InTex India

UN environment programme



CLUSTER PROFILING REPORT

Developed under the framework of the InTex India project

KARUR

With the kind financial contribution of

Ministry of Environment and Gender Equality of Denmark

National Implementing Partner

CRB Centre for Responsible Business
Enabling Change for Impact

In collaboration with

CEE
Centre for Environment Education

Supported by

KEA
THE KARUR TEXTILE MANUFACTURER EXPORTERS ASSOCIATION

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Disclaimer

This report has been prepared to support knowledge sharing, policy dialogue, and informed decision-making on sustainability and circularity in the Karur textile cluster. The findings, analysis, and recommendations are based on secondary research, information available at the time of publication, and stakeholder consultations and expert inputs.

While every effort has been made to ensure the accuracy of the information presented, the authors and contributing organisations do not guarantee its completeness or absolute accuracy. Data, policies, and market conditions may change over time and should be interpreted in the context of the publication date.

The views expressed are those of the authors and do not necessarily reflect the views of the United Nations Environment Programme (UNEP), the Government of India, the Ministry of Textiles of India, or other organisations consulted during the preparation of this report. The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory or city or area or its authorities, or concerning the delimitation of its frontiers or boundaries.

References to specific companies, products, technologies, organisations, or case studies are provided for illustrative purposes only and do not constitute endorsement or recommendation by the United Nations Environment Programme or the authors. Users are encouraged to independently verify information before making policy, investment, or commercial decisions based on this publication. Some cluster-level observations and qualitative insights, derived from stakeholder consultations and field interactions conducted by the Centre for Responsible Business (CRB), are intended as indicative perspectives and should not be considered statistically representative findings.

Acknowledgement

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The authors express their sincere gratitude to the Karur Textile Manufacturers Exporters Association (KTMEA) for providing valuable insights through interviews and for their oversight in the development of this report.

About the UNEP InTex Programme and Textile Initiative

This report has been developed as part of the United Nations Environment Programme (UNEP) InTex Programme, which focuses on advancing circularity in the textile value chain through life cycle approaches and circular business models.

The InTex (Innovative Business Practices and Economic Models in the Textile Value Chain) Programme, part of the UNEP Textile Initiative, works with governments and SMEs in countries where textiles are a key economic driver, encouraging a shift from a linear take, make and dispose process to a more sustainable, circular model. The programme does this by supporting national-level policy changes that enable a shift towards circularity. It also helps companies understand the impact of the resources they are using, spurring them to optimize production processes, reduce environmental harm, and change the way they do business.

In India, the geographic focus of the InTex Programme are the textile clusters of Surat and Karur (along with adjoining clusters including Salem, Dindigul, Perundurai) for technical assistance and capacity building on lifecycle approaches.

This Karur Cluster Profiling Report has been developed under the framework of the InTex Programme to support evidence-based decision-making, identify opportunities for sustainability and circularity, and inform future interventions in the cluster.

The authors would like to gratefully acknowledge the financial support of the Government of Denmark, whose contribution has enabled the implementation of the InTex Programme in India and the development of this report.

Acronyms & Abbreviations

ATFD	Agitated Thin Film Dryer
BCI	Better Cotton Initiative
CAD	Computer-Aided Design
CAM	Computer-Aided Manufacturing
CETP	Common Effluent Treatment Plant
CFC	Common Facility Centre
CII	Confederation of Indian Industry
CRB	Centre for Responsible Business
DBT	Direct Benefit Transfer
DEAP	District Export Action Plan
DIC	District Industries Centre
DIET	District Institute of Education and Training
ECGC	Export Credit Guarantee Corporation of India
ESG	Environmental, Social and Governance
ETP	Effluent Treatment Plant
FDI	Foreign Direct Investment
GOTS	Global Organic Textile Standard
HEPC	Handloom Export Promotion Council
IETP	Integrated Effluent Treatment Plant
IIT	Indian Institute of Technology
IIM	Indian Institute of Management
KTMEA	Karur Textile Manufacturers Exporters Association
KVB	Karur Vysya Bank
LCA	Life Cycle Assessment
MSME	Micro, Small and Medium Enterprise
NBFC	Non-Banking Financial Company
NITRA	Northern India Textile Research Association
NTTM	National Technical Textiles Mission
OEKO-TEX	International Textile and Leather Ecology Certification System
PMU	Project Management Unit
PEF	Product Environment Footprint
R&D	Research and Development
RO	Reverse Osmosis
RSL	Restricted Substances List
SASMIRA	Synthetic and Art Silk Mills' Research Association
SBI	State Bank of India
SIDBI	Small Industries Development Bank of India
SIPCOT	State Industries Promotion Corporation of Tamil Nadu
SITRA	South India Textile Research Association

Abbreviation	Full Form
SVPISTM	Sardar Vallabhbhai Patel International School of Textiles and Management
TANGEDCO	Tamil Nadu Generation and Distribution Corporation
TIIC	Tamil Nadu Industrial Investment Corporation
TNPCB	Tamil Nadu Pollution Control Board
T³M	Tamil Nadu Technical Textile Mission
UGC	University Grants Commission
UNEP	United Nations Environment Programme
USA	United States of America
ZLD	Zero Liquid Discharge

Executive Summary

The Karur textile cluster in Tamil Nadu is one of India's premier textile hubs for customized and decorative home textiles, specializing in bed, table, kitchen, and bath linens with a history spanning over a century.

Economic Significance and Global Market Presence

The sector is a massive economic driver, generating an annual turnover of approximately ₹9,000 crore, with ₹6,000 crore coming from direct and indirect exports[1]. The cluster maintains long-standing sourcing relationships with major global brands like IKEA and H&M, exporting to Europe, the USA, Japan, Australia, and Scandinavian countries. Although Karur accounts for less than 1% of the global home textiles market[2], it is a critical player in India's export basket due to its focus on value-added products rather than commodities.

Industrial Structure and Workforce

The cluster's industrial base is dominated by MSMEs, with approximately 1,000 textile units, including 400 export-oriented and 250 domestic-market units. This structure is fragmented yet interdependent, supported by a network of allied units engaged in weaving, dyeing, printing, and packaging[3]. The industry provides employment to an estimated 4 lakh people (2 lakh direct and 2 lakh indirect)[4]. A notable feature is that 70% of the workforce are women, primarily from rural backgrounds. However, the workforce is largely unskilled (60%) or semi-skilled (30%), leading to high attrition rates.

Key Profiling Findings: Environmental and Infrastructure Gaps

- Unlike other major clusters, Karur lacks adequate Common Effluent Treatment Plant (CETP) infrastructure, forcing smaller units to manage wastewater individually, which increases costs and compliance risks.
- The cluster exhibits extreme energy intensity; industrial power consumption is 61.43%, nearly double the national average of 36.7%, driven by energy-intensive wet processing and Zero Liquid Discharge (ZLD) systems[5].
- While all 69 dyeing units comply with ZLD norms, the high number of wet-processing cycles keeps overall water demand high in a region dependent on the Kaveri River.
- While large exporters maintain high compliance with international standards like GOTS and OEKO-TEX, smaller MSMEs face significant barriers due to high certification costs and complex procedures.
- Waste Management: Pre-consumer textile waste is largely handled through an informal system with no standardized, cluster-wide system for formal recycling or fiber recovery.

