Circular Economy
Finance Guidelines

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Textile Sector

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Abbreviations and acronyms

ACEA	African Circular Economy Alliance
AWS	Alliance for Water Stewardship
CCS	Content Claim Standard (Textile Exchange)
CFRPP	Common Framework for Responsible Purchasing Practices (ACT)
CIRPASS-2	Circular Passport consortium (European Union)
CISUTAC	Circular and Sustainable Textiles and Clothing
CPV/UNSPSC	Common Procurement Vocabulary (European Union) and United Nations Standard Products and Services Code
CSRD	Corporate Sustainability Reporting Directive (European Union)
CTI	Circular Transition Indicators (WBCSD)
DCF	Deforestation- and conversion-free
DNSH	Do no significant harm
DPP	Digital product passport
ECOS	Environment Coalition on Standards
EEA	European Environment Agency
EEB	European Environmental Bureau
EFRAG:	European Financial Reporting Advisory Group
EMF	Ellen MacArthur Foundation
EoL	End of life
EPCIS	Electronic Product Code Information Services
EPR	Extended producer responsibility
ESG	Environmental, social and governance
ESPR	Ecodesign for Sustainable Products Regulation (European Union)
ESRS	European Sustainability Reporting Standards, adopted by the European Commission
EUDR	European Union Regulation on Deforestation-free Products
Eurostat	statistical office of the European Union
FFG	Fashion for Good
FSC	Forest Stewardship Council
GHG	Greenhouse gas
GOTS	Global Organic Textile Standard
GRI 301	Global Reporting Initiative standard on materials
GRS/RCS	Global Recycled Standard; Recycled Claim Standard (Textile Exchange)

Higg FEM	Cascale Facility Environmental Module
HS/CN	Harmonized System (HS) and Combined Nomenclature (CN) codes
ICMA SLBP	International Capital Market Association's sustainability-linked bond principles
IFRS	International Financial Reporting Standards
IoT	Internet of Things
ISAE 3000	International Standard on Assurance Engagements 3000 (IAASB)
ISIC	International Standard Industrial Classification (UN)
ISO	International Organization for Standardization
ISO 59004 / 59010 / 59020	Circular economy management and measurement standards
ISO 14040 / 44	Life cycle assessment standards
ISO 4484-1	microplastics release from textiles during washing
ISSB	International Sustainability Standards Board (IFRS Foundation)
SASB	Sustainability Accounting Standards Board
KPI	Key performance indicator
LCA	Life cycle assessment
LMA	Loan Market Association
MMCF	Man-made cellulosic fibres
MRSL (ZDHC)	Manufacturing Restricted Substances List (ZDHC)
MRV	Monitoring, reporting and verification
MSME	Micro-, small and medium enterprise
MSS	Minimum social safeguards
NACE	Nomenclature statistique des activités économiques dans la Communauté européenne
NAICS	North American Industry Classification System
N/P	Nitrogen/phosphorus nutrient loads
NIR	Near-infrared spectroscopy
OCS	Organic Content Standard (Textile Exchange)
OECD	Organisation for Economic Co-operation and Development
OS Hub	Open supply hub
PCRA	Physical climate risk assessment
PEF/PEFCR	Product Environmental Footprint and Category Rules (European Commission)
PFAS	Per- and polyfluoroalkyl substances
PRB	Principles for Responsible Banking (UNEP FI)
PaaS	Product-as-a-service
QR/GS1	Digital link web-addressable identifiers
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (European Union)

RFID/EPC	Radio frequency identification (GS1 Electronic Product Code)
rPET	Recycled polyethylene terephthalate
SBTi	Science Based Targets Initiative
SBTN	Science Based Targets Network
SLB	Sustainability-linked bond
SLL	Sustainability-linked loan
SPT	Sustainability performance target
TNFD	Taskforce on Nature-related Financial Disclosures
UN/CEFACT	United Nations Centre for Trade Facilitation and Electronic Business
UNECE	United Nations Economic Commission for Europe
UNEP FI	United Nations Environment Programme Finance Initiative
UNGP	United Nations Guiding Principles on Business and Human Rights
UNSD	United Nations Statistics Division
WBCSD	World Business Council for Sustainable Development
WRAP	Waste and Resources Action Programme (United Kingdom)
WRI Aqueduct	World Resources Institute water risk tool
WWF	World Wide Fund for Nature
ZDHC	Zero Discharge of Hazardous Chemicals

