

A Multi-stakeholder Event:

*Repositioning Indian textile recycling sector
into global context*

An Indo-Swedish initiative

9th February 2023 - 10 am onwards.

Venue: IIT Delhi, Department of Textile & Fiber Engineering,
Hauz Khas, New Delhi, India and Online (Hybrid)

This event is organized and supported by:

R&D partners & organizers: Swedish School of Textiles, University of Borås, Sweden &
Department of Textile & Fiber Engineering, Delhi, India.

Supporting R&D partners: Linköping University, Sweden &
National Institute of Fashion Technology, Kangra, India.

Knowledge exchange and valorisation partner: Wazir Advisors, India. Industry support
partner: PHD Chamber of Commerce & Industries, India.



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The Kamprad Family Foundation for Entrepreneurship, Research & Charity

FORMAS

Event contacts:

Swedish side: Professor Rudrajeet Pal, rudrajeet.pal@hb.se

Indian side: Dr. Manoj Kumar Paras, manoj.paras@nift.ac.in

Background

Globally less than 1% of the fiber produced for clothing are being recycled back into new fibers, i.e. fiber-to-fiber (F2F) recycling, and ~12% finds low-value cascaded use in other industrial sectors (Ellen McArthur Foundation 2017), e.g. as filling materials, rags and wipers. This is consistent with the EU-27 textile waste volume estimates published recently by McKinsey (2022) study. The largest part of the Europe's recycled textiles "waste" (0.42 million tons in 2019) is downcycled for such low-value uses. A relatively small part is successfully recycled for high-value applications, e.g. textile fibres for garments or other high-end uses, e.g. in automotive. Interestingly, India is one of the largest recipients of global post-consumer textiles (approx. 7793 ktons, or 8.5% of global textile waste) (Fashion for Good 2022), with value of more than €100 million (Pal et al, 2019). India houses large sorting and grading facilities in the special economic zone (SEZ) of Kandla, in the west coast, employing up to 3000 workers to sort used clothing (Brooks, 2015; Pal et al, 2019); and also a largest hub for mechanical recycling of textiles in Panipat, North of India with over 900 recycling units and 4 million informal workers processing textile waste (Fashion for Good 2022)3.

In the recent years, India has become a major recycling hub with multi-stakeholder investment projects currently run by Fashion for Good and Reverse Resources, with giant textile players taking the lead (e.g. Arvind, Welspun India, Birla Cellulose), and supported by international players like PVH, Adidas, Tesco, Target, Levi's. This opens up opportunities for developing novel value chains and business models for valorizing textile waste intercontinentally. Additionally, with growing purchasing power India is also a major producer of post-consumer textile waste domestically.

EXISTING SYSTEM-WIDE CHALLENGES IN TEXTILE F2F RECYCLING VALUE CHAINS

In spite of the abovementioned recent advances in textile F2F recycling solutions, traditionally in mechanical recycling and more recently in chemical recycling, the current valorization potential of textile F2F recycling is constrained by 3 core system-wide gaps/challenges, that alone technological advancements and policy intermediations cannot solve. Via nearly 10 years of R&D projects conducted by a leading team of Indo-Swedish scientists with multi-disciplinary expertise on: textile recycling technology; circular logistics, supply chains, & business models; and decision science, we have pinpointed 3 crucial gaps/challenges that need to be addressed for operationalizing an effective textile F2F recycling value chain.

<https://ellenmacarthurfoundation.org/a-new-textiles-economy>

<https://www.mckinsey.com/industries/retail/our-insights/scaling-textile-recycling-in-europe-turning-waste-into-value>

<https://reports.fashionforgood.com/wp-content/uploads/2022/07/Sorting-for-Circularity-Wealth-in-Waste.pdf>

<https://doi.org/10.1108/SCM-12-2018-0422>

<http://dx.doi.org/10.13140/RG.2.1.3268.0161>

Objectives

Our event will address 3 specific gaps:

GAP#1

Demand-supply mismatch along processes

In current textile recycling supply chains incoming flow of (non-standardised) materials are often a trade-off to requirements from end-market. Even though it is crucial to attain economies of scale, this can reduce the homogeneity of the sorted textile fraction coming as a feedstock to recycling, thus affecting recycling output quality. A clear need is to enhance customer value proposition and market potential for end use applications.

GAP#2

Non-standardized recycling feedstock

Textile recycling today is characterized by heterogeneity in feedstock due to variations in the incoming material and their quality for meeting the market needs. Sorted textiles are segregated based on materials/colours/shades and no specific industry-standard exist. A clear need to balance the variety and attain good recycled output quality, and standardize the processes.