Recommendations and Potential Areas for Intervention

Based on the preliminary cluster assessment and stakeholder consultations, the InTex Programme has identified the following indicative priority areas to support the transition towards a more circular and sustainable textile sector. These priorities will be further refined through the project's hotspot analysis and Life Cycle Assessment (LCA):

1. KTMEA ANNUAL REPORT
2. Based on the conversation with KTMEA President
3. Primary insights from the KTMEA President, based on CRB's field-level surveys and industry interactions.
4. https://apparelresources.com/business-news/manufacturing/us-tariffs-force-karur-textile-exporters-cut-working-days-hitting-production-jobs/#:~:text=Textile%20exporters%20in%20Tamil%20Nadu's,to%20nearly%20two%20lakh%20workers
5. District Export Action Plan (DEAP) 2025 - https://msmeonline.tn.gov.in/deap/pdf/014.pdf

- Build capacity across the textile value chain by supporting SMEs in undertaking Life Cycle Assessments (LCA), strengthening sustainability data and traceability systems, and enhancing preparedness for emerging sustainability regulations.
- Assess opportunities to strengthen integrated cluster-level infrastructure, including wastewater management, textile waste collection and recycling, renewable energy, and common testing and traceability facilities.
- Strengthen industry–academia and industry–research collaborations to accelerate the adoption of circular production practices, resource-efficient technologies, and sustainable product innovation.Promote the adoption of renewable energy (rooftop solar) and innovative wet processing, such as saltless dyeing, to reduce the cluster's carbon and chemical footprint.
- Explore mechanisms to improve access to green and sustainable finance to support investments in cleaner production technologies, renewable energy, resource efficiency, and circular business models.
- Build local institutional capacity by enabling industry associations and other ecosystem partners to provide technical support and facilitate the uptake of sustainability and circularity practices among MSMEs.



Credit: Lalit Kumar via Unsplash

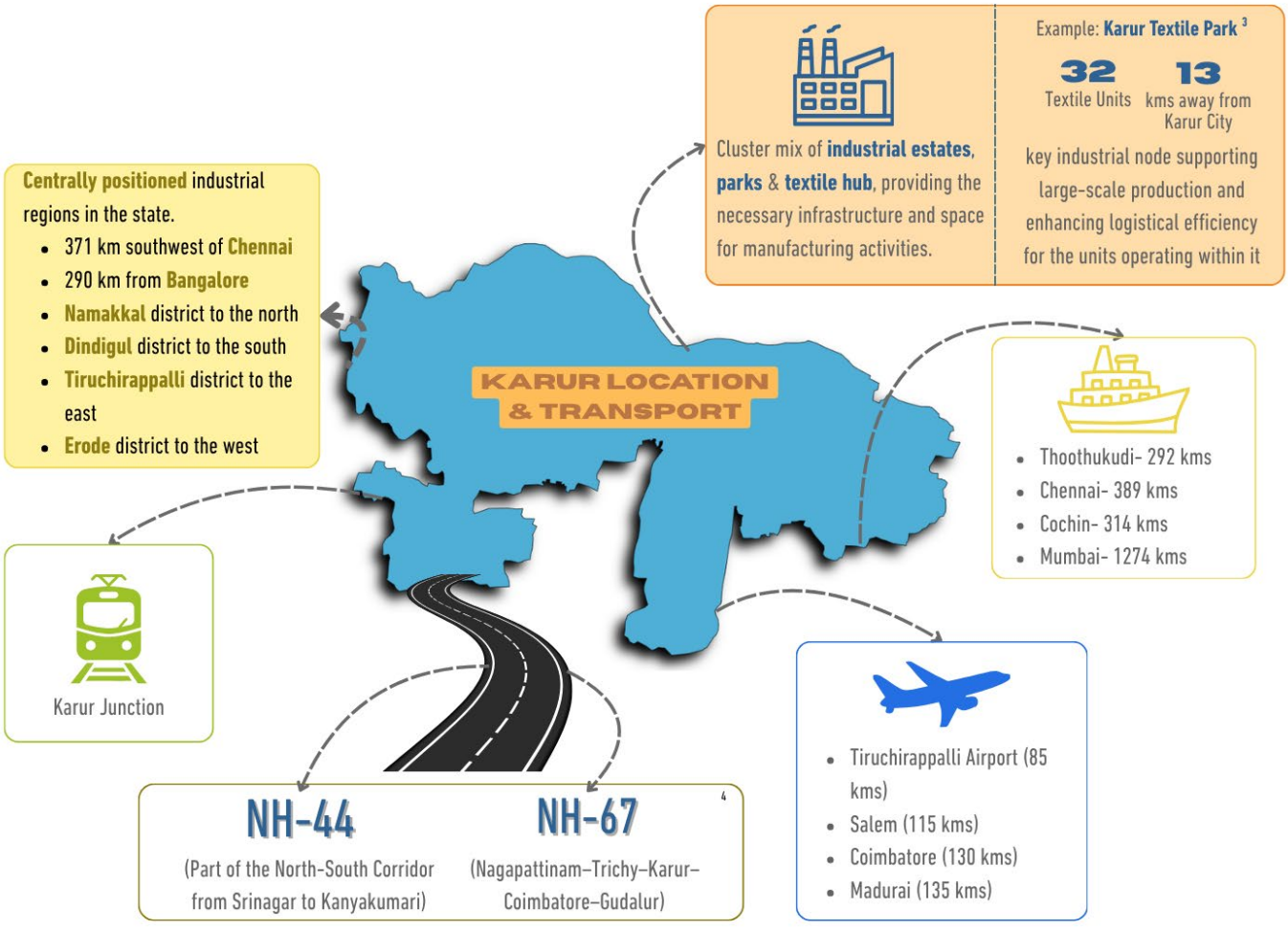
1. Introduction

The following cluster profile has been developed as part of UNEP's India InTex Program. The InTex India program (running from October 2024 to September 2027) aims to support sustainable textiles through the approaches of eco-innovation, circularity and life cycle assessments. The program has identified the clusters of Surat and Karur to work with 25 SMEs and provide training and hand holding support for undertaking life cycle assessments and adopting measures to identify and address critical environmental hotspots.

This document provides an overview of the textile industry in Karur and highlights the economic significance of the Karur textile cluster, particularly in the context of home textile manufacturing and exports. It presents an assessment of the current sustainability and circularity practices within the cluster, identifies key environmental and social challenges, and underscores the need for enhanced adoption of circular economy principles to improve resource efficiency, reduce environmental impacts, and strengthen long-term competitiveness.