Contents

Acknowledgements iii

Abbreviations and acronyms iv

1. Introduction 1

2. Overview of the circular economy finance assessment 9

3. Application of the circular economy finance assessment methodology to the textile sector 15

Step 1: Circular economy category identification 15

Step 2: Circular contribution assessment 23

Step 3: Interlinkages assessment 35

Using the assessment outcomes 42

References 46

Annex 1: Illustrative list of circular economy activities for the textile sector 57

Annex 2: Portfolio screening guidelines for circular textile activities (NACE Rev.2, ISIC Rev.4) 60

Annex 3: Environmental and social material impacts for the textile sector 69

Annex 4: Illustrative assessment example: mechanical textile recycling models (circular value recovery) 79

Executive summary

The textile sector is undergoing a critical transition in which circular economy offers a tangible pathway to reduce systemic risk, enhance resilience and unlock value across global value chains. As a high-impact industry with a substantial environmental and social footprint, textiles face rising regulatory scrutiny and stakeholder expectations worldwide. Supporting circular economy integration in textiles addresses resource, compliance and supply chain risks while channelling capital into sustainable materials, recycling infrastructure and circular business models. Resale, rental, repair and remaking alone represent a potential USD 700 billion market opportunity by 2030 and could deliver one-third of the emission reductions needed to align the sector with a 1.5°C pathway.

These sectoral guidelines provide financial institutions with an assessment methodology for classifying textile circular economy activities. They operationalize at sectoral level the screening approach described in UNEP FI's *Guidance on Resource Efficiency and Circular Economy Target Setting* (UNEP FI, 2023c) and complement UNEP FI's *Circular Solutions to Achieve Climate Targets in the Textile Sector* (UNEP FI, 2024d). Together, these three guidance documents support financial institutions to identify circular solutions—activities meeting all circularity criteria—and circular opportunities—activities with circular potential—across the textile value chain and inform their financing decisions and client engagement strategies.

The assessment methodology applies a consistent three-step approach. Step 1 identifies the primary circular economy category: circular design and production, circular use, circular value recovery, or circular support. Step 2 assesses substantial circular contribution using measurable key performance indicators (KPIs) proportionate to the activity's context and scale. Step 3 assesses interlinkages through three components: (a) do no significant harm (DNSH) screening across environmental objectives—climate change mitigation and adaptation, water and marine resources, biodiversity and ecosystems, pollution prevention and control, soil health and sustainable land use and deforestation and land use; (b) social objectives assessment, confirming alignment with minimum social safeguards across four social objectives—reflecting the rights and principles enshrined in the ILO Declaration on Fundamental Principles and Rights at Work (as amended 2022), the UN Guiding Principles on Business and Human Rights, the OECD Guidelines for Multinational Enterprises on Responsible Business Conduct and the International Bill of Human Rights: decent work and occupational health and safety, adequate standard of living and well-being, inclusive and sustainable communities and consumer health and safety; and (c) co-benefits identification across environmental and social objectives. Assessment outcomes (identification of circular solutions and circular opportunities) support multiple institutional applications: target setting, client engagement, climate action planning, nature-related strategies, pollution reduction initiatives, social impact management, transaction structuring and portfolio reporting.

These guidelines are designed for commercial banks and development finance institutions and can be used by institutional investors, asset managers and insurers, to support consistent classification of textile circular economy activities. Corporates may use the same framework to prepare documentation packages for financing discussions. At each assessment step, financial institutions can identify opportunities to engage clients on circular economy potential, whether supporting clients with circular solutions ready for financing or guiding clients with circular opportunities toward enhanced performance through transition plans.

The sectoral guidelines approach is designed for interoperability with leading global and regional frameworks that support classification, disclosure and impact assessment. Regulatory alignment is supported through compatibility with national sustainable finance frameworks and some national or sub-national extended producer responsibility (EPR) schemes. This enables the user to adapt the applied criteria to diverse regulatory contexts, levels of market readiness and place-based conditions, including infrastructure capacity, labour standards and due diligence requirements. Safeguards and integrity underpin the approach, distinguishing system-level circular outcomes from incremental linear improvements and integrating verification of quality, durability, chemical safety, traceability and microfibre management. These guidelines support institutions to direct capital to circular solutions and engage clients with circular opportunities through transition plans. UNEP FI intends to engage with financial institutions and other interested stakeholders during 2026 to validate the applicability of these sectoral guidelines, collect feedback on implementation challenges and refine the methodology.