GAP#3

Lack of holistic recycling value network design for sustainability

Textile recycling networks include various process technologies and disposition routes, location sites, capacities and demands. With the current changes in technologies and policy landscape, new players are emerging which poses new requirements on requested materials and compositions, and the product range, and generates new material flows and routes. A clear need is to explore the future viability and sustainability in such an emerging landscape.

What is this event about, and will valorize?

The purpose of the event is to enable and initiate a multi-stakeholder group comprising of Quadruple helix partners from Science | Industry | Regulatory | Society to create science-based targets and approaches to address the following aspects:

- Valorize Europe-India cross-border recycling value chain with a particular focus on mechanical recycling to match supply and market.
- Highlight the scope & innovations in this context, along with necessary intermediations required from governmental and regulatory bodies and institutions.
- Promote the establishment and adoption of multi-stakeholder, cross-value-chain, inclusive and responsive working mechanisms to develop system solutions and to build public-private capacity.



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PROGRAM* - 9TH February 2023

1020 – 1140 IST Inaugural Session Theme: Multi-stakeholder Matchmaking on Repositioning Indian textile recycling sector into global context		
1000 IST	Registration & networking tea	
TIME	PANELISTS	ACTIVITY, MODE
1020-1025 IST	Mr. Varun Vaid, Business Director, Wazir Advisors Pvt. Ltd, India. LinkedIn	Setting up of event by Moderator, in-person
1025-1035 IST	Prof. R. Alagirusamy, Head, Department of Textile and Fibre Engineering, Indian Institute of Technology, Delhi, India. Profile	Welcome Address, in-person
1035-1040 IST	Prof. Dr. Rudrajeet Pal, Professor, The Swedish School of Textiles, University of Borås, Sweden. LinkedIn Profile	Event Theme Address, in-person
1040-1045 IST	Mr. Pierrick Fillon-Ashida, Head, R&I section, EU Delegation to India. LinkedIn	Special Address, online
1045-1055 IST	Ms. Leena Kukreja, Senior Advisor, Science & Innovation, Embassy of Sweden. LinkedIn	Special Address, physical
1055-1105 IST	Dr. Søren Tranberg Hansen, Mission-Science and Technology, Consulate General of Denmark. LinkedIn	Special Address, online
1105-1115 IST	Dr. Naresh Tyagi, Chief sustainability officer, Aditya Birla Fashion and Retail Group, India. LinkedIn	Industry Representative Address, tbd
1115-1125 IST	Mr. Madhu Sudhan Bhageria, Chair – PHDCCI Expert Committee on Textiles and CMD, Filatex India Ltd., India. Company	Industry Representative Address, in-person
1125-1135 IST	Ms. Prajakta Verma, Joint Secretary, Ministry of Textiles, Government of India. Wikipedia	Special Address, online
1135-1140 IST	Mr. Varun Vaid, Business Director, Wazir Advisors Pvt. Ltd, India. LinkedIn	Summing up: Needs Analysis, vote of thanks, in-person
<p style="text-align: center;">1145 – 1300 IST</p> <p style="text-align: center;">Session 1 targeting (GAP#1), Theme: Matching recycling supply chain and market opportunities</p> <ul style="list-style-type: none"> • Understanding green market space and competition with other recycling alternatives • Today's and tomorrow's product portfolios • Consumer needs and perception, market acceptance • Recycling business models 		

