

Promoting Textile Waste Management and Recycling in the Garment, Footwear and Travel Goods (GFT) Sector

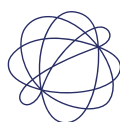
Sustainability
Recommendation
Paper



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Registered offices
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GIZ Office Phnom Penh
Oval Office Tower, 10F Building No. 1 Street 360, Boeung Keng Kang 1
Phnom Penh, Cambodia
T +855 23 860 110
E giz-kambodscha@giz.de
I www.giz.de/cambodia

Global Fashion Agenda
Bryghuspladsen 8 DK-1473 Copenhagen
www.globalfashionagenda.org

Project description:
FABRIC Cambodia

Author/Responsible/Editor:
FABRIC Cambodia
Global Fashion Agenda

Design/layout:
Florinda Pamungkas, Global Fashion Agenda

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Recycler/Shun Wei

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Table of contents

Disclaimer	5
Executive Summary	6
List of Abbreviations	9
1. Introduction	10
1.1. Background of the Sustainability Recommendation Paper (SRP)	10
1.2. Background of Textile Waste in Cambodia's GFT Sector	11
2. Government and GFT Sector Existing Strategies on Textile Waste Management and Recycling	14
2.1. Legal and Regulatory Frameworks and Government Initiatives	14
2.1.1. Global Strategies, Initiatives, Regulations	14
2.1.2. Cambodia Policies, Laws, and Regulation	16
2.2. Private Sector Initiatives	19
2.3. Development Partner Initiatives	19
2.3.1. Circular Fashion Initiatives in Other Countries	20
2.3.2. FABRIC Cambodia Textile Waste Management Pilot for Circularity in the Cambodian GFT Sector	21
3. Stakeholder Consultations on Textile Waste Management and Recycling	22
4. Recommendations	24
4.1. For the Cambodian Government	24
4.2. For the Producing GFT Industry	26
4.3. For International Buyers / Fashion Brands	28
4.4. For Local Waste Management Companies:	29
4.5. For Development Partners	30
5. Conclusion	32
5.1. Summary	32
5.2. Way forward	32
6. References	34
Explanatory Note	36



Sustainability Recommendation Paper on Promoting Textile Waste Management and Recycling in the Garment, Footwear and Travel Goods (GFT) Sector

Disclaimer

The organizations involved in this paper support the view that it is becoming increasingly important to improve circularity within Cambodia's GFT sector. The primary aim of this paper is to encourage collaboration among diverse stakeholders within the garment supply chain for the greater good. Readers are encouraged to engage with it in this spirit of cooperation.

This paper presents findings on circularity; however, it is important to note that not all parties and organizations may agree with every viewpoint expressed. Similarly, the selection of initiatives and projects mentioned whether from companies, development partners, or civil society organizations, are non-exhaustive examples. The inclusion of specific examples does not constitute an endorsement over other existing efforts.

Despite any differences, all organizations have collectively endorsed this paper in solidarity, committed to actively participating in the solutions proposed. This action underscores their dedication towards achieving a more sustainable GFT industry in Cambodia.

Five Key Takeaways

Circularity as a Competitive Edge: The GFT sector is critical for Cambodia's economy and the largest source of employment. The sector is now at a pivotal moment, where (with new Human Rights and Environmental Due Diligence or HREDD laws coming) transitioning from a linear to a circular economy is essential. By reimagining waste as a resource and investing in recycling, Cambodia can reduce environmental impact and enhance both its competitiveness, and attractiveness as a global sourcing destination.

The Government Plays a Crucial Role in Driving Change: The Cambodian Government has laid the groundwork with policies like the Nationally Determined Contribution (NDC) and the GFT Sector Development Strategy. To make a tangible impact, the government must focus on implementing practical regulations, investing in recycling infrastructure, and fostering innovation in waste management.

Key Recommendations for Action: The paper outlines crucial recommendations, including the need for clear

regulations on textile waste management, investment in recycling infrastructure, improved waste data collection, and stronger incentives for recycling technologies. Additionally, it emphasizes the importance of collaboration among all stakeholders to achieve circularity within the sector.

Industry Collaboration is Essential: Success in circularity requires collective action from all stakeholders—manufacturers, brands, recyclers, and development partners. Establishing transparent waste management systems, improving traceability, and setting industry-wide standards are critical to driving sustainable practices.

Brand Support and Local Action is Needed: International brands sourcing from Cambodia have a significant role to play. By aligning their sourcing practices with circularity principles, supporting local recyclers, and advocating for policy changes, they can support the transformation Cambodia's GFT sector into a model of sustainability.

Executive Summary

The Sustainability Recommendation Paper on Promoting Textile Waste Management and Recycling in the Garment, Footwear, and Travel Goods (GFT) Sector presents a comprehensive set of recommendations to build an effective ecosystem for post-industrial textile waste recycling in and around Cambodia's GFT sector. In this context, the evolving environmental due diligence requirements of global supply chains is discussed to underline the need for more circularity. Additionally, relevant initiatives from other countries are presented as good practices and inspiration for Cambodia GFT stakeholders to learn from.

The paper emphasizes the importance of implementing policies aligned with Cambodia's Updated Nationally Determined Contribution (NDC) and advocates for a shift towards a circular economy. The recommendations are directed towards key stakeholders, including the Cambodian Government, the producing GFT industry, international buyers / fashion brands, waste management companies, and development partners. The paper suggests that intensified multi-stakeholder action is needed to implement the recommendations in a holistic and integrated way, and pave the way towards a more circular in the Cambodian GFT industry embedded in international supply chains.

Key Findings

1. Economic Importance of the GFT Sector

The GFT sector is a cornerstone of Cambodia's economy, providing substantial employment opportunities and contributing significantly to national exports. As Cambodia approaches its graduation from least-developed country status, ensuring the sustainability of this sector is paramount. Transitioning to a circular economy is not merely an environmental imperative but a strategic necessity to retain competitive advantage in the global marketplace.

2. Textile Waste Challenges

Currently, Cambodia's GFT industry generates an estimated 136,151 tons of post-industrial textile waste (PITW) annually based on internal calculation from UN Comtrade Database on fabric import from 2021-2022. The predominant disposal methods – such as landfilling and downcycling – often lead to significant environmental degradation, including air and water pollution. This waste management challenge presents an opportunity to reimagine textile waste as a valuable resource. Embracing circularity can minimize landfilling, pollution and enhance resource efficiency; ultimately leading to a more sustainable fashion industry.

3. Government Initiatives and Regulatory Landscape

The Cambodian Government has initiated several policies aimed at promoting sustainability, including the GFT Sector Development Strategy, which outlines measures for a sustainable transformation of the industry. However, despite these efforts, the effect implementation of regulations remains a challenge as well as the coordination among them. In addition, the emergence of global policies, such as the EU Corporate Sustainability Due Diligence Directive (CSDDD), adds pressure on local manufacturers to adopt responsible practices, presenting both challenges and opportunities for the GFT sector.

4. Stakeholder Collaboration

Successful implementation of textile waste management (TWM) requires a collective effort from various stakeholders, including the government, industry players, international buyers, and development partners. Collaboration is essential in establishing transparent waste management systems and setting industry-wide standards that promote sustainability across the GFT supply chain.

Recommendations

1. For the Cambodian Government

I. Shift to a Circular Paradigm: Transition from a linear to a circular mindset by treating post-industrial textile waste (PITW) as a resource. Develop binding policies to encourage textile waste segregation, reuse, and recycling while regulating landfill and burning practices in brick kilns and factories.

II. Enhance Infrastructure: Support the establishment of centralized sorting and recycling hubs (as per Nationally Determined Contributions policy) to improve PITW management and provide recyclers with quality materials. Focus on training factory staff on effective waste practices.

III. Facilitate Investment in Recycling: Utilize the 2021 Law on Investment to attract funding for recycling technologies and address energy costs to strengthen the business case for PITW recycling.

IV. Improve Data Collection and Traceability: Implement regulations for better traceability of PITW and enhance data collection on waste management activities. Establish a national database through the centralized hubs to increase transparency.

V. Clarify Import/Export Regulations: Develop specific regulations for the import and export of textile waste, ensuring clear definitions to facilitate trade and support the emerging circular economy.

VI. Revise Tax Regulations: Address tax implications that hinder formal sales of textile waste. Provide clarity on compliance to reduce reliance on informal disposal methods.

2. For the Producing GFT Industry

2.1. For GFT Factories

I. Minimize Waste: Implement automated cutting technologies and collaborate with brands to optimize fabric use.

II. Ensure Responsible Sourcing: Maintain compliance with chemical standards and document chemical tests to ensure traceability of waste and higher quality for recycling.

III. Effective Sorting and Storage: Establish systematic segregation of PITW according to standards and ensure proper storage to enhance recyclability and safety.

IV. Enhance Circular Practices: Develop systems for reusing and upcycling textile waste, exploring innovative recycling technologies.

V. Improve Traceability: Implement standardized data collection to track waste streams by types and volumes, facilitating better alignment with recycling needs.

VI. Monitor Waste Flows: Utilize digital tools for tracking waste movement throughout the supply chain, ensuring transparency and accountability.

VII. Partner with Waste Management Experts: Collaborate with registered, complainant and specialized recyclers and invest in training to improve waste treatment practices.

VIII. Set Waste Management Targets: Establish general waste reduction targets aligned with standards like GRS and HIGG FEM, ensuring regular tracking and documentation.

2.2. For TAFTAC/CGTI

I. Promote Collective Commitments: Facilitate industry-wide targets for TWM and collaborate with government for supportive policies.

II. Advocate for Policy Changes: Leverage industry expertise to encourage the adoption of formal circularity measures and necessary regulations.

III. Provide Capacity-Building Resources: Develop training programs and resources on TWM and circularity, sharing best practices across the industry.

IV. Foster Dialogue and Networks: Organize events to connect factories, waste management companies, and government agencies for collaborative initiatives.

V. Support Research and Innovation: Partner with academic institutions to promote sustainable materials and collect data on PITW generation for informed policy advocacy.

3. For International Buyers / Fashion Brands

I. Adopt Circular Design Practices: Incorporate recycled materials from Cambodian sources and prioritize designs that facilitate easy recycling and separation.

II. Establish TWM Standards: Set targets based on international standards like Global Recycle Standard (GRS) or HIGG FEM and provide support to suppliers for compliance.

III. Promote Unified TWM Standards: Encourage the supply chain to adopt consistent PITW management policies, working with manufacturer associations to create Extended Producer Responsibility (EPR) schemes.

IV. Harmonize Requirements: Align monitoring and tracking processes among brands to improve data collection and effectiveness, in line with local waste management capabilities.

V. Support Policy Advocacy: Collaborate with the Cambodian government to enhance policies and taxation that incentivize circular practices and ensure transparency in sourcing and recycled content.

VI. Engage Stakeholders: Partner with development organizations, universities, and local associations to share best practices and tackle TWM challenges.

VII. Utilize Advisory Groups: Leverage advisory groups to advocate for circularity measures and support infrastructure development and legislation refinement.

VIII. Collaborate with Local Recyclers: Foster partnerships with local complainants and registered recyclers to connect waste suppliers with recycling efforts and invest in local recycling facilities.

IX. Learn from Other Industries: Explore synergies with other sectors to innovate in textile waste treatment and processing.

X. Strengthen Advocacy Efforts: Work with industry associations and chambers of commerce to promote TWM, recycling, and circularity initiatives effectively.

4. For Local Waste Management Companies

I. Invest in Modern Technology: Upgrade outdated machinery to improve productivity and occupational health and safety (OHS), while adopting innovative technologies for better traceability.

II. Establish Partnerships and Traceability: Collaborate with GFT manufacturers to create efficient waste take-back systems and implement traceability to ensure responsible management.