1. Introduction

The textile sector is one of the world's most resource-intensive and polluting industries, with a vast environmental and social footprint. Each year, the sector consumes approximately 3.25 billion tonnes of materials, of which more than 99% are derived from virgin sources. Synthetic fibres such as polyester, which are produced from fossil fuels, account for 59% of raw materials used in production (Textile Exchange, 2025). Mass-market brands continue to produce far beyond demand, with an estimated 30% of garments going unsold annually (Circle Economy, 2024). This linear take-make-waste model contributes to severe environmental degradation. Best available estimates place the sector's greenhouse gas (GHG) footprint at two to eight per cent of global emissions depending on system boundaries, 20% of global industrial wastewater (primarily from dyeing and textile treatment) and roughly 9% of microplastic pollution. It generates over 92 million tonnes of textile waste each year (UNEP, 2023b). Additionally, the industry accounts for 3.5% of the total water scarcity impact caused by global manufacturing and contributes significantly to ocean and freshwater eutrophication (Circle Economy, 2024).

The sector's long and complex global value chain span multiple geographic locations and operational tiers, from raw material production (tier 4) through yarn and fabric production (tier 3), dyeing and finishing (tier 2), garment manufacturing (tier 1) and retail operations (tier 0). This complexity creates both concentrated environmental risks at specific life cycle stages and significant opportunities for circular interventions. Additionally, textile workers face risks of exploitation, underpayment, forced labour, health hazards and abuse, with women particularly vulnerable, representing an average of 68% of the garment workforce and 45% of the overall textile sector workforce (UNEP, 2023b).

Circular economy opportunities and challenges in the textile sector

Transitioning to a circular economy offers pathways to address these systemic risks while unlocking significant economic value. The primary circular opportunities in textiles include extending product lifespans through durable designs, repair and refurbishment services; optimizing utilization through rental and resale models that displace new production; recovering material value through textile-to-textile recycling that maintains fibre quality; and enabling circular flows through traceability systems, collection infrastructure and sorting technologies.

Circular business models such as resale, repair, rental and remaking alone represent a projected market value of more than USD 700 billion by 2030, representing 23% of the global fashion market (Ellen MacArthur Foundation [EMF], 2021). These models could deliver one-third of the emission reductions needed to align the sector with a 1.5°C pathway.

However, scaling circularity in textiles faces persistent challenges. Complex material compositions, particularly blended fibres, resist recycling. Insufficient collection and sorting infrastructure exists in most markets. Mechanical recycling processes often degrade fibre quality. Hazardous chemical residues contaminate secondary materials. Market demand for recycled textile inputs remains limited. Fragmented global supply chains lack traceability. Business models remain optimized for volume rather than durability.

The impact profile of the textile sector

The textile sector's environmental and social impacts span multiple dimensions across its value chain. Figure 1 presents the UNEP FI *Impact Radar* for textiles, illustrating the relative significance of impacts across environmental, social and economic objectives. The Impact Radar identifies both the prominent positive and negative impacts associated with the sector. On the positive side, the textile industry contributes to health and safety through the manufacture of protective clothing, supports employment across its global value chain and enables flourishing micro, small and medium-sized enterprises (MSMEs) by providing accessible entry points for entrepreneurship and economic participation. On the negative side, the sector is associated with material adverse impacts including modern slavery and forced labour (particularly in lower-tier supply chains), child labour (notably in cotton farming and small-scale garment production), health and safety hazards for workers, water stress and waterbody contamination, below-living-wage compensation, gender inequality, risks to other vulnerable groups, climate instability through high greenhouse gas emissions and significant resource intensity and waste generation (UNEP FI, 2024b).



Figure 1: The UNEP FI *Impact Radar*[1] for the textile sector. Source: UNEP FI *Impact Protocol*, adapted for textile sector (UNEP FI, 2022).

Circular economy strategies can directly address many of the sector's most significant negative impacts by acting on two key impact drivers: resource intensity and waste. Interventions targeting these two drivers propagate across the sector's negative impact profile. By reducing resource intensity—through material substitution, recycled content integration, design for durability and closed-loop production processes—the sector can simultaneously alleviate pressures on climate stability, waterbodies, health and safety, freshwater availability, biodiversity (habitat and species), soil quality, air quality and energy consumption. Similarly, by reducing waste—through collection and sorting infrastructure, textile-to-textile recycling, reuse and repair models and extended producer responsibility schemes—the sector can address impacts on climate stability, waterbodies, freshwater resources, healthcare and sanitation systems and resource depletion. The interconnected

1 The UNEP FI Impact Radar for the textile sector will be updated following the launch of the revised Impact Radar in Q4 2026. The updated version will be reflected in subsequent editions of these guidelines.

nature of these pathways demonstrates that circular economy is not a narrow environmental strategy but a systemic approach that can generate co-benefits across the full spectrum of the sector's negative impacts.

