

Circular Economy and Textile & Fashion Industry

Realizing Circular Solutions towards Achieving SDGs and Carbon Neutrality in Asia Pacific

05.03.2025, Jaipur

Dr. Pankaj Kumar
UNIDO

12th Regional 3R and Circular Economy Forum in Asia-Pacific :
3-5th March 2025, Jaipur

Synergy Between Circular Economy and SDGs

The **Sustainable Development Goals (SDGs)** and the concept of a **circular economy** are basically linked, as both aim to promote sustainability, resource efficiency, and environmental protection while fostering economic growth and social well-being.



Circular textile value chain

- UNIDO promoting circular economy initiatives in the textile sector, with several successful projects around the world.
- Projects focused on promoting circular economy practices, such as the "Industrial policies for a Circular Economy project."

*One of the flagship UNIDO-led projects with a focus on enabling circular economy solutions is the **SWITCH to Circular Economy Value Chains (SWITCH2CE) project.***

- SWITCH2CE implements pilot projects in the countries:, **e.g Morocco, Egypt, Tunisia and also in Bangladesh.**

Textile Fiber Recycling for Industrial Symbiosis in “Morocco”

- Textile and garment industry generates **83,000 tons** of textile waste annually, of which synthetic and synthetic blends make up 1/3 with other fibers, unsuitable for efficient transformation in textile-to-textile recycling.
- Now, In 2022, UNIDO initiated a pilot project to demonstrate a business model for valorizing “lower-grade” textile fibers from the post-industrial waste stream of Morocco’s textile and garment sector.
- These fibers cannot be recycled back into textiles but are still suitable feedstock for producing “nonwoven” products, such as insulation material.



For more information, please contact:



United Nations Industrial Development Organization
 Ms. Ulvihar Müge Dolun
 Division of Circular Economy and Environmental Protection
 Circular Economy and Resource Efficiency Unit
 Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
 E-mail: u.dolun@unido.org Web: www.unido.org

Visit [SwitchMed.eu](https://www.switchmed.eu)



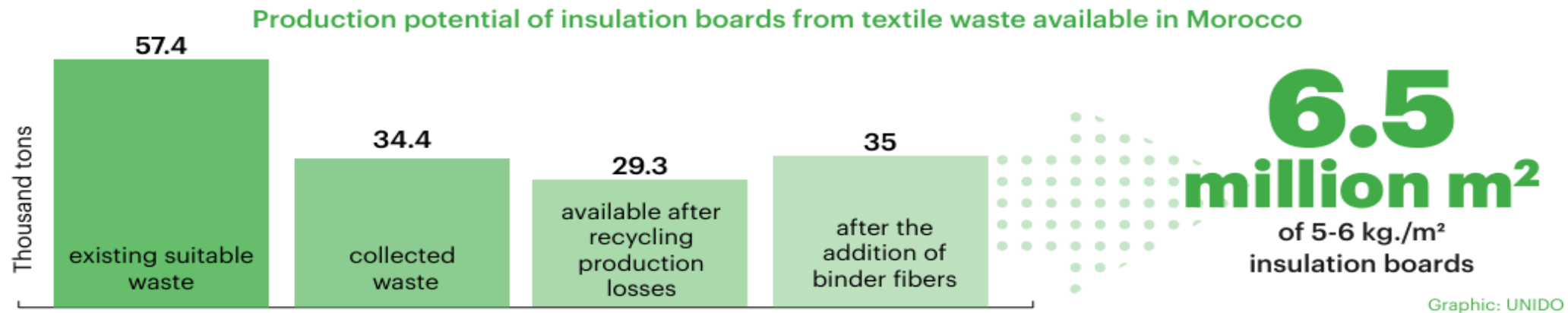
Funded by the European Union (EU), with co-funding from the Government of Italy and the Government of Catalonia, the SwitchMed Programme is implemented under the lead of the United Nations Industrial Development Organization (UNIDO). Under the MED TEST III project, pathways for industries in the Southern 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:



SwitchMed Programme

Potential of recycled textiles as insulation materials in textile recycling and nonwoven technologies



Novimat, a Moroccan company already active in the construction material sector, collaborated with UNIDO on this project, utilizing their **nonwoven production** capacity for product diversification.