III. Ensure Social Compliance and Safety: Formalize operations to meet national and international labor standards, enhancing working conditions and attracting sourcing brands.

IV. Collaborate on Centralized Facilities: Partner with the Cambodian government, particularly the Ministry of Industry, Science, Technology and Innovation (MISTI), to implement Mitigation Action No. 20 from the Updated NDC 2020.

5. For Development Partners

I. Support Government Roadmap Development: Assist in implementing the GFT Sector Development Strategy and the NDC by collaborating with stakeholders to create a roadmap for circularity aligned with sustainability goals.

II. Enhance Understanding of Circularity: Strengthen the capacities of industry associations, factory management, and investors to adopt circularity principles, referencing the EU Green Deal and other international regulations.

III. Improve Infrastructure and Facilitate Matchmaking: Enhance PITW management infrastructure and connect factories with regional recyclers to ensure effective waste diversion.

IV. Capacity-Building and Training: Collaborate with experts to provide training on textile waste management, focusing on circular design and waste minimization, tailored to local needs.

V. Explore “Mutual Hubs”: Assess the feasibility of centralized “mutual hubs” for PITW recycling and develop implementation plans with the government.

VI. Invest in Research and Publications: Conduct research on textile waste management and disseminate findings to guide policies and practices in the sector.

VII. Assist the Informal Sector: Provide compliance training for waste handlers and recyclers to ensure adherence to international standards.

VIII. Engage NGOs and Attract Attention: Promote Cambodia’s potential in PITW recycling to attract international buyers and recyclers, emphasizing its geographic advantages.

Way Forward

The paper emphasizes that transitioning to a circular economy is vital for both environmental sustainability and the long-term resilience of Cambodia’s GFT sector. By transforming waste into a valuable resource and fostering collaboration among stakeholders, Cambodia can emerge as a leader in sustainable textile practices. This collective effort is essential to navigate the evolving landscape of the global textile industry, enhancing Cambodia’s competitiveness as a sourcing destination and contributing to a sustainable future for the GFT sector.

Building on the successes of the textile waste management pilot of GIZ FABRIC Cambodia and Global Fashion Agenda (GFA), a national Circular Fashion Partnership (CFP) shall therefore be launched in November 2024, modeled after a similar initiative in Bangladesh. The CFP shall run for at least two years (with the possibility of extension) and focus on promoting circularity through multiple workstreams, including stakeholder outreach, brand engagement, policy advocacy on circularity, circular economy and textile waste management training, waste data analysis and matchmaking, and the integration of additional waste management companies into the cooperative framework.

Explanatory Note

When you see this book icon , you can look up the additional information in the Explanatory Note on the page 36.

List of Abbreviations

BFC	Better Factory Cambodia	RR	Reverse Resources
BGMEA	Bangladesh Garment Manufacturers and Exporters Association	SIDA	Swedish International Development Cooperation Agency
BMZ	German Federal Ministry for Economic Cooperation and Development	SRP	Sustainability Recommendation Paper
CAD	Computer-aided Design	STAR	Sustainable Textiles of the Asian Region Network
CARE	Cooperative for Assistance and Relief Everywhere	TAFTAC	Textile, Apparel, Footwear & Travel Goods Association in Cambodia
CCCSP	Cambodia Climate Change Strategic Plan	TOT	Training of Trainers
CFP	Circular Fashion Partnership	TW	Textile Waste
CLF	Closed-Loop Fashion	TWM	Textile Waste Management
CMT	Cut, Make, Trim	UNDP	United Nations Development Programme
CSR	Corporate Social Responsibility	UNEP	United Nations Environment Programme
CSDDD	Corporate Sustainability Due Diligence Directive	UNFCCC	United Nations Framework Convention on Climate Change
EBA	Everything But Arms	VCEH	Viet Nam Circular Economy Hub
EPR	Extended Producer Responsibility	VNCEH	Viet Nam National Chemical E-Waste Hub
EU	European Union	WNM	Waste No More
FABRIC	Fostering and Advancing Sustainable Business and Responsible Industrial Practices in the Clothing Industry in Asia	3Rs	Reduce, Reuse and Recycle
FDI	Foreign Direct Investment	4Rs	Refuse, Reduce, Reuse and Recycle
FTIC	Fashion Industry Target Consultation		
GBVH	Gender-Based Violence and Harassment		
GCGF	Global Circular Fashion Forum		
GDT	General Department of Taxation		
GFA	Global Fashion Agenda		
GFT	Garment, Footwear, and Travel Goods		
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH		
GRS	Global Recycled Standard		
GSP	Generalized Scheme of Preferences		
Higg FEM	Higg Facility Environmental Module		
HREDD	Human Rights and Environmental Due Diligence		
ILO	International Labour Organisation		
LDC	Least Developed Countries		
LOI	Law of Investment		
MISTI	Ministry of Industry, Science, Technology and Innovation		
MoE	Ministry of Environment		
NDC	Nationally Determined Contribution		
NGO	Non-Governmental Organization		
OHS	Occupational Health and Safety		
KPI	Key Performance Indicators		
PITW	Post-Industrial Textile Waste		
QIP	Qualified Investment Project		
RBH	Responsible Business Hub		
RFID	Radio Frequency Identification		
RISE	Reimagine Industry to Support Equality		

1. Introduction

1.1. Background of the Sustainability Recommendation Paper (SRP)

The **garment, footwear, and travel goods (GFT) sector** is of vital importance to the Cambodian economy. Following the integration of Cambodia into the global trade system, the industry has attracted significant foreign direct investment (FDI), particularly from China, and has been the country's main employer and dominant export sector for many years. This was enabled by preferential market access for Cambodia to main consumer markets, such as the US and the EU, based on Cambodia's status as a least developed country (LDC). At the same time, with the support of the international community, notably the - ILO (International Labour Organization)'s Better Factory Cambodia (BFC) program, Cambodia aims to ensure good working conditions in the sector that comply with national labor law as well as with the requirements of global buyers in the industry.

Over the years, these buyers – mostly international fashion brands – have intensified their social as well as ecological responsibility commitments, and various international standards and certifications have emerged to measure and verify their performance. An even more recent trend is the emergence of international legal requirements for industrial players sourcing globally to ensure **Human Rights and Environmental Due Diligence** across their supply chains. An example of such pieces of legislation is the German Supply Chain Act of 2021, which entered into force in 2023 and significantly expands due diligence requirements for German companies – and accordingly inspires cooperation concerning sustainability in supply chains around the world. On 24 May 2024, the European Parliament also voted to adopt the long-awaited EU Corporate Sustainability Due Diligence Directive (CSDDD), which will be transposed into legislation in all EU Member States and thus further extend the scope and coverage of due diligence requirements.

Against this background, the Cambodian Government launched the **GFT Sector Development Strategy** in 2022. This strategy outlines a comprehensive set of measures that can be taken to support the sustainable transformation of the industry to remain competitive in the face of these recent developments. Maintaining the industry's competitiveness is also a high priority as Cambodia is set to graduate from the LDC status to become a lower middle-income country by the late 2020s, which means that trade preferences to markets will be phased out in the medium term. To stay competitive, an outstanding sustainability performance should become the hallmark of GFT products “made in Cambodia,” as it would give buyers continued incentives to procure from Cambodia.

This, however, would require a concerted effort of all relevant stakeholders to make the industry's sustainable transformation a reality.

German development cooperation (via GIZ) has supported the sustainable development of the textile industry in Asia and specifically Cambodia since 2014 through various projects on regional, national, and global levels. The relevant cooperation activities in Cambodia are implemented by GIZ under the heading “FABRIC” (Fostering and Advancing Sustainable Business and Responsible Industrial Practices in the Clothing Industry in Asia), which constitutes an integrated implementation structure of various commissions of the German Federal Ministry of Economic Cooperation and Development (BMZ). To support the roll-out of the GFT Sector Development Strategy in Cambodia, GIZ FABRIC is engaging in **extensive dialogue with public and private partners as well as with civil society** to develop concrete recommendations for action to realize the ambitious agenda. These efforts included a series of public-private dialogue events in 2023 and 2024 organized in cooperation with the Responsible Business Hub (RBH), which is embedded in the European Chamber of Commerce in Cambodia (EuroCham) and supported by Cambodia's GFT sector association, Textile, Apparel, Footwear & Travel Goods Association in Cambodia (TAFTAC).

As a result of the dialogue, GIZ FABRIC Cambodia, along with several partners, including Global Fashion Agenda (GFA), CARE, and Reimagining Industry to Support Equality (RISE) have prepared **Sustainability Recommendation Papers (SRP)** for the **Cambodian GFT Sector** on the following topics:

- **Promoting Textile Waste Management and Recycling in the GFT Sector**
- Prevention of Gender-Based Violence and Harassment (GBVH) at the Workplace
- Promoting the Inclusion of Persons with Disability in the GFT Sector
- Responsible Wage Digitization in the GFT Sector
- Enhancing Sustainability Reporting in the GFT Sector

The present paper constitutes part of this series of five SRPs. The drafting process was led by GIZ FABRIC Cambodia and included significant contributions from experts on circularity in the garment industry such as GFA, Circle Economy (CE), Closed Loop Fashion (CLF), Reverse Resources (RR), and various GFT industry stakeholders participating in related dialogue events in Cambodia, as well as in dedicated interviews as part of the drafting process. The paper is funded by the German Federal Ministry of Economic Cooperation and Development (BMZ) and the H&M Foundation.

1.2 Background Inclusion in Cambodia's Textile Industry

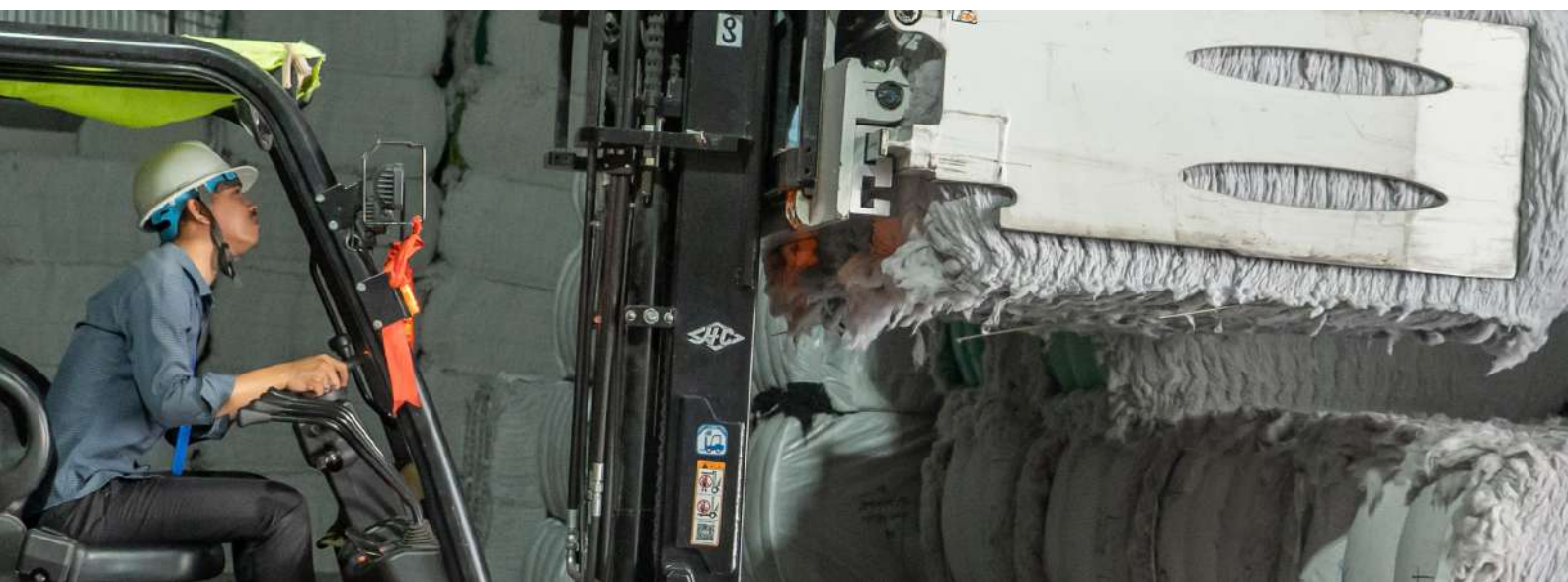
Cambodia's GFT industry has emerged as a cornerstone of the nation's economy, underpinned by decades of socio-economic progress and a young, vibrant labour force. While it continues to be a key source of exports and employment, its current linear model, inscribed in the global "take-make-dispose" paradigm, generates a significant amount of post-industrial textile waste (PITW). Defined as fabric scraps, end-rolls, offcuts, and other textile discards produced during garment manufacturing, **PITW can constitute up to 25%** of the total fabric used, creating a substantial waste management challenge. According to the waste hierarchy and the 4Rs principle, waste should first be reduced, reused, recycled, and recovered from incineration ([European Commission, 2008](#)). For instance, Reverse Resource, a platform focused on traceability of textile waste, categorizes PITW into two types: reusable waste (which includes headstock, re-wearable garments, spinning hard waste, role, and pieces and recyclable waste (smaller waste that cannot be reused, cutting waste).