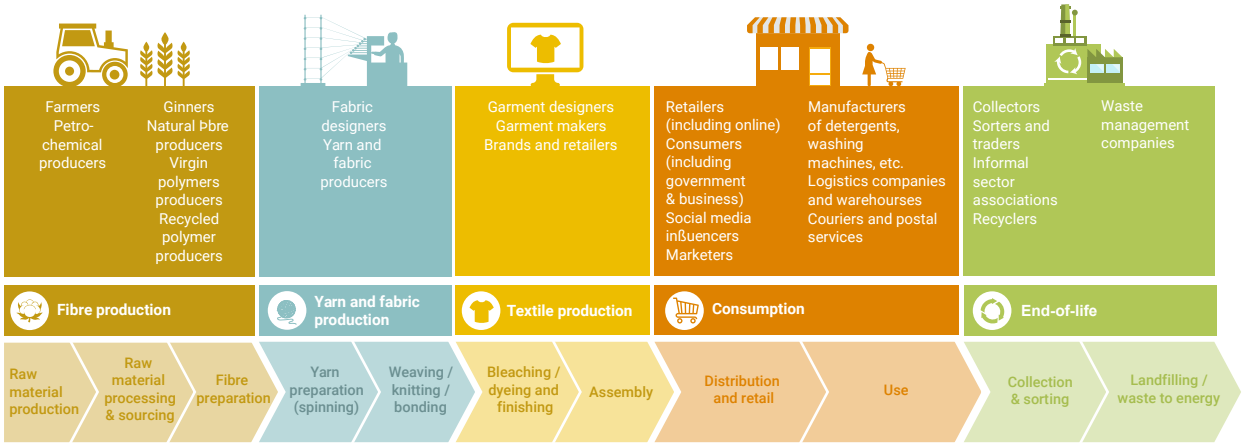


Figure 2: Textile value chain mapping illustrating actors and stages across the life cycle from fibre production through end-of-life (UNEP, 2023b).

Implications for financial institutions

For financial institutions, these impacts translate into heightened portfolio exposure to tightening regulations (including forthcoming EU extended producer responsibility schemes and eco-design requirements), supply chain disruptions from raw material price volatility and geopolitical concentration of manufacturing, transition risks from shifting consumer preferences toward durability and circularity and reputational risks associated with unsustainable or unethical labour practices across lower-tier supply chains.

While financial institutions increasingly recognize the relevance of circular economy principles for risk management and value creation, they often lack standardized, sector-specific criteria to evaluate the circularity of textile activities and translate these assessments into actionable financing decisions (Circle Economy, 2025).

Furthermore, establishing a harmonized methodology for circular economy finance allocation enables more efficient blended finance structures. When commercial banks, development finance institutions and catalytic capital providers operate from shared methodologies of circular economy assessment and aligned due diligence frameworks, transaction costs and coordination friction associated with co-investment can decline significantly. This approach may be particularly valuable for early-stage circular innovations and small-to-medium enterprises, where layered capital (concessional and commercial) can support efforts to achieve scale.

What these guidelines provide

Developed with input from UNEP FI member banks, development finance institutions (DFIs) and sector experts, these guidelines address this gap by providing a structured, evidence-based methodology for the textile sector to determine whether activities, projects, clients and investment components align with circular economy principles and therefore qualify for circular economy financing. The methodology enables financial institutions to classify circular economy-aligned assets within existing portfolios and identify new opportunities to scale circular economy investments in the textile sector, while understanding the resilience co-benefits these investments can generate.

While primarily intended for financial institutions, including commercial banks, development finance institutions, institutional investors, non-financial stakeholders such as textile corporates may also draw on the same methodology to prepare supporting information, align internal controls and understand the criteria and requirements needed to qualify for circular economy financing.