The information presented in this report is based on secondary data review and stakeholder consultations, including interactions with industry associations, exporters, MSMEs, and supporting institutions in the Karur textile cluster, using structured questionnaires developed under the InTex Programme in India. The analysis reflects the existing conditions within the cluster and aims to inform future interventions focused on capacity building, sustainability adoption, and policy alignment in Karur's textile sector.

1.1 Cluster Overview



3. This information is taken from the KTMEA President

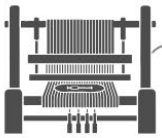
4. General cluster profile, structure, and statistics https://msmeonline.tn.gov.in/deap/pdf/014.pdf

History spanning over

100

years

LARGELY HOUSE-HOLD BASED



produced



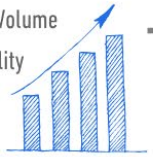
Tablecloths and bedspreads for regional markets

Origins rooted in handloom weaving

AROUND 1970s

TRANSITION TO POWERLOOM WEAVING

- Higher Production Volume
- Consistency in Quality
- Market Expansion



15 exporters

KARUR ENTERS THE EXPORT MARKET

MID 20TH CENTURY

some on the handloom madeups exported from Karur



Kitchen towels



Aprons



Tea towels



Bath towels



Bedspreads

Floor rugs, Pot holders, Plate mats, Tea mats, Curtains, Quilt Covers, shower curtains etc.

AT PRESENT

>100 EXPORTERS CURRENTLY PRESENT IN KARUR

1000 appx. Textile units = **400** export-oriented manufacturers + **250** units catering to domestic market + **350** units focused on tailoring, embriodery, printing, dyeing, finishing & packaging

Currently, the processing and textile manufacturing/export industries are required to comply with numerous international standards. The Karur Home Textile Industry, in particular, adheres to standards such as ISO and SA-8000 to ensure quality and social accountability.

7 NICHE PRODUCT GROUPS



Table Linens



Bed Linens



Kitchen Linens



Drapes



Cushions



Outdoor Textiles



Storage Textiles

Importance of the cluster in India's textile economy (domestic and export focus)

Karur is recognized as one of India's leading home textile manufacturing hubs. The cluster specializes in customized and decorative home textile products, including bed linens, table linens, kitchen textiles, floor coverings, and curtains. Its strength lies in flexible production, short lead times, and the ability to meet buyer-specific design and quality requirements, which makes it a preferred sourcing destination for global retailers.

Karur is a major contributor to India's home textile exports, generating an estimated ₹6,000 crore in direct and indirect export earnings annually. The overall turnover of the handloom and home textile sector in the cluster is approximately ₹9,000 crore, highlighting the dominant role of exports in the local economy.

The cluster supplies international markets, with a strong concentration in: European Union, United Kingdom, Scandinavian Countries, United States of America, Japan, Australia, South Korea and United Arab Emirates.

Karur has established long-standing sourcing relationships with global brands and retailers such as IKEA, H&M, Walmart, Tesco, ALDI, Target, LIDL, which rely on the cluster for consistent quality, compliance with social and environmental standards, and scalable production. Although Karur accounts for less than 1% of the global home textiles market, its role in India's export basket is significant due to its specialization in value-added, made-up products rather than commodity textiles.



Credit: Equalstock via Unsplash

6. KTMEA Annual report 2025-26

1.2 Economic Profile

Contribution to the Local and Regional Economy

Karur's economy is strongly **industrial in nature**
Textile Sector is the principal economic driver

61.43% POWER CONSUMPTION > Significantly above the National Avg.

₹6 K CR INDIRECT & DIRECT EXPORTS
₹9 K CR ANNUAL TURNOVER
home textiles & mosquito nets

Leading home textile **export hubs** in **India**

Industrial Structure and Enterprise Composition

26,000 REGISTERED INDUSTRIAL UNITS

- Majority are textile and textile-related enterprises including home textiles, mosquito net manufacturing, dyeing, printing, tailoring and packaging units.
- Large export-oriented units coexist with a wide base of micro & small enterprises that operate as suppliers & job workers within the value chain.

1000 TEXTILE UNITS

- About **400** are **export-oriented** manufacturing units
- About **250** Cater to the **domestic** market
- Remaining units **provide ancillary** and **support services**
- This structure highlights the fragmented yet interdependent nature of the cluster

Workforce Composition

2LAKH INDIVIDUALS DIRECTLY EMPLOYED

- The Karur textile cluster provides substantial employment opportunities
- another **2 lakh people** are **indirectly employed**, relying on the textile sector for their livelihoods
- while not managed by textile units directly, are critical to the functioning of the cluster and include services such as **packaging**, **logistics**, **refreshment supply**, and other **ancillary support** functions.

70% WOMEN WORKFORCE **30%** MEN WORKFORCE

This highlights the **significant role** of **female workers** in the **region's textile economy**.

In terms of skill level

10% SKILLED **30%** SEMI-SKILLED **60%** UNSKILLED

This distribution underscores the **need for targeted skill development initiatives** to **enhance productivity** and **promote inclusive growth** in the cluster.

Export Orientation and Global Market Linkages

Karur's economic strength is closely tied to its **export orientation.** The **cluster supplies home textile products** to major international markets



Global brands and **large retailers source customized home textile products** from Karur, **reinforcing the district's integration into global value chains.**

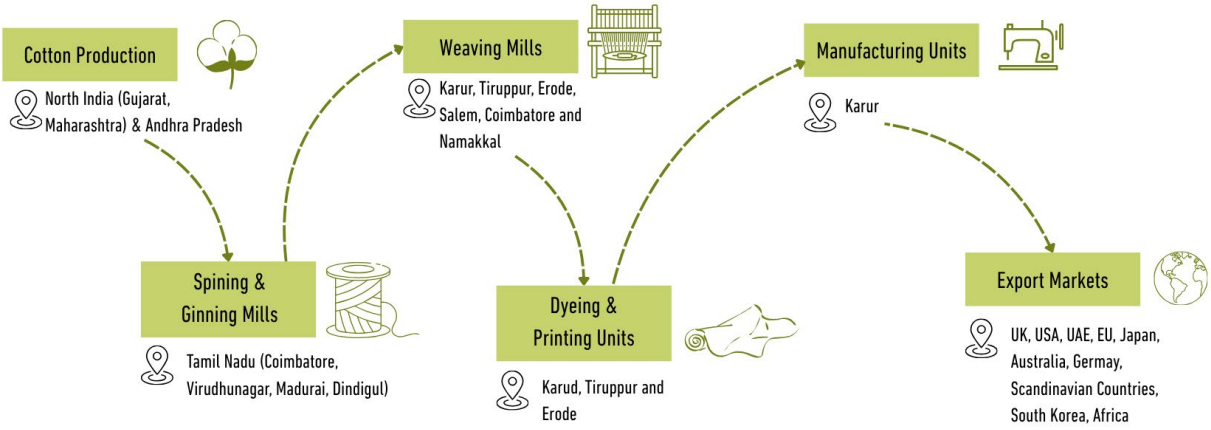
- Source: https://msmeonline.tn.gov.in/deap/pdf/014.pdf
- Source: MSME Department, Government of Tamil Nadu Link: https://msmeonline.tn.gov.in/deap/pdf/014.pdf