Pilot project in numbers



- In 2022, Morocco imported **15,000 tons of conventional insulation materials** (polystyrene and mineral wool) valued at Dirham 256 million (€23 million). This amount is estimated to correspond to 2.5 million m², which covers most of the current local demand.

This pilot project demonstrated the feasibility of transforming textile waste into insulation boards that align with Morocco's economic and environmental goals.

Building an ecosystem for recycling pre-consumer textile waste in “Egypt”

- 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.
- In 2020, 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.



For more information, please contact:



United Nations Industrial Development Organization
 Ms. Ulterior Magda Dolin
 Division of Circular Economy and Environmental Protection
 Circular Economy and Resource Efficiency Unit
 Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
 Email: u.dolin@unido.org Web: www.unido.org

Visit SwitchMed.eu



Funded for the framework of the EU with co-funding from 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, partners 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.

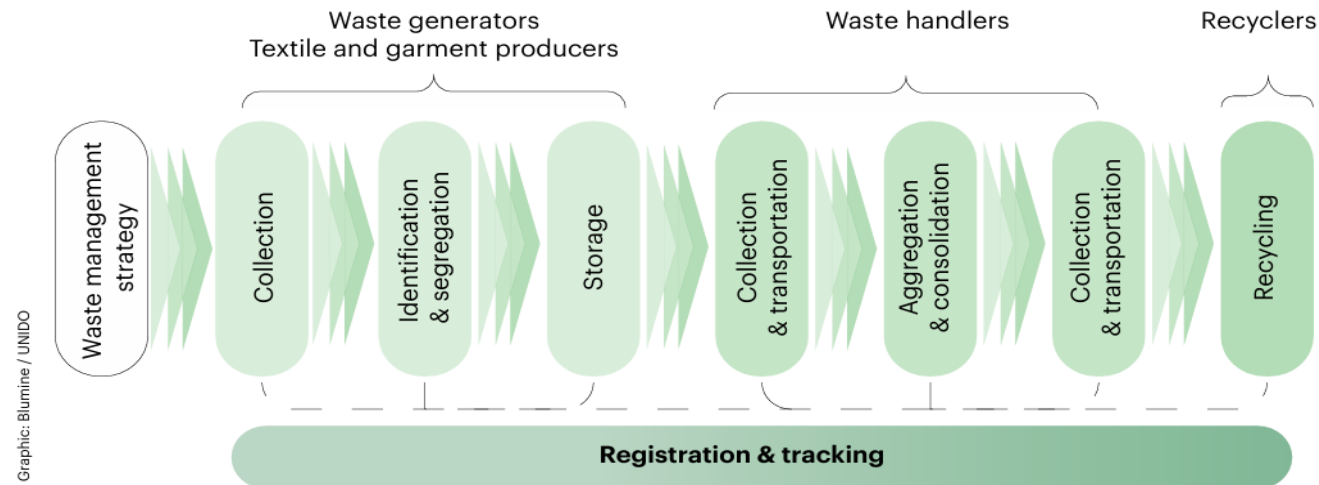
SwitchMed is co-funded by:



- 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.
- 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.

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

“

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

”

Developing a local specialized recycling value chain for valorizing higher and lower quality denim cutting waste in “Tunisia”

- Beginning in 2019, UNIDO, under SwitchMed Programme, demonstrated Circular economy practices, improve environmental performance and competitive advantage in Tunisia’s textile value chain.
- UNIDO initiated in 2022 a pilot project to demonstrate a business model for valorizing *higher quality fractions of pre-consumer textile cutting waste* into a closed loop fashion cycle and the lower quality fractions to other end uses.
- The pilot project involved a collaboration with DIESEL, a brand of the international OTB Group with a worldwide sales figure of **€1,900 million**.





Demonstrating the business case of higher quality textile waste recycling

- A first batch of **7.5 tons** of segregated *denim* waste was sent for processing to the local integrated recycling, spinning and weaving facility, which reprocessed the waste into **46,000 meters of new denim fabric** with at least a 20% ratio of recycled cotton.
- By end of 2024, the total waste collected and re cycled by DIESEL in the pilot, generate more than **88,000 pairs of new denim jeans with at least 20% recycled content**, showing an increase over the last two season compared to the Fall/Winter 2023.