The circular economy finance assessment follows a three-step methodology further detailed in chapter 2, enabling users to operationalize circularity through structured approaches that align with the UN Principles for Responsible Banking (PRB) and UNEP FI *Impact Protocol*. The methodology can be applied at various levels: across portfolios (to map exposures, inform strategy and client engagement and track progress), for individual transactions (to screen and structure deals with circularity-linked terms) and in product development (by embedding circularity KPIs into lending policies and sustainability-linked financing instruments). In doing so, the methodology can support teams across functions, including origination and sector coverage (to screen and structure transactions), risk and compliance (to document safeguards, monitor environmental DNSH screening and social objectives assessment), portfolio strategy and stewardship (to map exposures) and treasury/product teams (to align use-of-proceeds and sustainability-linked structures with illustrative circular economy indicators). Safeguards and integrity underpin the approach, distinguishing system-level circular outcomes from incremental linear improvements and integrating verification of quality, durability, chemical safety (particularly hazardous substance management e.g. per ZDHC guidance), traceability and microfibre management. Transition plans encourage innovation, allowing early-stage solutions to progress toward full alignment as performance matures.

A set of five annexes supports implementation of these guidelines. Annex 1 provides an illustrative, non-exhaustive list of circular economy activities in the textile sector, organized by circular economy category, to assist with Step 1 category assignment. Annex 2 provides portfolio screening guidelines mapping textile activities to NACE Rev.2 and ISIC Rev.4 codes, supporting portfolio-level circularity review. Annex 3 sets out the environmental and social material impacts for the textile sector, informing the Step 3 interlinkages assessment. Annex 4 presents an illustrative assessment example demonstrating how a financial institution might apply the three-step methodology in practice.

Development and framework interoperability

These sectoral guidelines operationalize the screening methodology described in UNEP FI's *Guidance on Resource Efficiency and Circular Economy Target Setting* (UNEP FI, 2023c), enabling activity-level classification that feeds into portfolio-level baseline and target-setting processes. The guidelines are designed for consistency with the IFC *Harmonized Circular Economy Finance Guidelines* (IFC, 2025), which provide allocation methodologies for specific financial instrument types. Together with UNEP FI's *Circular Solutions to Achieve Climate Targets in the Textile Sector* (UNEP FI, 2024d), this suite of guidance documents supports financial institutions to assess activities, classify exposures, structure transactions, set targets and report on circular economy contributions across the textile value chain.

Designed for global applicability across the full textile value chain, including raw material production, textile manufacturing and processing, apparel and product manufacturing, retail and distribution, use phase, end-of-life and value recovery, the guidelines remain adaptable to differing regional contexts. Variations in regulatory frameworks, waste management infrastructure, market readiness for secondary materials, labour conditions and disclosure expectations shape both ambition and feasibility. Accordingly, the methodology retains consistent screening logic and defined sectoral categories, while allowing for context-sensitive guardrails that reflect local realities and evolving reporting regimes.

The methodology also supports interoperability with evolving resource-efficiency and circularity reporting under global and regional frameworks (e.g. the Global Reporting Initiative's (GRI) standards on materials and waste, the Sustainability Accounting Standards Board's (SASB) textile-specific metrics and the Association of Southeast Asian Nations (ASEAN's) Circular Economy Monitoring Framework, as well as industry commitments such as the United Nations Framework Convention on Climate Change (UNFCCC) Fashion Industry Charter on Climate Action). This flexible design allows adaptation to diverse disclosure requirements and market practices worldwide. An overview of relevant regional frameworks is provided in Box 1.

Box 1: Examples of regional frameworks and standards for circularity and safeguards in the textile sector (illustrative, non-exhaustive)

Global/industry examples: Global and industry frameworks provide operational anchors for documenting circularity and verifying safeguards in textile value-chain activities. Financial institutions are encouraged to reference the OECD Garment and Footwear Due Diligence Guidance for social risk management and supply-chain safeguards (OECD, 2018); the Dutch Garment and Textile Agreement provides a practical guide for its application by companies (Dutch Agreement on Sustainable Garments and Textile, 2016) For chemicals management, the Zero Discharge of Hazardous Chemicals (ZDHC) Manufacturing Restricted Substances List (MRSL) v3.1 and its Conformance Guidance (ZDHC, 2023) support activity-level verification. ISO 4484-1:2023 provides a laboratory method for measuring fibre fragment shedding from textiles (ISO, 2023), contributing to environmental safety assurance. Additionally, the ISO 59000 series published in May 2024 provides a global consensus on circular economy definitions and measurement: ISO 59004 (Vocabulary, principles and guidance), ISO 59010 (Business models and value networks) and ISO 59020 (Measuring and assessing circularity performance). For material claims, the Textile Exchange chain-of-custody and input standards (RCS, GRS, OCS, CCS) are recognized as supporting documentation examples, though they are not intended to serve as circular performance thresholds (Textile Exchange, 2025). For management of labour risks, the ILO Code of practice on Safety and Health in Textiles, Clothing, Leather and Footwear (ILO, 2022) and the Common Framework for Responsible Purchasing Practices (CFRPP) are reference points (ACT, 2022). These resources may inform classification and are recommended to be paired with regionally relevant instruments where applicable.