1.3 Stakeholder Mapping

Goverment Departments (State & Central)	Financial institutions	Academic & Research Institutions	Industry associations and trade bodies
Central Government Agencies **Regional Office of the Textile Committee, Karur** Implements central government policies related to the textile sector, facilitates scheme roll-outs, and provides technical and policy support to the industry. **Ministry of Micro, Small & Medium Enterprises (MSME) – Karur District Office** Supports the growth and development of micro, small, and medium enterprises through various schemes,financial assistance,and capacity-building initiatives. **State Government Agencies** **Office of the Regional Deputy Director of Textiles, Dept. of Textiles, Tamil Nadu** Supports the local textile industry by providing inspection services, quality training, policy awareness & implementations and technical guidance to manufacturer-exporters in the region **District Industries Centre (DIC), Karur** Provides support to new and existing industries by facilitating registrations, incentives, approvals, and guidance on government schemes at the district level	**Major Banks in Karur-** Small Industries Development Bank of India (SIDBI) Karur Vysya Bank (KVB) Indian Bank State Bank of India (SBI) Canara Bank Union Bank of India	**Government Arts College (Autonomous), Karur** Offers diploma-level technical education and vocational training; supports the development of industry-ready skills in Garment technology and other major engineering departments **Valluvar College of Science and Management, Karur** Delivers education in Science, Commerce, Fashion and Costume Design and Management; engages in academic research and promotes entrepreneurship and professional development among students. **Indian Institute of Handloom Technology, Salem** As India's oldest premier institute under the Ministry of Textiles, it serves as the nation's central examination node for handloom education, offers specialized degree and diploma programs in handloom and textile technology, preserves artisan heritage through weaver community reservations, and drives sustainable innovation and entrepreneurship in the textile sector.	Karur Textile Manufacturer Exporters Association (KTMEA) Karur Handloom Export Cloth Manufacturer Association Knitting and Weaving Factory Owners Association Karur Dyers Association Handloom Export Promotion Council (HEPC) Karur Chamber of Commerce and Industry Confederation of Indian Industry (CII) State Industries Promotion Corporation of Tamil Nadu (SIPCOT)

Goverment Departments (State & Central)	Financial institutions	Academic & Research Institutions	Industry associations and trade bodies
Tamil Nadu Pollution Control Board (TNPCB) – Karur Office Monitors and regulates industrial and environmental pollution in the district; ensures compliance with environmental laws. **Karur City Municipal Corporation** Responsible for urban governance, including water supply, waste management, sanitation, road infrastructure, and public health services within city limits**.** **District Rural Development Agency, Karur** Implements rural development programs focused on poverty alleviation, employment generation, infrastructure development, and social welfare in rural areas.	**Non-Banking Financial Institutions (NBFCs)& Cooperative Banks-** Export Credit Guarantee Corporation (ECGC) of India Ltd. Tamil Nadu Industrial Investment Corporation (TIIC) Karur District Cooperative Bank	**Arulmurugan Polytechnic College, Karur** Delivers education in Science, Commerce, Fashion and Costume Design; engages in academic research and promotes entrepreneurship and professional development among students. **The Gandhigram Rural Institute - Deemed to be University, Dindigul** Rural Institute administered by Ministry of Education, Govt. of India fully funded through UGC, New Delhi developed various programs in rural development, rural economics, rural oriented sciences including Textiles technology and fashion design **Sardar Vallabhbhai Patel International School of Textiles and Management (SVPISTM), Coimbatore** A premier institution under Ministry of Textiles offers specialized programmes in Textiles under various programmes in Science and Management **Periyar University, Salem State University** offering various courses in the field of Science and Management including Energy, Environment, Textile and Apparel Design **PSGR Krishnammal College for Women, Coimbatore** An autonomous college for higher education for women offering courses in Arts, Science and Management including Costume & Fashion Design **South India Textile Research Association (SITRA)** A premier textile research organization that provides technical consultancy, testing, and R&D services; supports innovation, quality improvement, and sustainability in the textile industry	

2. Overview of Textile Landscape



Value Chain of Karur Cluster

The cluster's value chain is primarily cotton-based, though blended and synthetic materials are increasingly used to meet buyer specifications. Cotton yarn is sourced from spinning mills in Coimbatore, Dindigul, Madurai, Rajapalayam, and Aruppukottai, while polyester yarn is procured from Surat. Viscose and certain specialty fibers are imported. Manufacturing processes are largely decentralized, with many units outsourcing dyeing and processing due to infrastructure constraints.



Credit: Vasilis Caravitis via Unsplash

2.1 Production Profile

Backward Linkages

Raw material sourcing (e.g., cotton, polyester, dyes, chemicals)

The Karur textile cluster relies on a diverse sourcing network for its raw materials, catering to the varied requirements of home textile production.

COTTON IS THE PRIMARY RAW MATERIAL

North India (Gujarat, Maharashtra) & Andhra Pradesh

OTHER RAW MATERIAL SOURCED AS YARNS

Aruppukottai, Madurai, Coimbatore, Dindigul & Rajapalayam

POLYESTER

Surat

VISCOSE & LINEN

Imported from International Markets, reflecting the limited domestic availability of this fiber in required grades and volumes.

Forward Linkages

Buyers, exporters, retail chains, and global brands

The Karur textile cluster has established itself as a significant sourcing hub for home textiles, with a strong presence in both international and domestic markets.

EUROPEAN MARKET: LARGEST EXPORT DESTINATION

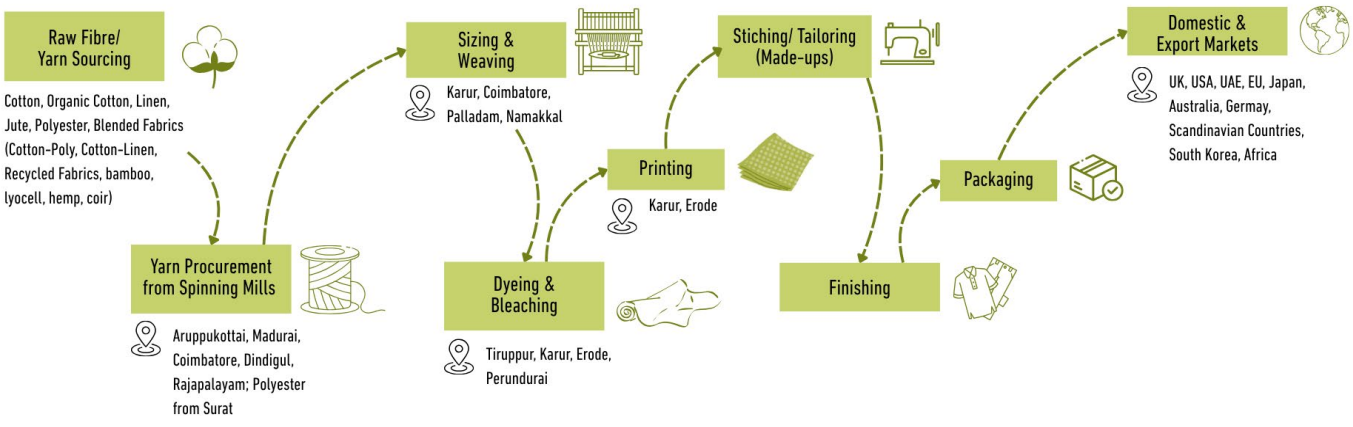
With several prominent global brands procuring from the region. International buyers include **IKEA, H&M,** and other leading retail chains, which source a **substantial volume of their textile products through export channels from Karur**.