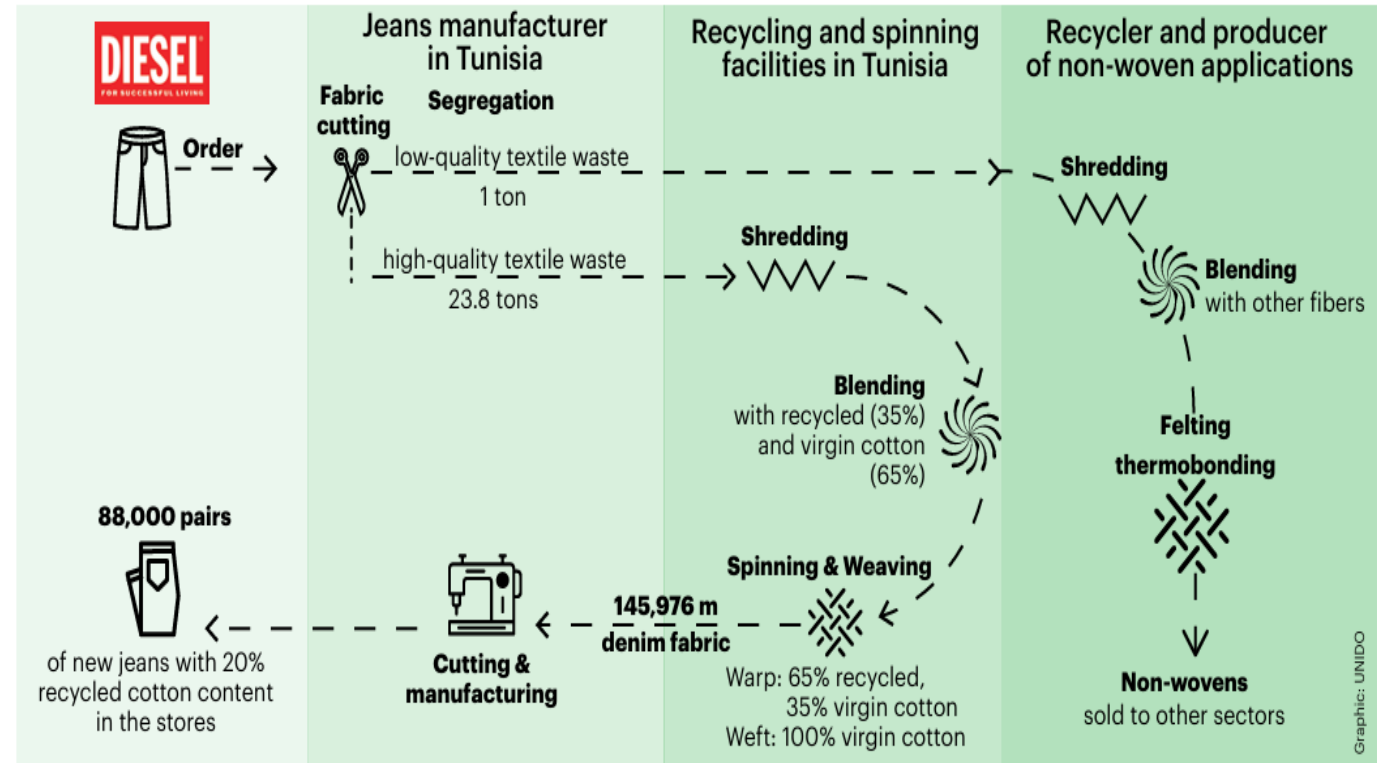
“

Here at Diesel, we foster creative ways to reuse or recycle products and waste across our value chain and we believe that production scraps should be treated as a resource and a way to create innovation with our own product. A more responsible use of raw materials can be achieved through circular business models throughout the entire supply chain, with the essential involvement of suppliers.