Regional examples of taxonomies and other frameworks and standards (illustrative, non-exhaustive):

- **Africa and Middle East:** The African Circular Economy Alliance (ACEA) has identified 'Five Big Bets,' including fashion and textiles as a priority area (ACEA, 2021). In parallel, the African Union has adopted the Continental Circular Economy Action Plan 2024–2034, outlining strategic objectives and implementation pathways for Member States (ACEA, 2025; National Treasury South Africa, 2022). The United Arab Emirates Circular Economy Policy 2021–2031 targets sustainable manufacturing, green infrastructure, sustainable transportation and sustainable food systems across four priority sectors (UAE Ministry of Climate Change and Environment, 2021).

- **European Union:** The Ecodesign for Sustainable Products Regulation (ESPR) and the developing Digital Product Passport framework for textiles have been prioritized under the 2025–2030 ESPR Working Plan and are expected to shape product-level data transparency and traceability (European Commission, 2025a). On 9 September 2025, the European Parliament adopted new EPR rules for textiles, requiring Member States to establish national EPR schemes within 30 months of entry into force, with an additional 12-month allowance for micro-enterprises (European Parliament, 2025). The Product Environmental Footprint Category Rules (PEFCR) for Apparel and Footwear v3.1, published on 29 April 2025, may support measurement and comparability, though they are not intended to serve as circularity eligibility criteria (European Union, 2025b; Italian Ministry, 2022).
- **Asia-Pacific:** The Singapore-Asia Taxonomy, developed by the Monetary Authority of Singapore and the Green Finance Industry Taskforce (MAS, 2024), provides activity-level guidance for sustainable finance classification. The ASEAN Taxonomy for Sustainable Finance Version 3 was published by the ASEAN Taxonomy Board and became effective on 20 December 2024 (ASEAN Taxonomy Board, 2024). Japan's Circular Economy Roadmap (2023) establishes the "3Rs + Renewable" approach, targeting 80 trillion yen in circular economy-related businesses by 2050, with specific provisions for fashion items alongside plastics and metals (Ministry of the Environment, Japan, 2023). Korea's Resource Circulation Act (2018, revised 2023) provides a national framework for resource circulation performance management and utilization targets (Korean Ministry of Environment, 2023). India's draft EPR Guidelines for Textiles 2025 propose indicative credits at ₹2–₹5/kg with 50% collection targets by 2027 and pilot schemes in Maharashtra and Tamil Nadu (Ministry of Environment, Forest and Climate Change, India, 2025).

2. Overview of the circular economy finance assessment

This chapter provides an overview of the three-step assessment methodology enabling financial institutions to systematically identify, classify and align financing for textile sector activities that deliver circular economy benefits while maintaining environmental integrity and social safeguards.

Selecting the assessment pathway

Before beginning the assessment, users can determine which pathway matches the intended purpose: at client or activity level, or at portfolio level. For individual transaction assessment or client origination, users can start with the client assessment pathway, beginning at Step 1 in chapter 3. For portfolio-level circularity mapping, target-setting, or systematic reviews, follow the portfolio review pathway, users can proceed directly to the portfolio screening guide in Annex 2.

Assessment depth may vary depending on whether the activity relates to a small and medium enterprise (SME) or a large corporate client. Financial institutions typically apply proportionate approaches: for example, SME assessments often rely on lighter, high-level screening due to the considerable number of entities in SME portfolios and the comparatively limited availability of supporting information. Large corporates, by contrast, generally enable more granular analysis given their broader disclosures, reporting systems and available data. Regardless of client size, the same three-step assessment logic applies.