DOMESTIC FRONT

Major retail brands such as **At Home**, **DMart**, and **Reliance** are among the key clients procuring home textile products from the cluster.

Notably, even for **domestic sales**, **global brands like IKEA and H&M** often **procure goods through export mechanisms**, **underscoring the export-oriented nature** of production in Karur and the **emphasis on quality standards that meet international requirements**.

Export Countries- USA, UK, EU, Japan, Australia, UAE, Germany, Scandinavian countries, South Korea, Africa



Key Activites



Production capacity and volumes including main material flows in an out of the cluster, main processes conducted in the cluster

OVERALL PRODUCTION SCALE

Around **1,000 textile units** operating in the cluster

- ~400 export-oriented units
- ~250 domestic-market units
- Remaining units provide support services such as dyeing, printing, stitching, and packaging

Annual turnover of the home textile industry: **₹9,000 crore**

Export value (direct & indirect): **₹6,000 crore**

Primary Product Category

Home Furnishings

- Bed Linens – Bedsheets, pillow covers, duvets, quilts
- Table Linens – Tablecloths, placemats, napkins, runners
- Curtains & Drapes – Window curtains, shower curtains, sheer drapes
- Cushions & Throws – Cushion covers, decorative throws, bolsters

Kitchen Textiles

- Kitchen Towels – Dish towels, hand towels, tea towels
- Aprons – Cotton, linen, and blended fabric aprons
- Pot Holders & Oven Mitts – Heat-resistant and insulated variants

Upholstery & Decorative Textiles

- Sofa Covers & Slipcovers – Custom-designed for export markets
- Wall Hangings & Tapestries – Woven and printed textile décor

Sustainable & Eco-friendly Textiles

- Organic Cotton & Linen Products – Eco-certified bed & kitchen linens
- Recycled Textile Products – Sustainable cushion covers, table linens
- Jute & Natural Fiber Textiles – Rugs, mats, bags, and curtains

Other Textile Products

- Promotional & Customized Textiles – Corporate gifting items, hotel linens
- Medical & Institutional Textiles – Hospital bedsheets, uniforms, disposable

Source: https://www.fibre2fashion.com/industry-article/7629/karur-the-hub-of-home-textiles

2.2 Infrastructure Landscape

Industrial Estates & Industrial Zones

Karur's industrial infrastructure comprises a combination of **industrial estates**, **textile parks**, and **standalone manufacturing units**.

Karur Textile Park located at Thalapatti

13 KMS FROM KARUR CITY

32 TEXTILE UNITS

provides basic industrial infrastructure such as internal roads, power connectivity, water access, and common utilities

Small Industries Development Corporation of Tamil Nadu (SIDCO)



Industrial Park within the Karur town, accommodates several small-scale manufacturing units, including mosquito net production units and ancillary textile-related activities



A large number of **textile**, **dyeing**, **tailoring**, **packaging**, and **allied units** operate from independent plots or mixed-use industrial–residential areas, reflecting the cluster's historically evolved nature.

Power Supply & Energy Infrastructure

Karur district has a high industrial power consumption profile, with industry accounting for 61.43% of total electricity consumption, significantly higher than the national average of 36.7%. This highlights the energy-intensive nature of textile manufacturing, particularly in processes such as weaving, dyeing, finishing, and stitching.



Tamil Nadu Generation and Distribution Corporation (TANGEDCO)

Is the primary power supplier to the Cluster. Most textile units report reasonably stable grid connectivity, although fluctuations and peak-hour restrictions are occasionally experienced, especially during periods of high demand.

To manage energy costs and improve reliability, many units have adopted captive and on-site renewable energy solutions



Rooftop solar installations



Off-site solar & wind power procurement



Limited use of diesel generators as backup during outages

Water Supply & Industrial Water Management

Water is a critical input for the Karur textile cluster, especially for dyeing, bleaching, and finishing operations. Kaveri and Amaravathi Rivers serves as the primary source of water for both industrial and agricultural use in the district. Industrial water supply is managed through a combination of:



River Water Allocation



Municipal water supply



Borewells (in limited cases, subject to regulation)

Given the dependence on a shared river system, water availability and allocation are closely regulated by authorities, particularly for wet processing units. To **reduce freshwater intake**, most **dyeing** and **bleaching** units operate **Zero Liquid Discharge (ZLD) systems**, enabling high levels of water recovery and reuse within production processes.

Despite these measures, **challenges persist**:



Smaller units often face higher water costs due to limited economies of scale



Seasonal variability in river flows can affect water availability

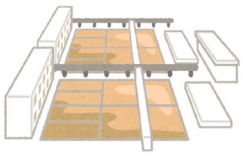


Infrastructure for shared industrial water management remains limited due to the absence of CETPs and common water utilities

Developed by CRB based on inputs from industry associations and unit-level interactions.

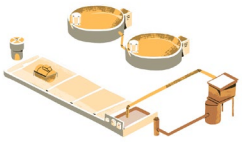
Environmental Infrastructure – Common Effluent Treatment Plants, Effluent Treatment Plants, Solid Waste Management

Common Effluent Treatment Plants (CETPs)



Unlike other major textile clusters in Tamil Nadu, Karur does not yet have adequate CETP infrastructure to support small and medium processing units. As a result, most enterprises are compelled to manage wastewater individually or outsource processing to external locations, which increases operational costs and logistical complexities. The absence of CETPs also heightens compliance risks under Tamil Nadu Pollution Control Board regulations and restricts the establishment of new processing units within the cluster. This infrastructural gap directly affects the cluster's ability to strengthen local value chain integration and achieve environmentally sustainable growth.

Effluent Treatment Plants (ETP)



Effluent Treatment Plants (ETPs) are primarily installed in large, vertically integrated textile units that possess the financial and technical capacity to invest in wastewater treatment infrastructure and rarely in stand-alone dyeing, printing and bio-washing units. Zero Liquid Discharge (ZLD) systems, which are critical for minimizing water pollution and enabling reuse, are operational only in a few integrated units due to their high capital investment, energy intensity, and operational costs. For the majority of small and medium enterprises, ZLD systems remain economically unviable in the absence of shared infrastructure or targeted subsidies. Given the cluster's heavy reliance on the Kaveri River as a water source, the limited penetration of advanced effluent treatment and recycling technologies poses long-term environmental risks. While regulatory compliance is largely maintained, proactive measures such as water-use optimization, recycling benchmarks, and cluster-level water stewardship initiatives are still at a nascent stage.