Andrea Rosso
 Diesel Sustainability Ambassador

”

Pilot project in numbers

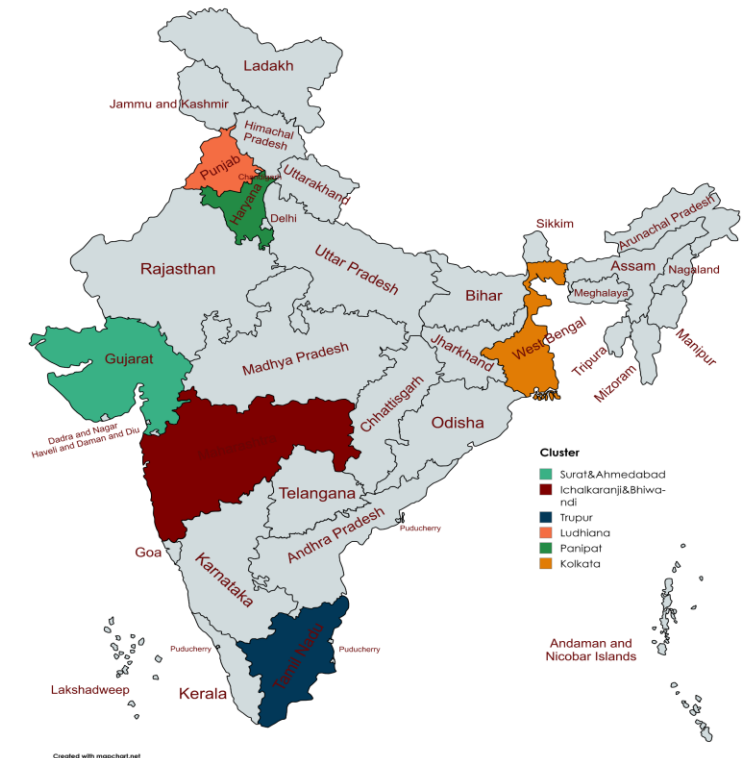


The business model experimented in the pilot has managed to save up to 35.4 tons of CO2-eq. by utilizing high-quality recycled textile fibres instead of virgin materials.

Eliminating Hazardous Chemicals from textile fashion supply chain in India

Objective : To eliminate hazardous chemicals from the textile fashion supply chain in India while promoting sustainable practices.

Core Indicators	Targets (Project period 2025-31)
Chemicals	10,500 tons (direct), 21,000 tons (indirect) (metric ton of toxic chemicals reduced) ; Reduce 12 g TEQ
Energy	mitigate 147,000 tCO2e directly and 294,000 tCO2e indirectly
Gender	40,000 (60% women) (direct), 80,000 (60% women) indirect.



UNIDO India Child Project (GEF 8 IP) : Six Components

C1: Design & Business Models	Designing innovative, regenerative products and utilizing circular business models (green procurement policy, standard & certification for circular design, tax incentive models etc)
C2: Innovative materials	Substituting non-renewable materials in products with sustainably sourced, innovative, responsibly managed and recycled (and recyclable) materials
C3: Cleaner production	Shifting to production and manufacturing processes which require less water, energy (EE & Solar) and chemicals and produce less pollution and waste
C4: Sustainable consumption	Creating markets for innovative products and behavior change away from unnecessary consumption and toward increased longevity
C5: Postuse 9Rs	Implementing a reverse logistics process which moves products and materials back to the manufacturers to reuse or recycle
C6: Programme KM	Global child project

9Rs of Circular Economy : Recycle, Repurpose, Remanufacture, Refurbish, Repair, Reuse, Reduce, Rethink, Refuse

Promoting Circular Economy in the Textile Industry: Key Strategies and Benefits

- Recycling, Upcycling & Extended Producer Responsibility
- Sustainable Materials & Chemical Reduction
- Post-Use Collection & Implementation of the 9Rs
- Developing Standards & Raising Awareness
- Stakeholder Collaboration & Incentives
- Textile Waste Management Infrastructure

These strategies aim to significantly reduce environmental impacts while enhancing resource efficiency and promoting sustainability across the textile value chain.



Thank you!

UNIDO, UN House, New Delhi
p.kumar@unido.org