TIME	PANELISTS	ACTIVITY, MODE
1145-1150 IST	Dr. Manoj Kumar Paras, NIFT Kangra, India. LinkedIn	Setting up of Theme by Moderator, in-person
1150-1155 IST	Mr. Rohan Batra, Chief Manager - Sustainability, Marks and Spencer Reliance India Pvt. Limited, India. LinkedIn	Prologue 1, in-person
1155-1200 IST	Mr. Rohit Datta, Director, Chemsynth Innovations & Imagine Fibres Pvt Ltd, India. Company	Prologue 2, in-person
1200-1205 IST	Ms. Khushbu Maheshwari, Innovation Analyst Asia, Fashion for Good, India. LinkedIn	Prologue 3, in-person
1205-1210 IST	Mr. Ranjit Sasi, Business Development Manager, Reverse Resources, India. LinkedIn	Prologue 4, online
1210-1215 IST	Ms. Marielle Bostrom, Head of Regional Sourcing - Ralph Lauren, South Asia. LinkedIn	Prologue 5, online
1215-1220 IST	Ms. Maria Svanehed, Sourcing Manager, Ellos Group, Sweden. LinkedIn	Prologue 6, online
1220-1250 IST	MODERATED PANEL DISCUSSION	Q&A-based, hybrid
1250-1300 IST	Dr. Manoj Kumar Paras, NIFT Kangra, India. LinkedIn	Summing up: Needs Analysis (All), vote of thanks (Moderator), hybrid
1300-1400 IST	Networking Lunch Break	
1400 – 1515 IST		
Session 2 targeting (GAP#2), Theme: Addressing industrial recycling process through novel technologies and standards		
<ul style="list-style-type: none"> Enhancing mechanical recycling feedstock quality Novel mechanical recycling technologies Global Recycling Standards and Certification Multi-lateral and harmonized Policy requirements 		
TIME	PANELISTS	ACTIVITY, MODE
1400-1405 IST	Prof. Dr. Abhijit Majumdar, Chair Professor, Indian Institute of Technology (IIT) Delhi, India. LinkedIn	Setting up of Theme by Moderator, in-person
1405-1410 IST	Mr. Archish Kansal, Founder Respun & Business Developer, Kay Gee Enterprises, India. LinkedIn Company	Prologue 1, in-person
1410-1415 IST	Mr. Vikash Garg, Director, GSM Cotspin, India. Company	Prologue 2, in-person
1415-1420 IST	Mr. Sumeet Nath, Director, Raj Overseas - India Office. LinkedIn Company	Prologue 3, in-person
1420-1425 IST	Mr. Aditya Nath, Director, General Commerce Ltd., India. LinkedIn	Prologue 4, in-person
1425-1430 IST	Mr. Jukka Pesola, Board Member, Rester Oy and Pure Waste Textiles, Finland. LinkedIn Company Company	Prologue 5, online
1430-1435 IST	Mr. Justin Kuhn, RWTH University, Germany. LinkedIn	Prologue 6, online
1435-1505 IST	MODERATED PANEL DISCUSSION	Q&A-based, hybrid
1505-1515 IST	Prof. Dr. Abhijit Majumdar, Chair Professor, Indian Institute of Technology (IIT) Delhi, India. LinkedIn	Summing up: Needs Analysis (All), vote of thanks (Moderator), hybrid
1515 – 1545 IST	Networking Tea Break	
1545 – 1700 IST		
Session 3 targeting (GAP#3), Theme: Holistic recycling value network through design for sustainability and multi-stakeholder engagement		
<ul style="list-style-type: none"> Sustainable fiber-to-fiber recycling value chains 		

- Recycled material sourcing, innovations and scale-up
- Environmental and social issues
- Multi-stakeholder engagement and circular recycling ecosystem development

TIME	PANELISTS	ACTIVITY, MODE
1545-1550 IST	Prof. Dr. Erik Sandberg, Professor, Linköping University, Sweden. LinkedIn Profile	Setting up of Theme by Moderator, in-person
1550-1555 IST	Mr. Kinchit Bihani, Delegation of the European Union to India. LinkedIn	Prologue 1, in-person
1555-1600 IST	Dr. Naresh Tyagi, Chief sustainability officer, Aditya Birla Fashion and Retail Group, India. LinkedIn	Prologue 2, tbd
1600-1605 IST	Mr. Pablo Jimenez, Supply Chain - Group Logistics, H&M Group, Sweden. LinkedIn	Prologue 3, online
1605-1610 IST	Dr. Heikki Mattila, Emeritus Professor, Consultant to Work Bank Group, Finland. Profile	Prologue 4, online
1610-1615 IST	Ms. Nicole Kösegi, Business Development Manager, Boer Group Recycling Solutions, Netherlands. LinkedIn	Prologue 5, online
1615-1620 IST	Ms. Anandita Prakash, Innovation Centre Denmark, Consulate General of Denmark in Bangalore, India. LinkedIn	Prologue 6, online
1620-1650 IST	MODERATED PANEL DISCUSSION	Q&A-based, hybrid
1650-1700 IST	Prof. Dr. Erik Sandberg, Professor, Linköping University, Sweden. LinkedIn Profile	Summing up: Needs Analysis (All), vote of thanks (Moderator), hybrid
1700-1710 IST	Prof. Dr. Rudrajeet Pal, Professor, The Swedish School of Textiles, University of Borås, Sweden. LinkedIn Profile	Prescribing ways forward, in-person

*Tentative