Solid Waste & Sludge Management





The Karur textile cluster generates a wide range of solid waste, including fabric cutting waste, yarn waste, selvedge waste, sludge from effluent treatment processes, chemical residues, and packaging materials. At present, waste management practices are largely informal and decentralized. Fabric scraps are typically sold to small-scale recyclers or reused in low-value applications such as wiping cloths and stuffing materials. Sludge disposal from ETPs and ZLD systems is handled individually by units, leading to high disposal costs and logistical challenges, particularly for MSMEs. There is no standardized system for waste segregation, collection, or processing at the cluster level. Although basic reuse and waste minimization practices exist, the adoption of comprehensive circular economy approaches within the cluster remains limited. Circularity is largely driven by resource efficiency and compliance-oriented measures rather than strategies such as circular product design, use of sustainable and recycled materials, life cycle thinking, business model innovation, and value chain collaboration. Linkages with recycled yarn manufacturers and textile recyclers are weak, and awareness of circular business models remains relatively low among smaller enterprises. Consequently, opportunities to retain the value of materials and resources within the production system remain underutilised. The absence of local recycling infrastructure further constrains the cluster's ability to strengthen circular and resource-efficient production systems.

3. Environmental Landscape

3.1 Common Environmental Challenges

The Karur textile cluster, with its strong concentration of home textile manufacturing and wet processing activities, faces several environmental challenges related to water use, wastewater management, chemical-intensive processing, energy consumption, and waste generation. While regulatory compliance is relatively strong in certain areas, structural and operational challenges persist, particularly among MSMEs.

Water Use & Water Stress

Textile processing activities such as dyeing, bleaching, washing, and printing are highly water intensive. The cluster largely depends on the Kaveri River and groundwater sources, creating pressure on local water resources, particularly during lean seasons.

Although all 69 dyeing and bleaching units operate under Zero Liquid Discharge (ZLD) systems, overall water demand remains high due to multiple wet-processing cycles and rising production volumes. Smaller manufacturing units, which do not have in-house wet processing, remain dependent on external processors, limiting direct control over water efficiency.

Wastewater Management and ZLD Compliance in Karur Dyeing Units

Strict enforcement by the Tamil Nadu Pollution Control Board (TNPCB) has ensured that all dyeing and bleaching units in Karur comply with Zero Liquid Discharge (ZLD) norms. While effective in controlling pollution, this compliance-driven approach presents several challenges. ZLD systems entail high capital and operational costs and rely on energy-intensive processes such as Reverse Osmosis (RO) and Agitated Thin Film Dryers (ATFDs).

In the absence of Common Effluent Treatment Plants (CETPs), individual units must manage wastewater independently, which disproportionately impacts small and medium enterprises and limits opportunities for cost-sharing and operational efficiency. Wet processing operations generate substantial volumes of wastewater containing dyes, salts, surfactants, and chemical residues. Although technologies like RO, ATFDs, and solar evaporation are deployed, wastewater treatment remains both resource- and energy-intensive.

Additionally, concentrated brine and recovered salts (primarily sodium chloride and sodium sulfate) require careful handling and off-site recycling. These residues are transported under TNPCB supervision to authorized recycling facilities in Ramanathapuram district. Any inefficiencies in handling or treatment can heighten environmental risks and jeopardize regulatory compliance.

Use of Hazardous Chemicals & Dyes

The textile manufacturing processes in Karur rely on a wide range of chemical dyes, auxiliaries, and finishing agents, many of which pose environmental and occupational health risks if not managed properly. While export-oriented units largely comply with Restricted Substances Lists (RSLs) and international buyer requirements, challenges remain:

- Limited awareness of safer chemical alternatives among smaller units

- Dependence on conventional reactive dyes that require high salt usage
- Inadequate in-house chemical management systems in micro and small enterprises

Innovative and less polluting technologies, such as saltless dyeing, are not yet widely adopted within the cluster.

Solid Waste & Sludge Generation

The cluster produces substantial quantities of pre-consumer textile waste, including fabric cuttings, yarn waste, and printing rejects. Although a significant share of this waste is collected by informal recyclers and diverted from landfills, waste segregation, documentation, and traceability remain limited. Sludge from effluent treatment is disposed of through cement kiln co-processing, following TNPCB approvals, but handling and documentation requirements pose compliance challenges for smaller units.

Energy Consumption & Carbon Footprint

The Karur textile cluster is energy-intensive, with industrial activities accounting for over 61% of total electricity consumption in the district[7], significantly higher than the national average. Key challenges include:

- High dependence on grid electricity generated largely from conventional sources
- Energy-intensive wet processing and ZLD operations
- Limited adoption of energy-efficient machinery and automation in MSMEs

Although renewable energy adoption, particularly rooftop solar, is increasing among medium and large exporters, financial constraints and limited technical capacity hinder broader uptake across the cluster.

Raw Materials Transition

- Growing demand from export buyers for eco-friendly materials is encouraging manufacturers to collaborate with suppliers and increase the use of sustainable fibres and fabrics, including organic cotton, recycled cotton, recycled fabrics, linen, jute, bamboo, lyocell, hemp, coir, and other sustainable blends.
- Adoption of alternative and lower-impact fibres, such as bamboo, hemp, lyocell, and recycled materials, is gradually increasing, although uptake remains at an early stage.

7. District Export Action Plan (DEAP) 2025 - https://msmeonline.tn.gov.in/deap/pdf/014.pdf

Design & Innovation

Most manufacturing units in the Karur cluster have limited in-house R&D capabilities. Product design, specifications, and colour selection are largely driven by buyers based on prevailing market trends and consumer preferences. As a result, design conceptualisation typically takes place outside the cluster, with local manufacturers primarily focusing on production and execution rather than upstream design development or innovation-led product differentiation. A small number of manufacturers are experimenting with upcycling by reworking production scraps into new products and design variants. However, the adoption of such innovation-driven approaches remains limited across the cluster.

Sustainable & Circular Design Strategies

Sustainable and circular design practices are currently at a nascent stage within the cluster. A few manufacturers have begun incorporating approaches such as:

- Use of zero-waste pattern making to reduce fabric scraps.
- Upcycling production waste into new products.
- Designing products for extended life through improved durability and reparability.
- Exploring biodegradable, recyclable, and lower-impact materials.