In Cambodia, more than 800 factories work in the Garment, Footwear and Travel Goods (GFT) sector generates an estimate of about **136,151 tons of PITW annually** according to Waste Streams Study by GIZ. Globally, the GFT sector is responsible for the production of 9 million tons of PITW every year. This has led to more attention being paid to the issue by Governments and policymakers around the world. In response, brands have made several commitments towards more sustainable production and proper management of both post-industrial and post-consumer textile waste. Recently, the textile and garment companies are increasingly paying attention on various policies that aim at promoting sustainability and reducing waste, such as EU Strategy for Sustainable and Circular Textile, EU Extended Producer Responsibility (EPR) Scheme.

This will lead brands to focus on reducing and recycling textile waste from their manufacturing.

The current formal methods available for disposing PITW in Cambodia (primarily landfilling, co-processing or down-cycling), raise concerns either from an environmental sustainability point of view and/or from an economic sustainability one. Unknown amounts of PITW are also exported to other countries for recycling purposes. The unregulated disposal of PITW leads to air and water pollution, harming public health and ecosystems. Moreover, it poses a risk for the Cambodian GFT sector to secure continued business from buyers demanding a circular complaint PITW disposal method. Without dedicated efforts for effective textile waste management, valuable resources are lost, and economic potential from recycling remains untapped.

However, amidst these challenges lies a promising path forward: embracing circularity in the fashion sector. Circularity in the fashion sector refers to a closed-loop system where textile products are designed to be used more, made to be made again, made from safe and recycled / renewable inputs, and recovered at the end of their lifespan. This minimizes waste generation by keeping materials in use for as long as possible. Resources are recovered through recycling, upcycling, or composting, and then used to create new fashion items. Circularity promotes resource efficiency, reduces environmental impact, and fosters a more sustainable fashion industry, according to a study on New Textiles Economy by Ellen MacArthur Foundation 2017. This new paradigm, gaining momentum globally, presents a strategic opportunity for Cambodia's GFT industry to navigate the changing landscape and ensure long-term success. In the face of evolving regulations in the EU and other developed countries, driven by growing sustainability concerns, implementing circularity for PITW is not just essential, but vital for remaining competitive.



One way to introduce circularity in the textile sector is through the textile-to-textile recycling approach. Currently, existing recycling technologies have the potential to drive 80% circularity in the fashion industry if fully scaled. These technologies have the potential to deliver better economics than virgin materials, at scale (Global Fashion Agenda, 2021). The challenge is providing conditions for scaling, which include collection and sorting infrastructure, and investment in the recycling sector to scale up capacity. This investment requires confidence in supply of quality, usable feedstock, and demand for recycled output.

But circularity goes well beyond recycling fibers; “reduce by design” aims to reduce the amount of material, particularly raw material, and hazardous chemicals consumed during production and during use from the very beginning of product and service conceptualization. Parallely, “design for circularity” is equally important as bad design (complexity of the mix of fibers, use of unrecyclable fibres, etc.) as it complicates or renders the recycling process impossible. Circularity is a means to achieving sustainable development and is central to the delivery of many of the Sustainable Development Goals, in particular *SDG 12 Responsible Consumption and Production*. In practice, circular economy practice increases material efficiency by reducing resource waste and creating material loops that divert waste from landfills back into the production sector as new inputs.

Given the current recycling ecosystem present in Cambodia and the fact that Cambodia’s GFT industry is mainly focusing on the cut-make-trim (CMT) stages of production, reaching a recycling or reuse rate of 100% within Cambodia is deemed unrealistic within the next few years, because the existing waste management infrastructure is inadequate and lacks the necessary technology and facilities to support comprehensive recycling efforts. Additionally, there is limited public awareness and participation in recycling initiatives, which hinders the effectiveness of any potential recycling programmes. Cambodia does have the potential to become a feedstock provider – notably of recycled fibers, recycled yarn, or pre-processed textile waste – for other countries possessing more advanced recycling technologies and facilities or countries possessing the technologies to transform recycled fibers in new textiles. Cambodia can, however, make efforts on reducing the amount of PITW and other related waste types produced at the production stage, which could result in the reduction of PITW quantities and toxicity and on PITW collection and sorting, which are essential first steps to move towards better PITW management and thus, circularity.

In this context, the activity of PITW recycling is perhaps the most relevant towards a transition to a circular supply chain that would offer a tangible positive environmental impact. Currently, there are two main methods for recycling textiles: –mechanical recycling and chemical recycling. In mechanical recycling, textile waste is fiberized or melted and then spun into a new yarn. Chemical recycling involves breaking down textile waste into its smallest building blocks (at the molecular level), which are then reassembled into a textile raw material and a new yarn. Nowadays, the mechanical options are the only one used in Cambodia.

Circular solutions like mechanical and chemical recycling, alongside upcycling/ downcycling initiatives, can transform waste into valuable resources, minimizing environmental pollution and contributing to a cleaner Cambodia. This aligns with the national goal of achieving carbon neutrality by 2050, outlined in the [Cambodian Climate Change Roadmap 2030](#)¹⁰.



2. Government and GFT Sector Existing Strategies on Textile Waste Management and Recycling

Cambodia's GFT industry is embracing sustainability, driven by government initiatives, private sector innovation, and international collaboration. The government is implementing policies and regulations aligned with global trends towards circularity, including extended producer responsibility (EPR) schemes and bans on harmful chemicals. Private companies are also embracing circularity, implementing innovative solutions for textile waste management and recycling. Development partners are actively involved, sharing knowledge and expertise through initiatives like the GIZ FABRIC Cambodia Textile Waste Management Pilot. This collaborative approach is essential for addressing the challenges of textile waste and promoting a sustainable future for the Cambodian GFT sector. This chapter will delve deeper into the specific strategies and initiatives being implemented by the government, the private sector, and development partners to achieve this goal.

2.1. Legal and Regulatory Frameworks and Government Initiatives

Cambodia's GFT sector is undergoing a transition towards sustainability. This section dives into the legal and regulatory landscape that underpins this transition, focusing on government initiatives aimed at promoting sustainable textile practices and improving PITW management. The existing framework for supporting circularity in the GFT sector and government's commitment to a greener garment industry, acknowledge the challenges of translating policy intentions into concrete actions. This analysis provides a foundation for identifying opportunities and recommending strategies to further strengthen the legal and regulatory environment for a more sustainable GFT sector in Cambodia.

2.1.1. Global Strategies, Initiatives, Regulations

The global textile industry is experiencing a substantial transformation towards more environmentally friendly and ethically conscious practices, driven by a growing wave of regulations. The EU is leading the charge with initiatives like the Corporate Sustainability Due Diligence Directive (CSDDD), requiring large companies to assess and address human rights and environmental impacts throughout their supply chains. The EU Corporate Sustainability Reporting Directive (CSRD) mandates comprehensive sustainability reporting, while the Eco-design for Sustainable Products Regulation (ESPR) promotes more sustainable products by setting minimum requirements for product design and recycled content. Beyond the EU, the New York Fashion Act promotes transparency and accountability. These regulations, along with initiatives like the EU Product Environment Footprint Guide and the EU Taxonomy, create a more transparent and accountable textile industry, incentivizing responsible practices, and holding companies accountable for their environmental and social impacts. China's "Prohibition of Foreign Garbage Imports" reform plan further emphasizes a shift towards a more sustainable and responsible waste management system. This trend signals a global movement towards more sustainable and responsible supply chains, emphasizing environmental protection, social responsibility, and circular economy principles. The evolving regulatory landscape presents both challenges and opportunities for the textile industry, requiring a proactive approach and collaboration along the supply chain to ensure compliance and embrace sustainable practices.

The box below provides a high-level overview of **the major relevant strategies, initiatives, and pieces of regulation on the global level** – and which targets, requirements and obligations they entail.



STRATEGIES

I. European Green Deal:

- Makes Europe climate-neutral by 2050.
- Reduces greenhouse gas emissions by 2050.
- Invests in green technologies and industries.
- Promotes a circular economy.
- Protects biodiversity and reduces pollution.

II. EU Strategy for Sustainable and Circular Textiles :

- Fosters a sustainable and circular textile industry in the EU, minimizing environmental impact and promoting social responsibility.
- Establishes minimum sustainability requirements for textile products (e.g., recycled content, durability, repairability).
- Shifts responsibility for textile waste management onto producers (Extended Producer Responsibility).
- Promotes research and innovation in sustainable textile production and processing.
- Provides a framework for classifying sustainable investments (EU Taxonomy).
- Implements proposed legislation requiring product passports for textiles, providing information on their environmental and social impacts throughout their lifecycle.

INITIATIVES

I. EU Product Environmental Footprint Guide (PEF) :

- Provides a standardized methodology for measuring and communicating the environmental footprint of products.
- Covers 16 impact categories, including climate change, water use, and land use.
- Allows for comparisons between comparable products based on a full life-cycle assessment.
- Promotes transparency and helps consumers make more informed purchasing decisions.

REGULATIONS

I. German Due Diligence in the Supply Chain Act :

- Requires large companies operating in Germany to identify and prevent human rights abuses and environmental damage within their global supply chain.
- Applies to companies with over 3,000 employees in Germany.
- Companies must establish due diligence processes, conduct risk assessments, and take action to mitigate identified risks.
- The law includes provisions for enforcement and penalties for non-compliance.

II. EU Corporate Sustainability Due Diligence Directive (CSDDD) :

- Applies to large EU companies with over 500 employees and €150 Million in net turnover, as well as non-EU companies with substantial EU operations.
- Requires companies to identify, prevent, mitigate, and account for human rights and environmental impacts in their own operations and value chains.
- Companies must conduct due diligence and develop a plan to remediate identified adverse impacts.
- Fines for non-compliance can reach up to 2% of a company's total worldwide annual turnover.
- On April 24, 2024, the European Parliament voted to adopt the CSDDD, which needs to be transposed into national law by all EU Member States until 26 July 2026.

III. EU Corporate Sustainability Reporting Directive (CSRD) :

- Entered into force on January 5, 2023, as an EU Directive, and EU countries transpose it into their national laws by June 16, 2024
- Expands the scope of the existing Non-Financial Reporting Directive (NFRD) to include more companies.
- Requires large companies and listed small and medium enterprises (SMEs) to report on sustainability topics including environmental, social and governance (ESG) factors.
- Companies must disclose information on their business model, policies, risks, and key performance indicators related to sustainability.
- The directive will be implemented in phases, starting from larger companies that already subject to reporting under the NFRD.