Institutions are encouraged to integrate this circular economy assessment into existing internal processes, such as SME risk scoring, sustainability scoring frameworks and corporate due-diligence workflows, so that circularity classification builds on, rather than duplicates, current assessment practices. Where needed, documentation can be calibrated proportionately while maintaining the integrity of the classification. This assessment methodology is designed to operationalize Principle 3 (Clients and Customers) of the Principles for Responsible Banking framework, complementing UNEP FI's *Guidance on Client Engagement* (UNEP FI, 2024e), which outlines the broader engagement cycle for supporting client transitions to sustainable business models.

Both the client assessment and portfolio review approaches apply the same rigorous circularity assessment logic. However, they offer different entry points and supporting resources once the initial pathway is selected—comprising environmental DNSH screening, social objective assessment (aligned with minimum safeguards) and co-benefits identification—to determine whether activities qualify as circular solutions or circular opportunities.

Three-step methodology overview

Figure 3 sets out the three-step assessment methodology financial institutions can use to classify circular-economy-aligned textile activities.

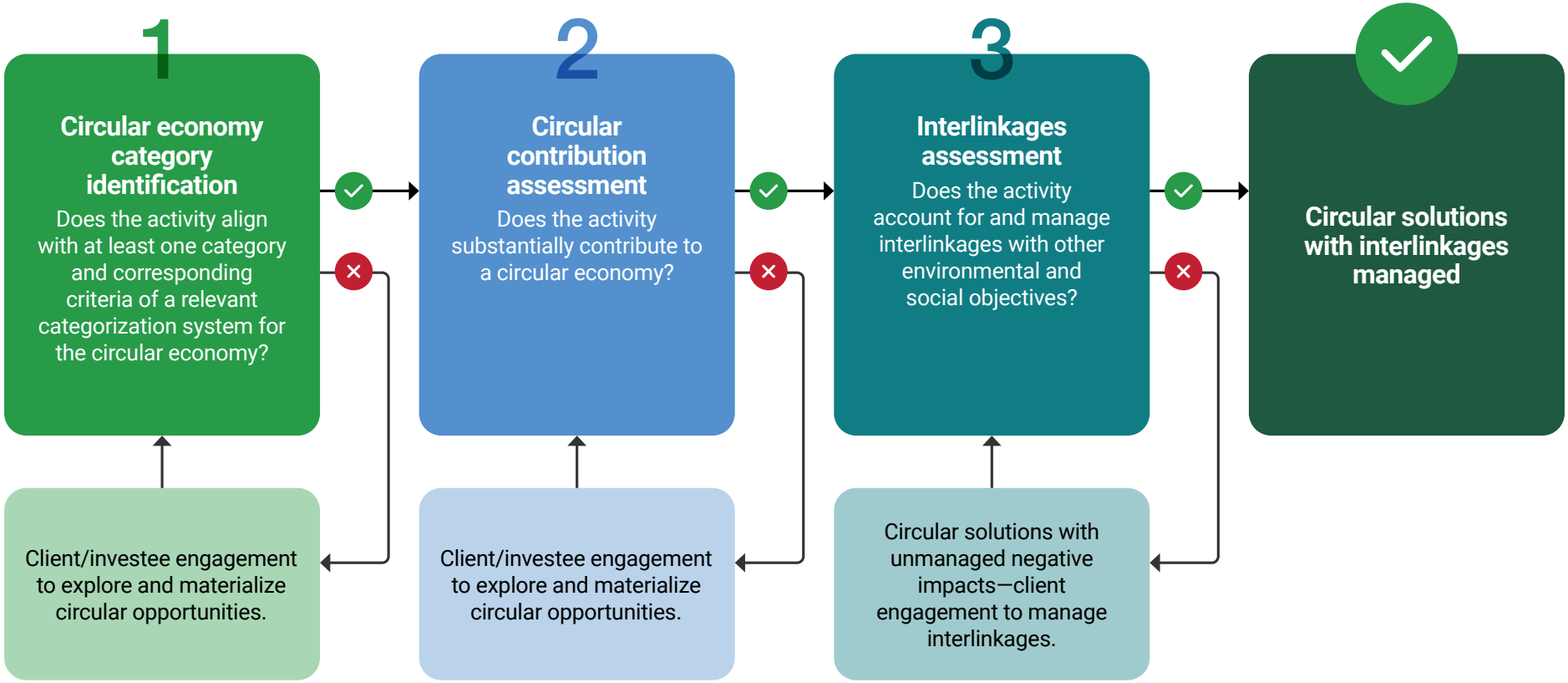


Figure 3: Three-step assessment methodology

Circular economy finance decision tree steps

1

Circular economy category identification

Does the activity align with at least one category and corresponding criteria of a relevant categorization system for the circular economy?