3.2 Certifications and standards

Sustainability certifications have become increasingly important for manufacturers supplying international markets, particularly in meeting buyer expectations on environmental and social compliance. Awareness of sustainability standards within the Karur textile cluster is moderate and is largely driven by export market requirements and support from industry associations. The most commonly recognized certifications include:

- Global Organic Textile Standard (GOTS)
- OEKO-TEX Standard
- Better Cotton Initiative (BCI)
- Despite growing awareness, certification uptake remains concentrated among larger exporters due to several challenges:
- High certification and audit costs, particularly for MSMEs.
- Complex documentation and compliance procedures.
- Limited awareness of long-term business benefits among smaller enterprises.
- Multiple buyer-specific certification requirements, increasing compliance costs and administrative burden.

4. Social Landscape

The cluster experiences high attrition rates, primarily because a substantial portion of the workforce comprises semi-skilled and unskilled laborers who often seek alternative employment opportunities. Despite this turnover, the demand for labor is consistently met, indicating the availability of a steady supply of workers to support ongoing production needs. Maintaining this balance is crucial for sustaining operational continuity, while efforts to enhance skill development and worker retention could further strengthen social sustainability within the cluster. Some units are making investments in employee transport, hostel and creche facilities to ensure availability of labour and to provide better social benefits.



5. Current Sustainability and Circularity Practices

5.1 Raw Materials Transition

The Karur textile cluster is witnessing a gradual transition towards more sustainable raw materials, largely driven by evolving buyer requirements and increasing demand for environmentally responsible products in export markets.

Manufacturers are increasingly collaborating with suppliers to incorporate sustainable fibres and fabrics, including organic cotton, recycled cotton, recycled fabrics, linen, bamboo, hemp, lyocell, jute, coir, and other lower-impact fibre blends. While adoption remains at an early stage, the use of alternative and recycled materials is steadily increasing among export-oriented manufacturers.
However, several barriers continue to limit wider adoption across the cluster:

- High procurement costs of sustainable raw materials.
- Limited domestic availability of recycled fibres and sustainable alternatives.
- Lack of local infrastructure for textile waste collection and fibre recycling.
- Pressure to balance sustainability requirements with cost competitiveness.
- Compliance costs associated with sustainability standards and certifications.

5.2 Design and Innovation Practices Supporting Circularity

Most manufacturers within the Karur cluster have limited in-house research and development capabilities. Product specifications, designs, colours, and material selections are largely determined by international buyers, resulting in production-driven manufacturing rather than innovation-led product development.

Nevertheless, a small number of manufacturers have begun experimenting with circular design approaches by utilizing production waste to develop new products and design variants.
Emerging sustainable design practices include:

- Zero-waste pattern making to reduce fabric losses.
- Upcycling production scraps into value-added products.
- Designing products with greater durability and longer service life.
- Exploring biodegradable, recyclable, and lower-impact materials.
- Although these practices remain limited to a few manufacturers, they indicate an increasing recognition of circular design principles within the cluster.

5.3 Waste Management & Circularity

The Karur textile cluster generates pre-consumer textile waste, including fabric cuttings, yarn waste, selvedge waste, printing rejects, packaging materials, and sludge from effluent treatment systems.

At present, waste management is largely decentralized. Fabric scraps are collected by informal recyclers and are typically reused in low-value applications such as wiping cloths, stuffing materials, and other secondary products. While these practices contribute to basic material recovery and diversion from landfill, formal systems for waste segregation, documentation, traceability, and fibre-to-fibre recycling are largely absent.

Sludge generated from effluent treatment and ZLD systems is disposed of through authorized facilities in accordance with regulatory requirements. However, high disposal costs and compliance obligations continue to create operational challenges for MSMEs.

Overall, circularity within the cluster remains driven primarily by resource efficiency and regulatory compliance rather than by comprehensive circular economy strategies. Limited linkages with textile recyclers, inadequate recycling infrastructure, and low awareness of circular business models constrain the retention of material value within the production system and restrict opportunities for higher-value recycling and closed-loop manufacturing.

5.4 Institutional and Industry-led Sustainability Actions

Sustainability initiatives within the Karur textile cluster are supported through the combined efforts of industry associations, regulatory agencies, research institutions, and international market requirements.

The Karur Textile Manufacturers Exporters Association (KTMEA) plays an important role in disseminating information on sustainability standards, export compliance, and emerging regulatory requirements. Technical institutions such as the South India Textile Research Association (SITRA) support the industry through research, testing, technology development, and technical advisory services.

Environmental compliance is further strengthened through regulatory oversight by the Tamil Nadu Pollution Control Board (TNPCB), particularly in enforcing Zero Liquid Discharge (ZLD) requirements for wet-processing units.

In addition, the UNEP InTex Programme is expected to further strengthen sustainability adoption within the cluster by supporting capacity building on Life Cycle Assessment (LCA), resource efficiency, circular business practices, and sustainability preparedness among MSMEs.

6. Circularity Readiness Assessment

The Karur cluster is an important player in the home textiles sector. The cluster aspires to grow in value and volume, especially through product and markets' diversification. The industry associations also feel that it is important to put the cluster on a path of sustainable development and build a strong sustainable image for the cluster in international and domestic markets. To this end, circular textiles become imperative for the cluster. Given below is a broad assessment for the cluster's readiness to adopt sustainable and circular practices.



7. Policy and Institutional Landscape

Tamil Nadu has introduced several progressive policies to support and strengthen its textile sector, with a focus on modernization, sustainability, and value addition. The state government offers various schemes such as interest subvention for technology upgradation, capital subsidies for textile clusters, and incentives for technical textiles and man-made fibre products. Initiatives like the Tamil Nadu Technical Textile Mission and Mini Textile Park Scheme aim to boost infrastructure and innovation, especially for MSMEs. These policies, along with support for cooperative mills and powerloom modernization, reflect the state's commitment to enhancing the global competitiveness of its textile industry. The detailed schemes for the same are provided below:

Tamil Nadu Textile Sector Policies & Schemes		
State Government Schemes (Tamil Nadu)		
Scheme/Policy	Key Features	Links
Tamil Nadu New Integrated Textile Policy 2025–26 (Released: 29 Jan 2026)	**Vision**: Position Tamil Nadu as a global textile sourcing hub focused on innovation, sustainability, ESG compliance and inclusive growth; aligned with USD 1 trillion economy goal. **5-Year Targets**: Modernise 19 lakh spindles & 8 lakh rotors; install 1,000 Rapier looms + 3,000 shuttleless looms; set up 10 dyeing/printing units with IETPs; modernise 50 processing units; 100 CAD/CAM machines; 10 non-conventional fibre units; support 24 technical textile startups; 10 R&D projects in MMF/Technical Textiles. **Fiscal Incentives**: 6% interest subvention (spinning); 50% subsidy for powerloom upgrades; 25% subsidy for new/modernised processing units; 50% subsidy for CAD/CAM; 25% subsidy for non-conventional fibres (banana, bamboo, hemp, etc.); Handloom support programme (₹40 Cr), mini parks, free electricity; CFC support up to ₹60 lakh. **Sustainability**: 50% subsidy for environmental audits; 25% subsidy for conservation equipment; compliance certification compendium. **Market & Institutional Support**: TN Pavilion in 4 international fairs; 50% stall reimbursement; Annual International Textile Exhibition; TTFC digital platform; Exporter Awards; skill ecosystem strengthening. **Regional Incentive**: Additional 10% subsidy for units in 22 "C" category districts. Ease of Doing Business: Single-window clearance; DBT-based incentives; 100% FDI under automatic route	To know more
Tamil Nadu Technical Textile Mission (T^3M)	**Funding**: ₹15 crore for 5 years (2025–26 to 2030–31). **Objective**: Promote production and investment in Technical Textiles and enable traditional textile players to diversify into high-value technical textile segments. **Institutional Mechanism**: Dedicated Project Management Unit (PMU) for business support, market intelligence and facilitation. **Consultancy Support**: Empanelment of national and international consultants; 50% reimbursement of consultancy fees (up to ₹50 lakh per firm). **Target Segments**: Mobiltech (automotive textiles), Protech (protective textiles), Meditech (medical textiles), Indutech (industrial textiles), Hometech (home textiles), and Sporttech (sports textiles). **Expected Outcomes**: Establish minimum 24 new/startup units; attract ₹480 crore investment; strengthen manufacturing capabilities and innovation ecosystem in Tamil Nadu's textile industry.	To know more