IV. New York Fashion Act :

- Applies to fashion retailers and brands doing business in New York with global revenues over \$100 Million.
- Requires companies to disclose environmental and social impacts across their supply chains, including water usage, chemical management, and worker wages.
- Companies must set public targets to reduce their environmental footprint and improve social conditions.
- Failure to comply can result in civil penalties up to \$500 per violation per day.

V. EU Eco-design for Sustainable Products Regulations (ESPR):

- Expands the Eco-design Directive to cover a broader range of products, including textiles.
- Sets minimum sustainability requirements for product design, repairability, recyclability, and recycled content.
- Textile products will need to meet requirements on fibre composition, durability, and recycled content.
- The regulation aims to make sustainable products the norm in the EU market.

VI. EU Microplastics Regulation:

- Restricts the intentional addition of microplastics (particles under 5mm) to products, including in textiles.
- Requires companies to label products containing microplastics and provides information on their safe use and disposal.
- Fines for non-compliance can reach up to 4% of a company's global annual sales.

VII. EU Textile Regulation:

- Proposed legislation that would set mandatory sustainability requirements for textile products sold in the EU.
- May include rules on recycled content, durability, and chemical restrictions.
- Aims to address issues like microplastics, waste, and human rights violations in the textile supply chain.
- Could require product passports with information on a textile's environmental and social impact.

VIII. EU Taxonomy:

- A classification system that defines which economic activities are considered environmentally sustainable for investment purposes.
- Provides a common language and criteria for identifying "green" investments that contribute to EU climate and environmental goals.
- Includes specific technical screening criteria for activities in sectors like manufacturing, agriculture, and textiles.
- Helps channel private investment towards sustainable economic activities and provides transparency for investors.
- Prohibition of Foreign Garbage Imports – the Reform Plan on Solid Waste Import Management:
- Significantly restrict and eventually eliminate the import of foreign solid waste into China.
- Introduces stricter regulations and criteria for imported solid waste.
- Encourages the development of domestic recycling infrastructure and promotes the use of recycled materials within China.

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- Encourages the development of domestic recycling infrastructure and promote the use of recycled materials within China.

2.1.2. Cambodia Policies, Laws, and Regulation

Cambodia is actively pursuing a more sustainable and circular economy, particularly within its GFT sector. The country's multifaceted approach includes strategies such as the National Strategic Plan on Green Growth and the Circular Economy Strategy and Action Plan, which emphasize resource efficiency, waste management, the 3Rs (Reduce, Reuse and Recycle) and extensively to 4Rs (Refuse, Reduce, Reuse, and Recycle) principles. The Cambodian Government has also implemented policies such as the Cambodia Industrial Development Policy and the new policy on Urban Solid Waste Management, promoting cleaner production and a holistic approach to waste management. Regulations, such as

Notification No. 12, Instruction No. 11, and Sub-decree No. 36 address waste management practices, particularly within factories and enterprises. The 2023 Industrial Transformation Map for Textile & Apparel Industry encourages manufacturers to implement initiatives and best practices to improve the sustainability. The newly adopted Environmental and Natural Resources Code, along with the updated 2023 Law on Investment, further strengthen the legal framework for environmental protection and the circular economy, including incentives for investments in waste recycling. Lastly, the GFT Strategy that aims at using resources in accordance with the concept of circular economy. This comprehensive but also variegated approach aims to foster a more sustainable and circular GFT sector, contributing to Cambodia's economic development while safeguarding the environment.

The box below provides a high-level overview of the major relevant strategies, policies, and pieces of regulation on the Cambodian national level – and which targets, requirements and obligations they entail.

STRATEGIES

I. National Strategic Plan on Green Growth (NSPGG) (2013-2030):

- Fosters inclusive, environmentally sustainable growth, enhances the efficient use of natural resources, and improves capacity to adapt to climate change.
- Promotes resource efficiency and a 3Rs approach.

II. National Environment Strategy and Action Plan (NESAP) (2016-2023):

- Emphasises the promotion of sustainable manufacturing practices in the GFT sector to mitigate environmental impacts.

III. Phnom Penh Waste Management Strategy and Action Plan (2018-2035):

- Aims to optimize waste separation and resource recovery, with a focus on attracting investment in waste management infrastructure.

IV. Rectangular Strategies for Growth, Employment, Equity and Efficiency Phase IV (2018):

- Emphasizes economic diversification and includes sustainable development as a priority area.
- Highlights private sector engagement in promoting public-private partnership to drive investment and innovation and enhancing collaboration with international partners to mobilize resources and expertise.

V. National Strategic Development Plan (NSDP) (2019-2023):

- Acknowledges the importance of improving competitiveness in the GFT sector, potentially through circularity measures.

VI. Cambodia's Updated Nationally Determined Contribution (NDC) (2020):

- Highlights the potential of a centralized recycling facility for reducing greenhouse gas emissions in the GFT sector.

VII. Circular Economy Strategy and Action Plan (2021):

- Outlines Cambodia's vision for a circular economy and recognizes the GFT sector's impact on resource use and pollution.
- Aims to create a sustainable economic framework that reduces waste, maximizes resource use, and promotes environmental stewardship, contributing to long-term economic resilience and sustainability.

VIII. Cambodia's Roadmap for Sustainable Consumption and Production (2022-2035):

- Aims to create a comprehensive framework for promoting sustainability, reducing environmental impacts, and fostering economic resilience through responsible consumption and production practices.
- Promotes resource efficiency, waste management practices, and the 4Rs approach in the GFT sector.

IX. Cambodia Garment, Footwear and Travel Goods (GFT) Sector Development Strategy (2022-2027):

- Acknowledges the growing importance of environmental sustainability in the GFT sector, particularly when it mentions: "use of resources in accordance with the concept of circular economy and the recycling of fabric, accessories, and other raw materials efficiently and sustainably".

X. Circular Strategy on Environment (2023-2028):

- Aims to promote the 4Rs principle, solid waste management, and a circular economy through legal instruments and capacity building.

XI. Pentagonal Strategy (Phase 1) (2023):

- Sets strategic objectives that support circularity, including promoting green development and strengthening environmental impact assessments.

XII. Upcoming Cambodia Climate Change Strategic Plan 2024 –2033:

- Aims to address gaps identified in the approach towards the country's Nationally Determined Contribution (NDC) and Long-Term Strategy for Carbon Neutrality targets with attention to risk-population, children and women.

XIII. Industrial Transformation Map for Textile & Apparel Industry 2023-2027:

- Encourages the manufacturers to establish sustainability committee, establish baselines on energy, water, waste, chemical, air emissions.

POLICIES

I. Cambodia Industrial Development Policy (2015-2025):

- Aims at promoting industrialisation and enhancing the competitiveness of Cambodia's industrial sector.
- Emphasizes cleaner production and avoidance of pollution from industrial waste.

II. New Policy on Urban Solid Waste Management (2020-2030):

- Encourages a holistic approach to waste management, including the circular economy.

III. Environmental and Natural Resources Code (also known as Environmental Code):

- Was adopted on 29 June 2023 to enable legal and policy environment to achieve environmental protection and support sustainable economic development in Cambodia. It also mentions solid waste recycling and import and export of waste materials.

REGULATIONS

I. Notification No. 12 on Stopping Trafficking or Providing and Burning of Industrial Waste (2003):

- Aims to mitigate the adverse effects of industrial waste on health and ecosystems.
- Regulates the sale of industrial waste management, particularly the illegal trafficking, improper disposal, and incineration of hazardous industrial waste including garment scraps (in the case of burning).
- Establishes guidelines for the collection, transportation, and disposal of industrial waste to ensure compliance with environmental standards.

II. Instruction No. 11 on Solid Waste Management at Factories (2003):

- Mandates waste segregation for factories and enterprises at source into different categories, including hazardous and non-hazardous waste.
- Guidelines for the proper storage and handling of solid waste to prevent contamination and environmental hazards.
- Encourages the use of environmentally friendly disposal methods, including recycling, treatment and safe disposal practices.
- Maintains waste records and monitoring compliance.

III. Sub-decree No. 36 on Solid Waste Management (1999):

- Serves as a foundational legal instrument for solid waste management in Cambodia and applies to all types of solid waste generated by household, industrial, and commercial activities.
- Regulates the solid waste management with proper technical manner and safe way to ensure the protection of human health and the biodiversity conservation.
- Importantly, this sub-decree classifies colourful fibrous and clothing wastes as hazardous waste, in case of burning.

IV. Updated 2023 Law on investment:

- Redefines incentives by providing further support to investments bolstering “environmental management and protection, and biodiversity conservation and the circular economy”, notably through its Qualified Investment Project (QIP), which grants special privileges to companies investing in environmental sectors like waste recycling.
- Aims to promote and facilitate both domestic and foreign direct investment (FDI).
- Introduces single window process where all necessary permits and license can be obtained from one location and provides clear guidelines.

Overall, Cambodia has a substantial framework of policies, strategies, and regulations that indirectly support circularity in the GFT sector. These instruments promote resource efficiency, waste management, and a shift towards a circular economy, though none of them provides precise guidance on Post Industrial Textile Waste Management for the GFT sector specifically. Challenges also remain in translating policy intentions into action. The capacities for effective policy implementation are limited on various levels. The needed inter-ministerial coordination to drive textile waste recycling

and circular approaches in the GFT sector is under-developed. The Inter-Institutional Working Group and the Advisory Working Group under the GFT Sector Development Strategy could be suitable for addressing the issues.



2.2. Private Sector Initiatives

Globally, in recent years, brands have been making pledges and setting targets aimed at reducing their climate impact, targeting GHG emissions. According to the Fashion Industry Target Consultation (FTIC) data, currently, 67% of brands reported to have set and are measuring progress against a target to limit GHG emissions across scope 1, 2, and 3 by 2023 and commit to achieving net zero emissions no later than 2050 in line with UNFCCC requirements (FTIC, 2024). Circularity is one of the strategies identified for reaching climate targets. Various collaborations among private businesses in the garment sector, especially in textile producing companies, have also been established. Other circularity results studied by FTIC are demonstrated as followed:

- 55% of brands have set targets to design all products for the circular economy by 2040.
- 45% of brands aim to generate at least 10% of their total revenue from circular business models by the same year.
- 82% of brands have set goals to support textile-to-textile recycling of post-industrial and post-use textile waste by 2030.
- 55% of brands claimed to have set targets to reduce absolute finite resource use by at least 30% against a base-line no later than 2022 by 2035.
- 45% of brands claimed to have set targets to establish and publish a policy to reduce overproduction by at least 30% by 2040.
- 67% of brands claimed to have set targets to increase share of consumer marketing messages promoting circular models by 2030.

Specifically, on the opinion about Cambodia among private sector stakeholders a **Fashion Industry Target Consultation** was conducted by GFA and UNEP's where it emerged that:

- On Textile Recycling Infrastructure Turkey was deemed to have the best textile recycling infrastructure, followed by China, and Pakistan and Viet Nam in joint third. Cambodia received the poorest rating, followed by Bangladesh and Indonesia.
- On Conduciveness of the policy environment for textile recycling Cambodia was most frequently scored 'excellent' for its textile recycling policy environment. However, responses presented significant variations and reflect a dichotomy between the non-existence of a specific policy and the opportunity that lies in an untapped market.

In a nutshell Post-industrial textile recycling initiatives are becoming increasingly popular as brands seek to enhance their sustainability efforts. These initiatives are often led and/or facilitated by development partners and civil society. Where development partners often provide technical expertise, capacity building, funding, support awareness or finance infrastructure, and the civil society might engage directly with local communities, awareness and education. Brands that engage in these initiatives are positioning themselves as leaders in sustainability, responding to both consumer demand and regulatory pressures to reduce their environmental impact.

