of 2,400 tons of textile waste, which correspond to 1% of the 212,000 tons of the total post-industrial textile waste generated in Egypt, have been valorized.

Feasibility analysis for a textile waste management quality label

Following the pilot's positive experience, the feasibility of introducing a national Waste Management Quality Label (WMQL) for companies that responsibly manage post-industrial textile waste was analyzed.

The primary objective of a WMQL is to stimulate a virtuous circular model, whereas all actors within the value chain can receive direct and/or indirect benefits from an effective management of post-industrial textile waste. Companies adopting a WMQL will be encouraged to implement waste management systems focused on efficient collection, segregation, and handling. These systems encompass all entities involved in waste generation and management, such as garment makers, waste handlers and recyclers, but will also address the need of fashion brand to mainstream best practices along their supply chain in line.

Establishing a WMQL would foster trust and equity by standardizing processes and enhancing traceability and transparency. It addresses information gaps and promotes fair pricing, creating a triple-win scenario. This solution benefits recycling companies, Egypt's textile sector, and brands pursuing circular sourcing in Egypt. Furthermore, it substantiates their commitment to circular business practices.

> "When we joined the SwitchMed programme we received technical training to enable segregation from the source. Today, we segregate the waste by customer, fabric type, colours... The value of joining this programme is that we are now able to sell our waste for around three times more than what we used to sell in the past."
>
> Mr. Ahmed Ibrahim
> Country Supply Chain Director
> Jade Textile Group

For more information, please contact:

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Funded by the European Union (EU), with co-funding from the Government of Italy and the Government of Catalonia, the SwitchMed Programme is implemented under the lead of the United Nations Industrial Development Organization (UNIDO). Under the MED TEST III project, pathways for industries in the Southern Mediterranean to become more resource-efficient and generate savings for improved competitiveness and environmental performance.

This publication was produced with the financial support of the EU and within the framework of the EU-funded SwitchMed programme. Its contents are the sole responsibility of UNIDO and do not necessarily reflect the views of the EU.

SwitchMed is co-funded by:

Generalitat de Catalunya
Departament d'Acció Climàtica, Alimentació i Agenda Rural

Agència de Residus de Catalunya

Italian Development Cooperation
Ministry of Foreign Affairs and International Cooperation