Tamil Nadu Textile Sector Policies & Schemes		
Central Government Schemes		
National Technical Textiles Mission (NTTM) (Launched: 2020, Ministry of Textiles)	**Objective**: Promote India as a global leader in Technical Textiles by strengthening research, innovation, exports, skill development and domestic market growth. **Outlay & Duration**: ₹1,480 crore (2020–21 to 2025–26). ₹517 crore allocated so far; ₹393.39 crore utilised. **Research & Innovation**: 168 research projects approved worth ₹509 crore; supports product development, new materials and indigenous technologies. **Four Key Components**: (I) Research, Innovation & Development; (II) Promotion & Market Development; (III) Export Promotion; (IV) Education, Training & Skill Development. **Skill Development**: Target to train 50,000 individuals through industry-focused courses (SITRA, NITRA, SASMIRA etc.). **Startup & Innovation Support**: GREAT Scheme (₹50 lakh each to 8 startups); GIST 2.0 internship program; funding to institutes for specialized courses (IIT Indore, NIT Patna etc.). **Market Promotion**: Technotex exhibitions; dedicated export council; global collaboration initiatives. **Sector Focus Areas**: Agriculture, infrastructure, healthcare, automotive, protective textiles and industrial applications.	To know more

While the existing policies provide a robust framework for sectoral support, feedback from stakeholders in the Karur textile cluster highlights key gaps in implementation and policy alignment.

"*Filling textiles such as cushions and chair pads are currently classified under the mattress category, whereas chair covers and cushion covers fall under home textiles. Despite involving similar raw materials and labor-intensive processes, this inconsistent classification creates unnecessary administrative and procedural hurdles for manufacturers.*" - **President, Karur Textile Manufacturer Exporters' Association (KTMEA)**

A similar issue exists with cotton tote bags, which are grouped under clutches, handbags, and laptop bags-even though they share production processes and materials with home textile items like tablecloths.

8. Recommendations and Conclusion

The Karur cluster has initiated some measures on sustainable practices especially with regards to sustainable materials and managing textile waste. However, there is scope to understand the life cycle impacts of its products and introduce collaborative measures with its suppliers. The cluster largely undertakes cut, make and trim activities and will be required to work with adjoining clusters and its supply chains to ensure impactful interventions on sustainability and circularity.

Indicative Priority Actions

- **Assess opportunities to strengthen integrated cluster-level infrastructure**, including improvements to Common Effluent Treatment Plants (CETPs), expansion of Zero Liquid Discharge (ZLD) systems where feasible, shared textile waste collection and recycling facilities, renewable energy infrastructure, and common testing and traceability facilities. The feasibility of establishing a cluster-level Centre of Excellence on Sustainability and Circularity may also be explored.
- **Explore opportunities to diversify into sustainable technical textiles and other value-added products**, while increasing the use of sustainable and recycled materials. Collaboration with research institutions such as South India Textile Research Association (SITRA) and knowledge exchange with other textile clusters may support technology adoption and product innovation.
- **Build local institutional capacity** by establishing a dedicated sustainability resource (or sustainability anchor) within the industry association to provide continuous technical support to MSMEs, facilitate knowledge sharing, and coordinate sustainability initiatives across the cluster.
- **Develop a cluster-level sustainability data capture and management system** to support environmental performance monitoring, traceability, Life Cycle Assessment (LCA), and reporting in line with evolving domestic and international sustainability requirements.
- **Strengthen industry–academia collaboration** to promote greater adoption of Life Cycle Assessment (LCA), cleaner production practices, circular product design, and resource-efficient manufacturing through collaborative research, pilot projects, and knowledge-sharing initiatives.
- **Harmonize and standardize product classifications** under government norms to accurately reflect raw material compositions and labor-intensive manufacturing processes. Specifically, filling textiles (such as filled cushions and chair pads) and cotton tote bags should be reclassified under the home textiles category—aligning them with related products like cushion covers and tablecloths—to eliminate administrative hurdles, streamline regulatory compliance, simplify access to government schemes, and maximize export benefits for the Karur textile cluster.
- **Explore partnerships with financial institutions and relevant government programmes** to improve access to green and sustainable finance for investments in cleaner production technologies, renewable energy, wastewater management, resource efficiency, and circular business models.

Conclusion

The Karur textile cluster is a mature, export-oriented home textiles hub with strong manufacturing capabilities, long-standing global buyer linkages, and a workforce base that sustains large-scale production. The profiling assessment indicates that the cluster demonstrates moderate readiness for a sustainability and circular economy transition. Awareness of sustainability concepts is relatively high among large exporters due to stringent buyer requirements and compliance obligations, while MSMEs largely associate sustainability with regulatory compliance rather than value creation or circular transformation.

Environmentally, Karur faces critical hotspots related to water consumption, wastewater management, chemical usage, energy dependence, and textile waste handling. Limited access to Common Effluent Treatment Plants (CETPs), low penetration of Zero Liquid Discharge (ZLD) systems, and the absence of organized textile waste recycling infrastructure constrain deeper sustainability adoption. At the same time, the cluster shows early positive signals, including growing interest in renewable energy, selective use of organic and recycled materials, and compliance with international social and environmental standards.

From a circularity perspective, practices such as reuse of fabric scraps and waste reduction exist in isolation but are not yet embedded in structured circular business models. Design, innovation, and R&D capabilities remain buyer-driven, limiting the cluster's ability to move upstream in the value chain or develop differentiated, sustainable products. Overall, Karur has the foundational conditions to transition toward sustainable and circular textiles, but this transition will require coordinated interventions at the cluster level, targeted capacity building for MSMEs, and stronger institutional and financial support mechanisms.

InTex India

UN environment programme



For additional details about the project visit our website here or contact us: info@c4rb.in, unep-textiles@un.org

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