2.3. Development Partner Initiatives

This section explores ongoing initiatives facilitated by development partners in close cooperation with stakeholders from the GFT industry to address the challenges of textile waste and promote circularity in the industry across Asia. The circular initiatives mentioned in this section include case studies from India, Bangladesh, and Viet Nam. Focusing on Cambodia, this section also presents the GIZ FABRIC Cambodia Textile Waste Management Pilot launched in 2024 – a pilot initiative aimed at developing a circular textile waste management system in the Cambodian GFT sector.

2.3.1. Circular Fashion Initiatives in Other Countries

China's Policies around Textile Waste Recycling

China is actively pursuing sustainable development in the textile and apparel sector through ambitious recycling targets and comprehensive waste management reforms. The country's "Implementation Opinions on Accelerating the Recycling of Waste Textiles" aims for a 25% recycling rate by 2025 and 30% by 2030. This roadmap focuses on establishing a robust textile recycling system, including expanding recycling channels, strengthening management, and tackling illegal practices. These measures are expected to significantly increase the production of recycled fibers and contribute to a more sustainable textile industry in China. However, China's ban on textile waste imports in 2017 has disrupted global recycling supply chains. Other countries like Malaysia and Viet Nam have followed suit, slashing scrap import quotas. This has posed challenges for nations with less developed recycling infrastructure, who struggled to shift to more sustainable waste management practices due to lack of investment, incentives, policy frameworks, and low enforcement of existing law. Adapting to the new landscape of global waste trade requires comprehensive solutions tailored to national contexts, supported by effective policy and capacity building.

India

The "[Sorting for Circularity India Project](#)" initiated by Fashion for Good in 2021, aimed to systematize the Indian textile waste market through a three-phased approach. This project sought to streamline, strengthen, and promote the Indian waste market, driving the transition towards a more circular economy that maximizes value recovery. It brought together a diverse group of stakeholders, including international fashion brands, textile manufacturers, fiber producer, recyclers, NGOs, and technology and software companies. The project received catalytic funding from Laudes Foundation and IDH, and knowledge support from Canopy and Circle Economy (CE). Furthermore, drawing upon the valuable insights gained throughout the project, Fashion for Good has developed a toolkit designed to unlock the immense potential of textile waste in India. This toolkit offers valuable insights, assessments, and practical guidance to advance recycling within the Indian textile industry.

Bangladesh

The [Circular Fashion Partnership \(CFP\) in Bangladesh](#) launched in 2021, aims to promote textile recycling by channelling post-production waste back into the production cycle. This initiative is implemented by Global Fashion Agenda (GFA) in collaboration with the Bangladesh Garment Manufacturers & Exporters Association (BGMEA), Reverse Resources (RR) and P4G Partnership. It involves various stakeholder holders, including brands, manufacturers,

and waste management companies to solve country's PITW and transform it into a more circular system. Bangladesh's PITW is currently being managed by informal traders, making it difficult to ensure the traceability and transparency of PITW flow. This also include low quality or lack of PITW information for recycling in the country, limited knowledge and awareness of the potential economic benefits, lack of social compliance in the informal channels, and current policy barriers to support and incentivise investment and industrial process.

Key learnings from the CFP Bangladesh project include the successful registration of significant amounts of waste and the ongoing efforts to formalize the informal waste management sector. This project demonstrates the potential for collaborative efforts to drive circularity in the fashion industry and emphasizes the importance of policy support for scaling circular solutions. This initiative also strengthened the recycling industry, creating new opportunities and job creations. By enhancing value chain transparency and advocating for policy change, the CFP contributes to a cleaner environment and a more responsible approach to fashion production in Bangladesh.

Viet Nam

To address the challenge of textile waste in Viet Nam's garment industry, the United Nation Development Programme (UNDP), the Viet Nam National Chemical E-Waste Hub (VNCEH), and GIZ (commissioned by BMZ) initiates a pilot called the [Viet Nam Circular Economy Hub \(VCEH\)](#). This initiative aims to establish a secondary materials marketplace in Viet Nam, with a focus on exchanging textile waste and other recycle materials, promoting sustainable business practices in the country. The marketplace is intended to be a technology-based platform enabling online trading, making it easier for sellers and buyers to connect and establish a network of material and service suppliers, manufacturers, and recyclers to create a more transparent and competitive marketplace. The platform aims to certify and standardize secondary materials to ensure the highest social standards. By promoting the use of recycle materials, the marketplace can help reduce reliance on virgin materials, create a more sustainable garment industry, and meet the growing demand for sustainable products from international brands.

In addition, another initiative in Viet Nam called "[Waste No More \(WNM\)](#)" is initiated by GIZ to promote closed-loop recycling of pre-consumer waste in the apparel and footwear supply chain. The project brings together multinational brands, manufacturers, and business associations in the Vietnamese textile, apparel, and footwear

industry. WNM also aims to improve working conditions in the Vietnamese waste sector. The project provided training materials and tools to support its objectives, including webinars on waste management, the **T-Waste Tracker digital tool** for facility waste management that it is developed in harmonization with **Higg FEM 4.0** requirement and Viet Nam regulation on waste, and a database of waste contractors in the textile and footwear supply chain to support brands and factories to identify more recycling and circular solutions.

2.3.2. FABRIC Cambodia Textile Waste Management Pilot for Circularity in the Cambodian GFT Sector

The GIZ FABRIC Cambodia project initiated a multi-stakeholder partnership together with Global Fashion Agenda (GFA), to promote textile waste management and recycling in Cambodia. This pilot project, called the "Advancing Post-Industrial Textile Waste Recycling for a Circular Supply Chain in Cambodia" in short Textile Waste Pilot, was developed based on extensive research and stakeholder engagement conducted by GIZ in 2021 and 2022.

According to a GIZ study on PITW flows published in 2021, there is substantial economic and environmental potential in capturing and recycling textile waste in Cambodia. GIZ also surveyed 38 local manufacturers in 2022 to better understand their textile waste practices, waste composition, disposal methods, and awareness on the topic. Drawing on these insights, the GIZ FABRIC project established the collaborative pilot to demonstrate a circular supply chain model for textile waste recycling.

Through this pilot initiative, GIZ facilitated in 2023/2024 a partnerships between brands, factories, recyclers, and local as well as international service providers like Sevea and Close Loop Fashion (CLF). Together, they worked to set up effective textile waste management systems in 21 garment factories, involving 60 experts, belonging to 11 International Brands' supply chains. This involved conducting in-depth assessments at the factories, developing segregation at source, tailored action plans, providing hands-on implementation support and training, and exploring digital traceability solutions for the textile waste flows. The pilot went further in strengthening the ecosystem and infrastructure of the recycling activity, providing matchmarking with two formally registered



recyclers, ultimately strengthening compliance practices inside a highly informal sector.

The pilot has delivered impressive results till date. Over 3,000 tons of textile waste have been diverted from landfill to recycling, with 932 tons recycled into new yarn (exported, thus strengthening also the trade balance) and an additional 800 tons prepared for recycling (exported as well). 64% of the identified corrective actions have been completed, and most important, the sorting and segregation quality rate has reached an average of 65%.

21 factories and 60 participants have been trained and certified their participation on sustainable textile waste management practices. While the pilot has been highly successful, there are also areas for improvement, such as strengthening digital traceability, improving waste segregation methods, and streamlining the audit process for the recycler. Building on this pilot, the GIZ FABRIC project plans to scale up the textile waste management and recycling initiative across Cambodia, as detailed in the upcoming Chapter 5.

The project also aims to share the lessons learned and best practices regionally, through platforms such as the Sustainable Textile of the Asian Region Network (STAR), the first inter-Asian network of producer associations and the Asia Garment Hub (AGH).

3. Stakeholder Consultations on Textile Waste Management and Recycling

Several stakeholder consultations took place to inform this recommendation paper, most notably those organized by the Global Circular Fashion Forum (GCFF), and the Cambodia Responsible Business Hub (RBH), both supported by GIZ.

The Global Circular Fashion Forum (GCFF) is spearheaded by Global Fashion Agenda (GFA) with the support of Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and the H&M Foundation. The GCFF aims to drive local action in textile manufacturing countries to accelerate and scale up the recycling of PITW. The forum serves as a platform for bringing together key stakeholders, including industry players, investors, global brands, technology providers, and governments, to facilitate the exchange of knowledge and best practices, fostering the development of a robust ecosystem for circularity.

A concrete example of this collaborative effort is the Public-Private Dialogue on “Textile Waste Opportunities for Circular Textiles, Garments and Footwear in Cambodia,” jointly organized by GIZ-FABRIC, GFA, and the Responsible Business Hub (RBH) of the European Chamber of Commerce in Cambodia. This event, held on May 16th, 2023, brought together representatives from the Ministry of Environment (MoE), Ministry of Industry, Science, Technology and Innovation (MISTI), Textile, Apparel, Footwear & Travel Goods Association in Cambodia (TAFTAC), industry experts, and other stakeholders to explore the potential of valorising textile waste and developing circular business models in Cambodia.

This dialogue identified key challenges hindering the transition to a circular economy in the Cambodian GFT sector:

I. Lack of formal textile waste recyclers: This limits the effective recycling of textile waste locally.

II. Dominance of the informal sector in waste management: This hinders transparency and compliance with environmental and social standards.

III. Lack of transparent data regarding textile waste: This makes it difficult to understand the types, composition, and amounts of textile waste available for reuse or recycling.

IV. Absence of waste segregation at source: This makes effective textile recycling more challenging and costly.

V. The lack of sorting and centralized hubs: these hubs would be required to aggregate sufficient volumes of specific waste compositions prepared for recycling.

VI. Behavioral change: The limited knowledge of textile waste management practices, environmental sensibility and scares focus on circularity in the Cambodian context and economy condensate in a resistance to transitioning into a circular economy.

VII. Lack of clarity in taxation: Significant tax implications prevent most factories from formalizing their cutting waste sales and reporting fully in accordance with national tax requirements. This contributes to the continuation of the informality of the transactions as well as frustrate the possible incentives for the factories in selling the PITW.

VIII. Limited knowledge and awareness: textile waste management is a relatively new topics and many factories are ignoring the benefits of sorted textile wastes, including options for how to effectively manage their waste and added value that factories can receive from sorted textile wastes.

IX. Cost of Electricity: excessive cost of electricity presents a significant barrier to attracting recyclers that would invest heavily in machinery.

X. Lack of Investments: there is a quite evident investment gap in technology, knowledge and experience between the local recycling sector and the Vietnamese or Chinese one. Therefore, investments will be needed at all stages of the value chain.

Further efforts to promote circularity in the textile and garment industry are being undertaken through the Asian Dialogues Conference, a series of events organized by GIZ FABRIC Asia in collaboration with the Sustainable Textiles of the Asian Region (STAR) Network and local partners. This conference brings together industry representatives from brands, suppliers, workers, civil society, and government bodies from across Asia, aiming to promote and ensure sustainable production in the textile and garment industry.

To gain a deeper understanding of the challenges and opportunities for promoting circularity in the GFT sector, a series of interviews were conducted between March and April 2024 with national and international key stakeholders of the industry and circularity experts, including brands, international organizations, consulting firms, and certification bodies.

The recommendations put forward in this paper were drawn from these various types of stakeholder consultations mentioned above.



4. Recommendations

This paper provides recommendations to accelerate the transition towards circular approaches in the Cambodian GFT sector. While the Government has a key role to play, by applying policies that motivate responsible textile waste management and recycling, such efforts alone will not be sufficient. Reducing, capturing and recycling waste, ultimately requires action from companies across the value chain. This means that all actors – in particular GFT brands and factories as well as waste management companies – will need to join efforts to make circularity a reality. It is important to note that full circularity could only be achieved nationally if the whole value chain of the sector is vertically integrated within the country. Alternatively, circularity can only be achieved regionally, with Cambodia becoming a PITW feedstock provider for other countries in the region. In both cases, proper management of PITW should be the first step to achieve both national and regional circularity within the GFT sector. The key will be to involve all stakeholders in this process and form multi-stakeholder initiatives, including with the support of development partners.

Accordingly, this chapter provides recommendations for the different relevant stakeholder groups in dedicated sections for (4.1) the Cambodian Government, (4.2) the producing GFT industry, (4.3) international buyers / fashion brands, (4.4) waste management companies, and (4.5) development partners.

4.1. For the Cambodian Government

The Cambodian Government has already taken steps towards sustainability and circularity in the GFT sector, notably in terms of developing high-level strategies and pieces of legislation. However, slow implementation or limited enforcement of the latter, and remaining regulatory and bureaucratic hurdles have thus prevented the creation of an enabling environment for a thriving textile waste recycling sector. It is, therefore, recommended to focus on the implementation of already existing strategies and legislation.

Particularly crucial items include:

- The implementation of the 4Rs principle (Refuse, Reduce, Reuse and Recycle) as enshrined in Cambodia's Roadmap for Sustainable Consumption and Production and the Circular Strategy on Environment (see chapter 2.1.2)
- The realization of centralized recycling facilities for industrial waste from the garment sector as one of the major mitigation actions of Cambodia's Updated

Nationally Determined Contribution (NDC) of 2020.

- The “use of resources in accordance with the concept of circular economy and the recycling of fabric, accessories, and other raw materials efficiently and sustainably” as mentioned GFT Sector Development Strategy.
- The upcoming Cambodia Climate Change Strategic Plan 2024 -2033.

The recommendations presented below aim at supporting effective policy implementation as well as reinforcing and adjusting existing strategies:

I. Shift Towards the Circular paradigm: It is important to move away from the linear way of thinking towards a more circular approach. This should result in waste, including PITW, being considered a resource instead of unwanted materials that solely need to be managed. This shift should be concretized through the development of binding policy instruments providing recommendations for PITW management following the waste hierarchy principles. Regulations should incentivize segregation, reusing, repurposing and recycling of textile waste, carefully categorize landfilling materials, precisely control and manage authorized boiler burning with proper air filtration and pollution controls, and ban burning in brick kilns. Provisions for monitoring and enforcing these policy instruments need to be planned to ensure compliance, especially through clear role and responsibility definitions between government bodies. Additionally, the Cambodian Government should develop an enabling environment for the recycling sector's development. For example, it could facilitate licensing of dedicated textile waste collectors, as implementing a structured system ensures efficient and accountable collection processes, which in turn facilitates better waste management. Tax incentives and subsidies for recycling investments, supporting side industries or formal downcycling industries like insulation, furniture, and construction materials that could reuse textile waste, are other mechanisms the government can consider. With this regulatory framework, an action plan/strategy with concrete PITW targets and government body roles should be developed. The Government could also develop support programs for factories or waste handlers to enhance textile waste management. Compliance improvement and implementation facilitation tools for factories and value chain actors could be developed to ease the transition (e.g., mapping of reuse/recycling options). Some of the above suggestions are detailed in dedicated recommendations below.



II. Build up Sorting, Collection and Recycling Infrastructure and Capacities:

The Government should support factories and set up a favourable environment for proper PITW management. Simple waste management practice changes at factories can achieve good initial segregation. The upcoming Climate Change Strategy envisions mandatory waste treatment facilities for the GFT sector to which all segregated PITW should be diverted. To address factories lacking space for waste sorting and storage, sorting and recycling hubs could be created as stated in the NDC. This will not burden factories with waste sorting alone and achieve greater efficiency, providing recyclers with higher quality, constant and sufficient feedstock. This will require awareness-raising, behavioural change, and upskilling of factory management and workers to understand proper PITW management and implement 3Rs.

III. Facilitate Investments in Recycling Technology: The 2021 Law on Investment (LOI) clearly states that sectors contributing to climate change adaptation and mitigation, including textile waste segregation and recycling, are entitled to investment incentives. However, there is limited success in attracting such investments thus far. Investigating this matter and positioning Cambodia as a regional PITW recycling hub would be advisable. Addressing high energy costs could also help build the business case for PITW recycling.

IV. Improve Waste Data Collection and Traceability of PITW:

A significant challenge confronting various stakeholders in the textile waste sector, including brands, recyclers, and collectors, is the profound lack of traceability regarding the materials processed. Traceability encompasses critical information such as yarn composition, laboratory test results on fabric, chemicals used, factory and mill provenance, pantone color, gross and net weight, cutting dates, and impurity percentages. This deficiency in traceability arises from several factors, including the informal and illegal character of the current collection methods, the lack of adequately trained and knowledgeable collectors, and the general disinterest of factories in their waste, leading to the

disregard of valuable information. The omission of this essential data diminishes the inherent value of the waste, impedes the recycling process, reduces productivity, and ultimately results in lower quality outputs. Addressing this issue necessitates the enhancement of material traceability. The government could play a pivotal role by establishing binding regulations for factories, potentially through the implementation of free digital tools designed to track PITW. Simultaneously, improving data collection related to the generation, trade, and disposal of PITW is imperative. Factories, collectors, and recyclers should report on these activities, while the government should strengthen its capacity for monitoring, and ensuring transparency through designated bodies responsible for collecting and analysing data from factories. The establishment of centralized collection hubs and a national database detailing waste volumes and compositions would significantly reinforce transparency within the sector. Such measures would position Cambodia at the forefront of global best practices for textile waste management. Some development partners have already initiated pilot projects involving digital tools, such as the GIZ FABRIC / Circular Fashion Partnership (CFP) Cambodia initiative, which is developing an efficient data collection method and is prepared to offer analysis and insights to the Government.

V. Definitions and Clear Import/Export Regulations on Textile Waste:

While regulations exist governing the import and export of general waste, it is crucial to establish specific rules and conditions for the export and import of textile waste, given that this category constitutes a significant portion of the industrial waste generated in the country. Additionally, it would be advisable to clearly define what constitutes textile waste and recyclable textile waste. This clarification would facilitate the export of PITW. As the development of a national circular ecosystem progresses, it will be necessary to address the challenges associated with this type of waste and develop appropriate solutions. In the long term, the country's graduation from Least Developed Country (LDC) status, which will result in a shift from the Everything But Arms (EBA)



trading privilege to a Generalized Scheme of Preferences (GSP) or GSP+ trading regime, may lead to stronger vertical integration within the national GFT sector. The strict rules of origin set by the GSP scheme could potentially encourage the establishment of all stages of production within Cambodia, thereby reducing or eliminating the need to export waste for processing elsewhere and enabling the recycling of fibers directly back into the Cambodian garment industry. However, it should be noted that the prospects of vertical integration in the Cambodian GFT sector are deemed limited at this stage.

VI. Local Tax Regulations and Textile Waste: Significant tax implications prevent majority of factories from formalizing their cutting waste sales and reporting fully in accordance with national tax requirements. In the past, many factories described an expectation from the General Department of Customs and Excise (GDCE) to report on raw material usage being exactly equal to garment exports, thus requiring an unrealistic zero waste figure, directly preventing legitimate reporting of waste sales. Since then, this misinterpretation of law has been addressed with the help of the manufacturing association TAFTAC. However, many factories are still in need of clarification on how to comply with customs and tax authorities regarding their textile waste. Legally, the export of textile waste is permissible, provided the necessary documentation and requests are submitted to the General Department of Customs and Excise (GDCE). However, when textiles imported under duty tax exemptions are sold in the local market, including as textile waste, they become subject to taxation. Thus, tax implications remain the primary obstacle preventing factories from formally selling their waste to recycling facilities. Additionally, the potential loss of unregistered income is believed to be a significant factor. This situation perpetuates alternative disposal methods, such as

sales through informal contractors, incineration in boilers – posing significant hazards to surrounding communities – brick kiln incineration, and unregistered landfill disposal. A revision of the current GDCE regulations governing the sale and quantity of textile waste within the country is therefore highly desirable and could substantially improve the prevailing informal market practices.

4.2. For the Producing GFT Industry

Each GFT factory and their representative sector associations, most notably the Textile, Apparel, Footwear and Travel Goods, Association Cambodia (TAFTAC) along with the associated Cambodian Garment Training Institute (CGTI), can play vital roles in driving circularity for PITW in the Cambodian GFT sector. Below, dedicated recommendations are presented for GFT factories and TAFTAC/CGTI respectively.

FOR GFT FACTORIES

I. Focus on Waste Minimization: Textile waste is a major cost consideration for GFT factories, so minimizing wastage is critical. Utilizing more automated laser cutting machines and employing more computer-aided design (CAD) operators for optimal pattern placement can help reduce wastes. Additionally, better collaboration with brands on product designs and patterns could further optimize textile consumption.

II. Responsible Fabric Sourcing: Many major brands adhere to strict chemical and dye standards set by regulatory bodies. However, smaller buyers might not be equally diligent in checking the standards and the lab tests for what has been ordered from the fabric mill, which can negatively impact the quality of textile waste. Safe chemicals in textile cuttings are essential to maintain high quality standards at recycling points. Factories should maintain thorough chemical test records to ensure textile waste leaving their facility meets necessary standards.

III. Sorting and Storing at Source to Meet Recyclers' Requirements: Establish clear hierarchical systems for segregating diverse types (compositions, colors, quality) of PITW (scraps, trims, etc.) is essential. This approach is crucial to ensure that recyclers receive high-quality input materials, which can, in turn, enhance the market value of the waste. A primary step in this process involves the thorough separation of textile waste from incompatible materials, such as paper, glue, and tape. This should be followed by further segregation according to composition and color, in that order. Ensuring proper storage and disposal, away from incompatible and inflammable materials, is also crucial for effective textile waste management (TWM).

IV. Partner with Responsible Waste Management Companies:

Collaborating with specialized waste management companies and recyclers will significantly enhance the understanding of both management and the workforce regarding the treatment and disposal of waste after it leaves the facility. While most factories have already separated used cardboard boxes and office paper (or aluminium cans) for recycling due to the availability and convenience of recycling options, fewer factories are segregating polyethylene terephthalate (PET) bottles, and even fewer are addressing organic food or textile waste. Partnering with specialized companies will not only ensure compliance with regulations but also improving Higg FEM scores related to the management of specific waste streams. Investing in awareness and training programs for factory management and workers is crucial to promoting waste minimization, emphasizing the importance of circularity, and ensuring proper waste management and disposal practices.

V. Setting Waste Monitoring and Management Targets for PITW:

Initiating waste target setting at the factory level is essential for compliance with widely recognized waste management standards, such as Global Recycled Standard (GRS) and Higg FEM. Regular tracking and reporting of the quantity of waste generated within the facility, coupled with the evaluation, planning, and adoption of strategies to reduce waste, are critical components of this process. It is equally important to ensure that proper documentation of waste generation and handling is meticulously maintained and not overlooked.

VI. Improve Circularity and Waste Reduction at Factory Level:

Implement a robust system for reusing, upcycling, and downcycling textile waste generated during production. This could involve repurposing fabric scraps for smaller items, utilizing them for packaging materials, or transforming them into lower-grade products. Alternatively, or to go even further, explore and pilot innovative in-house recycling technologies like cleaning, mechanical shredding and compacting for export purposes.

VII. Improve Traceability and Transparency: Establishing a robust yet straightforward system for meticulously tracking textile waste at each stage of production is essential. This can be achieved by implementing a standardized data collection system that records detailed information such as:

- **Waste Type and Source:** Identify the origin of the waste, such as cutting scraps, off-cuts, yarn waste, sewing waste, defective pieces, etc.
- **Waste Construction:** Categorize the waste by its construction type, whether woven, circular knit, or flat knit.
- **Waste Volume:** Measure the waste in cubic meters (CBM).
- **Waste Quantity:** Accurately track the weight or volume of each type of waste generated on a daily, weekly, or monthly basis.
- **Waste Fiber:** The most critical category, detailing the fiber content (e.g., cotton, cotton blends, polyester blends, 100% polyester, printed materials, etc.).

It is important to note that while data collection is often kept confidential, this practice can hinder the effective matching of supply with demand, thereby distorting the true market value of the stock. Ideally, factory data should be integrated into an external public platform, allowing waste data to be aligned with specific recycling needs and market demand.

VIII. Monitoring of Waste Flows: It is essential to monitor the destination of each type of waste, whether it is designated for internal reuse, external recycling partners, or landfill disposal. Reports summarizing waste data should be generated for internal use and potential disclosure to stakeholders. Additionally, the exploration of digital solutions, including blockchain technology, is recommended to create a transparent and verifiable record of waste movement throughout the supply chain. This could involve the implementation of QR codes or Radio Frequency Identification (RFID) tags on waste containers to track their journey from the factory floor to their destination, whether it be a recycling facility, landfill, or repurposing centre.



FOR TAFTAC/CGTI

The main manufacturer association in Cambodia represents the GFT industry vis-à-vis the Government, unions, international buyers and society in general. As part of this mission, one of the most important tasks is to promote collaboration between all stakeholders with the aim to create a conducive business environment for the growth and development of this vital sector of the Cambodian economy. This responsibility also extends to the support of circular processes in the Cambodian GFT sector:

I. Promote Industry-Wide Commitments and Awareness: Assist industry members in establishing collective targets and policies for textile waste management (TWM), including monitoring, reduction, recycling, and responsible import/export. Collaborate with Government bodies to develop policies that incentivize circular practices and address taxation issues, with the goal of improving PITW recycling rates and increasing the market value of recycled materials. Advocate for “extended producer responsibility (EPR) schemes” that hold manufacturers accountable for the waste generated in their production processes and promote transparency and responsible waste management.

II. Advocacy Towards the Government: Leverage the industry’s advisory role in the GFT Sector Development Strategy to advocate for the implementation of short-term circularity and recycling measures. Request Government assistance in establishing sustainability measures, infrastructure, and fine-tuning national legislation/regulations on textile waste. Partner with industry associations and chambers of commerce to amplify the advocacy efforts towards the necessary policy changes.

III. Capacity-Building and Educational Resources: Design and deliver industry-wide training programs, behavioral change initiatives, and educational resources focused on TWM and circularity, in alignment with sourcing brands’ requirements. Publish guides, toolkits, and case studies showcasing successful circularity practices and TWM best practices within the industry. Utilize online platforms and workshops to ensure easy access and knowledge sharing.

IV. Dialogue and Network Development: Convene GFT factories, waste management companies, brands, international organizations, and Government agencies to foster collaboration and joint initiatives. Organize regular forums and networking events to encourage knowledge exchange and problem-solving. Connect members with innovative solutions for recycling and sorting of post-industrial waste (PITW), and partner with technology providers to offer pilot programs and feasibility studies.

V. Research and Data-Driven Insights: Collaborate with universities and research centers to encourage innovation in sustainable materials, recycling technologies, and circular business models, and advocate for increased investment in Research and Development programs dedicated to circularity. Assist with the collection and analysis of data on PITW generation and recycling in Cambodia and use this data to inform policy discussions and advocate for evidence-based solutions.

4.3. For International Buyers / Fashion Brands

International garment, footwear, and travel goods brands sourcing in Cambodia hold a significant power to drive effective TWM and circularity in the country. Below are recommendations on how they can leverage this power:

I. Apply Good Circular Design Practices: This recommendation focuses on the role of international buyers and their sourcing design agencies in applying circular design principles and utilizing recycled materials from Cambodian post-industrial sources. Buyers should systematically incorporate circular design practices in their collections, such as selecting materials that facilitate easy separation and recycling of components and supporting the development and adoption of new sustainable materials and recycling technologies. This demonstrates a commitment to closing the loop and bringing recycled content back into the supply chain.

II. Set TWM Targets and Standards for Suppliers: Ideally inspired by international industry standards such as GRS or Higg FEM, firmly requesting the supply chain to adhere to these standards. Support the suppliers in complying to these requirements with capacities, technical or financial support.

III. Promote Cross-Brand TWM Standards in the Supply chain: Assisting the supply chain of each brand in establishing homogeneous targets and policies for PITW inside the factories. Similar management, monitoring, reduction, and recycling policy will enhance the efficacy of the action. Coordinating with the manufacturer’s association, this recommendation could reach the previously mentioned point of creating a sort of “EPR schemes” for the waste generated by the manufacturers.

IV. Harmonize TWM Requirements: Although brands may have only slight variations in their general waste management requirements, their approaches to monitoring and tracking waste flow data within factories can differ significantly. Harmonizing and coordinating these requirements should be a key focus area. Such efforts must align with the local realities of waste collection, storage, sorting, reuse, and recycling capabilities. Establishing standardized data collection centres,



key performance indicators (KPIs), and monitoring systems will enhance the effectiveness of these measures. This approach should be closely integrated with the similar recommendations provided to factories regarding data management.

V. Advocate for Policy Change and Provide Relevant Data:

Through collective mechanisms support Cambodian Government policies that incentivize circular practices and responsible waste management and disclose sourcing practices relevant for the textile waste (TW), recycled content usage, and TWM efforts related to Cambodian production.

VI. Support and Collaborate with Stakeholders to Increase Skills and Capacities: Collaborate with development partners, universities, TAFTAC and other associations, and local Chambers of Commerce to share best practices and develop joint initiatives and trainings on TWM and address relevant challenges collectively.

VII. Advocacy Towards the Government: The GFT Sector Development Strategy envisions an Advisory Working Group including private sector representatives and development partners to monitor and advise the implementation of the strategy. It is recommended to use this important forum to advocate the implementation all circularity-related measures included in the **GFT strategy**. The Advisory Group can also serve to coordinate support to the Government to put in place need infrastructure and refine national legislation/regulations on PITW.

VIII. Collaborate with Recyclers: Buyers should commit to and uptake contracts with local recyclers, supporting matchmaking between supplier waste and dedicated recyclers. Buyers should also focus on utilizing available local resources, rather than exporting textile waste, and offer capacity-

building and technical support to Cambodian textile waste recyclers. Partnerships and investments in building new recycling facilities that meet international standards should also be explored.

IX. Learn from Other Industries: Fashion brands should reach out to other industries and research potential symbiosis for the treatment and processing of textile waste, with the aim of developing innovative business models.

X. Effective Advocacy: Buyers should collaborate with industry associations and chambers of commerce, such as the Environmental Brand Meeting of Cambodia and the Garment & Manufacturing Committee of the EuroCham of Cambodia, to strengthen their advocacy efforts towards promoting textile waste management, recycling, and circularity initiatives.

4.4. For Local Waste Management Companies

Waste management companies – including recyclers, waste handlers, waste collectors, waste sorting hubs and waste traders – are crucial players when it comes to offering recycling and circular solutions for post-industrial waste of GFT factories. The following recommendations are geared towards enabling those companies to integrate into the respective supply chains:

I. Investment and Technology: The existing informal recycling sector in Cambodia suffers from chronic underinvestment and is characterized by outdated machinery and antiquated technologies that pose significant risks to both workers and surrounding communities. Additionally, there is widespread non-compliance with standards related to working conditions and collection practices. Consequently, investment in modern machinery for collection, sorting, and



recycling is highly desirable, both to enhance productivity and to improve occupational health and safety (OHS). Furthermore, the adoption of innovative technologies that enhance traceability and optimize the value of stock materials would be ideal for advancing the sector.

II. Partnerships and Traceability: Partner with GFT manufacturers and brands to establish efficient, transparent, and durable take-back systems for post-industrial waste from factory to facility. Implement robust traceability systems to track waste flow from generation to recycling, ensuring transparency and responsible management. Build connections with downstream industries that can utilize recycled materials from post-industrial sources.

III. Social Compliance, Health, and Safety: The informality of the PITW sector in Cambodia often leads to a lack of compliance with national and international labor laws and standards. Poor working conditions, including the use of old machinery, can contribute to OHS issues for workers and surrounding communities. Ensuring compliance, formalizing worker relations, and maintaining high health and safety standards will help build the confidence of sourcing brands

and enable them to conduct business with compliant recycling companies.

IV. Centralized Sorting, Collection and Recycling Facilities: Collaborate actively with the Cambodian Government (specifically MISTI) for the effective implementation of the Mitigation action No. 20 of the Cambodia Updated NDC 2020.

4.5. For Development Partners

Development partners can make meaningful contributions to the development of effective textile waste recycling ecosystems – for example through relevant research and advisory, capacity development, stakeholder engagement, and by creating trust between various stakeholder groups. Below are relevant recommendations for development partners to realize their potential to pave the way for more circularity in the Cambodian GFT sector:

I. Assisting Government in Mapping out a Roadmap Towards Circularity: Support the Government in implementing the GFT Sector Development Strategy, (particularly through the relevant Advisory Working Group) as well as the PITW

ambitions declared in NDC. Continue collaborating with the GFT industry stakeholders to assess the current landscape of PITW and assist the Government in mapping out a roadmap towards circularity. Align this roadmap with international and national sustainability goals and define specific actions, timelines, and resource allocation.

II. Fostering Circularity by Strengthening Understanding

Among Private actors: Strengthen capacities and influence behavioral change of industry associations, factory management (factory owners, corporate social responsibility (CSR) and environmental managers), investors, and other stakeholders to enhance understanding and adoption of circularity principles in the Cambodia GFT sector. These efforts shall refer to the EU Green Deal as well as the environmental aspects of the evolving international legal and regulatory landscape for supply chain due diligence. A particular emphasis could be dedicated to the concepts and ambitions declared around recycling and circularity by the Government in the GFT Sector Development Strategy as well as in the NDC document.

III. Strengthening Infrastructure and Facilitating Matchmaking

The lack of qualified/compliant bulk facilities to treat the PITW in Cambodia has been described already. Therefore, a relevant recommendation is to focus on strengthening the infrastructure around the country, identifying potential collaboration and/or regional solution providers and recyclers for potential matchmaking with factories leading to the full utilization and correct diversion of the PITW generated in the country.

IV. Capacity-Building and Training: Collaborate with international experts to expand textile waste management training opportunities for manufacturers, private companies, and other relevant stakeholders. Furthermore, organize training-of-trainers (TOT) programs for consultancies, training institutes, and universities, enabling the dissemination of expertise on topics such as general behaviour, circular design principles, life cycle assessment, sourcing practices,

and waste minimization. Ensure that the training content is tailored to the local context and the unique characteristics of the Cambodian GFT industry.

V. Explore “Mutual Hubs”: Conduct a comprehensive study to assess the feasibility and economic viability of establishing “mutual hubs” for centralized PITW handling and recycling, taking the burden off factories. If positive, develop a plan with the Government for hub implementation according to the Mitigation Action mentioned in the NDC 2020.

VI. Publications and Research: Invest in and publish research on various aspects of textile waste management in Cambodia, including studies on waste streams, illegal dumping and incineration, textile waste market analysis, investment guidelines, cross-border activities, and policy recommendations. Disseminate these findings to inform and guide the government, industry, and other stakeholders in their efforts towards a more circular garment sector.

VII. Assisting Informal Sector: PITW in Cambodia is mostly informal. There is a need for compliance in this sector as international buyers demand traceability and adherence to international standards. Dedicated social and environmental compliance trainings for waste handlers and recyclers in collaboration with experts are therefore needed.

VIII. Engaging NGOs and Attracting Attention of Brands and Recyclers

The Cambodian GFT sector, despite its crucial role for the Cambodian economy, is smaller than that of most other GFT producing countries in the region. International buyers’ and recyclers’ attention is therefore typically concentrated on Bangladesh, China, India and Viet Nam. Development partners can therefore help in placing Cambodia on the map in terms PITW, advocating the largely untapped potential for PITW recycling in the Cambodian GFT sector. The geographic concentration of the post-industrial waste and the proximity to Viet Nam are strong points to promote Cambodia as a frontier for textile waste recycling.



5. Conclusion

5.1 Summary

This paper provides a comprehensive set of recommendations for Garment, Footwear, Travel Goods (GFT) stakeholders to promote post-industrial textile waste (PITW) management and recycling in the Cambodian GFT sector.

A crucial recommendation to the **Cambodian Government** is to implement the policies outlined in Cambodia's Updated Nationally Determined contribution (NDC). To complement this, other recommendations focus on a shift towards a circular paradigm, building up the sorting, collection and recycling infrastructures and capacities, improving waste data collection and traceability of PITW, and establishing definitions and clear import/export regulations on textile waste. By implementing these recommendations, the Cambodian Government can create a more enabling environment for the development of the recycling sector for PITW, improve compliance with existing regulations, and promote the transition towards a more circular textile industry. This will benefit the environment by reducing waste and pollution and benefit the Cambodian economy by creating new jobs and opportunities in the recycling sector.

For the **producing GFT industry**, recommendations center on waste minimization, responsible sourcing, sorting waste at source, and partnering with responsible waste handlers. Factories are also encouraged to set waste reduction targets, improve in-house circularity, enhance traceability, and monitor waste flows. As representative of the producing GFT industry, the sector association TAFTAC and its training institute CGTI are recommended to promote industry-wide commitments and awareness, advocate to the Government, provide capacity building and educational resources, and convene stakeholders for knowledge sharing and networking. Taking these steps would support factories in enhancing their PITW management capacities and contribute to more recycling and circularity in the industry.

Furthermore, **fashion brands / international buyers** are recommended to apply circular design principles in their sourcing strategies to drive sustainability in the industry. It corresponds to the increasing legal requirements mandating use of recycled materials and proper textile waste management practices within their supply chains. It is important to address that brands need to go beyond compliance and actively participate in social and environmental programs related to circularity and policy advocacy. This collaborative approach will help build coalitions with industry stakeholders and government agencies to collectively develop and implement circularity initiatives. By working together, brands can share

best practices, challenges, and solutions for advancing circularity throughout the value chain. Participation in these programs also demonstrates a brand's commitment to sustainability and accountability to consumers.

Local waste management companies – including recyclers, waste handlers, waste collectors, waste sorting hubs and waste traders – are essential for providing recycling solutions for PITW from GFT factories. However, it is crucial to address chronic underinvestment in Cambodia's informal recycling sector, which relies on outdated machinery that threatens worker safety. Modernizing equipment and adopting innovative technologies can improve traceability and material value. Waste management companies should establish partnerships with garment factories will create efficient take-back systems and ensure responsible waste management. Enhancing compliance with labour laws and formalizing worker relations will also improve health and safety standards, fostering confidence among sourcing brands and thus enabling their integration into global supply chains.

Development partners are encouraged to provide technical support for the Government in implementing and developing clear strategies and targets for PITW recycling and circularity based on stakeholder consultations and expert advisory. In this connection, it is also recommended to conduct additional research on local challenges and opportunities (including in cooperation with local NGOs / civil society) as well as on international good practices, with the aim to guide evidence-based decisions. Additionally, development partners are recommended to strengthen the capacities and compliance of waste management actors and facilitate matchmaking among each other as well as with crucial players in the GFT industry. This shall connect recyclers to reliable waste sources in a sustainable way. In doing so, development partners can play the role of neutral moderators / facilitators with technical expertise.

By working together and with a strong momentum and clear direction, the stakeholder groups above can jointly leverage the largely untapped potential for PITW recycling in the Cambodian GFT sector and let it make a significant contribution circularity in the global textile industry.

5.2 Way Forward

The future of textile waste recycling in Cambodia's GFT sector is promising, fueled by collaborative efforts among diverse stakeholders. Building on the achievements of the GIZ FABRIC Cambodia project and Global Fashion Agenda (GFA), the establishment of a comprehensive national Circular Fashion

Partnership (CFP) – following the model from Bangladesh (see chapter 2.3.1 above) – shall intensify the existing cooperation under the waste management pilot in Cambodia (see chapter 2.3.2 above). **The Circular Fashion Partnership Cambodia is set to launch in November 2024** and is expected to run for at least two years, with the possibility of extension.

The CFP Cambodia is based on the lessons learnt from the pilot and aims to address most of the recommendations presented in this paper. It shall incorporate various workstreams to promote circularity in the sector, including stakeholder outreach, brand engagement, policy advocacy on circularity, circular economy training, textile waste management training, waste data analysis and matchmaking, and the integration of additional waste management companies into the cooperative framework.

GIZ and GFA will collaborate on these activities with shared responsibilities, involving both existing and new partners

with expertise in textile waste management. By fostering collaboration and knowledge-sharing among all stakeholders, the CFP aims to create a robust framework for advancing textile waste recycling in the Cambodian GFT industry and to drastically increase the volume of textile waste diverted into circular processes. This shall be ensured through intensive cooperation with fashion brands, factories, TAFTAC/CGTI, as well as other relevant private and public sector actors.

The CFP Cambodia shall enhance the capacity of local industries while driving innovation in waste management practices. Prioritizing effective communication and collaboration will help ensure that all participants are aligned with the shared goal of sustainability. Through these collective efforts, Cambodia can position itself as a leader in recycling and contribute meaningfully to global sustainability goals in the fashion industry. Ultimately, this comprehensive approach shall facilitate a transformative shift towards circularity, benefiting both the environment and the economy.



6. References

- A New Textiles Economy: Redesigning fashion's future*, Ellen MacArthur Foundation, 2017
- A novel integrated approach to conversion of textile waste into value-added materials*, Song et al., 2023
- A pre-feasibility study on industrial textile waste in Bangladesh, Pakistan, Vietnam, Cambodia-streams, and regional linkage*, TÜV Rheinland, 2023
- Cambodia Adopts the 2023 Environmental and Natural Resources Code, DFDL, 2023
- Cambodian Climate Change Roadmap 2030*, Royal Government of Cambodia, 2023
- Cambodia's Nationally Determined Contribution and Long-Term Strategy for Carbon Neutrality: Progress Report*, Ministry of Environment, 2022
- Cambodia's Roadmap for Sustainable Consumption and Production 2022-2035*, Switch Asia, 2022
- Cambodia's updated investment law gives incentives to green business*, Anton Delgado, 2022
- Cambodia's Updated Nationally Determined Contribution (NDC)*, Ministry of Environment, 2020
- Circular Economy Strategy and Action Plan*, Kingdom of Cambodia, 2021
- Circular Strategy on Environment 2023-2028*, Kingdom of Cambodia, 2023
- Connecting the Threads: A coordinated policy response to transform the textile value chain and offer solutions which preserve nature*, UNEP, 2024
- EU Strategy for Sustainable and Circular Textiles*, European Commission, 2022
- Event report, Textile waste opportunities for circular textiles, garments, and footwear in Cambodia*, GIZ, 2023
- National Strategic Plan on Green Growth (NSPGG) (2013-2030)*, National Council on Green Growth, 2013
- Pentagonal strategy – Phase I*, Royal Government of Cambodia, 2023
- Policy analysis - Improving Sustainable Consumption and Production in the Garment Sector in Cambodia*, SwitchAsia, 2022
- Proposing: National Circular Fashion Partnership in Cambodia*, Global Circular Fashion Forum, 2023
- Report – Cambodia, Waste streams mapping, Pathways from Key Suppliers to Landfill*, GIZ, 2021
- Scaling circularity - Lessons learned from the Circular Fashion Partnership for building pre-competitive collaborations to scale upstream circular fashion systems*, Global Fashion Agenda, 2021
- Scaling textile recycling in Europe—turning waste into value*, McKinsey, 2022
- Sustainable Raw Materials Will Drive Profitability for Fashion and Apparel Brands*, BCG, 2023
- Textile supply chain waste management in China*, Li et al., 2021
- The State of Fashion 2021*, McKinsey & Company, 2021
- Trash Trade Wars: Southeast Asia's Problem with the World's Waste*, Council on Foreign Relations, Aarushi Jain, 2020
- Waste Mismanagement in Developing Countries: A Review of Global Issues*, Navarro Ferronato and Vincenzo Torretta, 2019
- Vision of a circular economy for fashion*, Ellen MacArthur Foundation, 2020



Explanatory Note

PITW can constitute up to 25%

Fabric wastage in percentage (%) during production varies depending on style, fabric, textile width, marker accuracy, etc. and can be within a range of 3% up to 30% in some cases, with an industry average in Cambodia sitting around 10-15%.

136,151 tons of PITW annually

The calculation is from the Customs fabric import data from 2021 – 2022 with an average of 15% wastage.

Cambodia Climate Change Roadmap 2030

Cambodia has set several ambitious goals related to climate change mitigation and adaptation in its Nationally Determined Contribution (NDC). To study more, visit: https://ncsd.moe.gov.kh/resources/document/Cambodia_NDC_Updated

The major relevant strategies, initiatives, and pieces of regulation on the global level

An Apparel Supplier's Guide 2.0: Key Sustainability Legislations in the EU, US, and UK, 2024, supported by GIZ FABRIC Asia. The Guide includes 12 key legislations, such as EU Strategy for Sustainable and Circular Textiles, EU Corporate Sustainability Due Diligence Directive, EU Corporate Sustainability Reporting Directive, New York Fashion Act, EU Forced Labor Regulation & Guidance, US Uyghur Forced Labor Prevention Act, EU Product Environmental Footprint Guide, EU Eco-Design for Sustainable Products Regulation, EU Packaging & Packing Waste Directive & Provisional Regulation, EU Microplastics Regulation, UK Plastic Packaging Tax, EU Textile Regulation, EU Taxonomy, and German Due Diligence in the Supply Chain Act. To study more, visit: <https://asiagarmenthub.net/discussions/supplier-meet-ups/12-factsheets>

Fashion Industry Target Consultation 2024

Fashion Industry Target Consultation 2024 - Cambodia Insights. A total of 100 stakeholders participated with many manufacturers and brands. Most respondents were based in the United Kingdom, the United States and Italy, however the geographical reach of the participants crossed six continents.

T-Waste Tracker Tool

T-Waste Tracker is a digital tool for waste management at textile and footwear facility, developed by GIZ in partnership with brands and manufacturers. This product is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) and supported by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH – as part of the global programme “Go Circular”.

Higg FEM 4.0

Higg Facility Environmental Module (Higg FEM) 4.0 is a sustainability assessment tool that standardises how facilities measure and evaluate their environmental performance. To study more, visit <https://howtohigg.org/resources-library-fem4-resources/>

GFT Strategy

“Use of resources in accordance with the concept of circular economy and the recycling of fabric, accessories and other raw materials efficiently and sustainably in the GFT strategy” Cambodia Garment, Footwear and Travel Goods (GFT) Sector Development Strategy 2022 – 2027, paragraph 6.4, Attracting investment in supporting industry, short measures 2022-2024, page 26.

Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

GIZ Office Phnom Penh
Oval Office Tower, 10F Building No. 1 Street 360, Boeung Keng Kang 1
Phnom Penh, Cambodia
T +855 23 860 110
E giz-kambodscha@giz.de
I www.giz.de/cambodia