In Step 1—Circular economy category identification—users determine whether an activity qualifies as circular and, if so, assign the primary circular economy category for the activity: circular design and production, circular use, circular value recovery, or circular support (see Box 2 for definitions). These categories, adapted to the textile sector's specific context, are consistent with existing recognized circular economy categorization systems (see examples in Box 1). In Table 1, a rapid screening allows for a quick assessment of whether an activity demonstrates circular characteristics and to which circular economy category it corresponds.

Outcomes of Step 1: Activities demonstrating circular characteristics are assigned a primary circular economy category (circular design and production, circular use, circular value recovery, or circular support) and proceed to Step 2. For activities without clear circular alignment, financial institutions are encouraged to engage with their client or investee to explore circular opportunities.

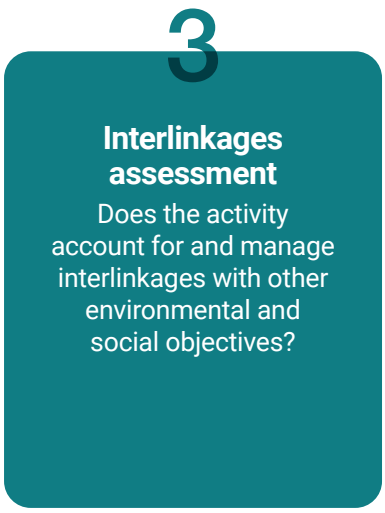
2

Circular contribution assessment

Does the activity substantially contribute to a circular economy?

In Step 2—Circular contribution assessment—users assess whether an activity makes a substantial contribution to circularity by applying sector-relevant indicators and recognized frameworks and disclosure standards. Depending on the context and ambition of the activity, supporting information can range from basic documentation (such as internal policies, pilot results or early metrics), through third-party certifications, to comprehensive, externally assured records including audit reports, longitudinal performance data and transition plan reporting. Financial institutions are encouraged to calibrate assessment and documentation requirements proportionately to the activity's context and scale, supporting credible classification, informing financing structure and establishing a foundation for long-term monitoring and performance tracking.

Outcomes of Step 2: Activities are classified as either circular solutions (meeting all circularity criteria stipulated by the financier) or circular opportunities (not meeting all circularity criteria but demonstrating circular potential). Circular solutions proceed to Step 3; circular opportunities are directed to targeted client engagement.



In Step 3—Interlinkages assessment—users assess interlinkages between circular activities and other environmental objectives and social objectives. The assessment comprises: (a) DNSH screening across environmental objectives; (b) social objectives assessment, confirming alignment with minimum social safeguards; and (c) co-benefits identification across environmental and social objectives.

Screening is place-based and proportionate to the activity and geography, building on established environmental and social frameworks adapted to the textile sector (e.g. Taskforce on Nature-related Financial Disclosure (TNFD), ZDHC Manufacturing Restricted Substances List (ZDHC, 2024) and the UNEP FI's *Impact Protocol* (UNEP FI, 2025b) which supports holistic impact assessment and interlinkages management to avoid negative externalities and foster positive impacts.

Outcomes of Step 3: Activities initially classified as circular solutions in Step 2 are assigned one of two outcomes based on interlinkages assessment.

- **Circular solutions with interlinkages managed:** Activities with potential co-benefits identified across climate, nature, pollution, or social dimensions, and/or with negative impacts in other impact areas appropriately managed/mitigated. No unmanaged significant negative impacts across environmental DNSH criteria and social objectives.
- **Circular solutions with unmanaged negative impacts:** Activities meeting all circularity criteria but with identified negative impacts on other environmental or social objectives that are not yet managed/mitigated, for which client engagement is encouraged to manage interlinkages.

Using the assessment outcomes

Upon completion of the three-step assessment, financial institutions will have classified activities as either circular solutions—activities meeting all criteria across steps 1–3, including environmental DNSH screening and social objectives assessment—or circular opportunities—activities demonstrating circular potential but not yet meeting all criteria, requiring further client engagement support, mitigation measures or transition plans. Among circular solutions, the interlinkages assessment (Step 3) will further distinguish those interlinkages managed—where co-benefits are identified and/or negative impacts in other impact areas are appropriately managed/mitigated—from those with unmanaged negative impacts, for which client engagement and ongoing monitoring are encouraged.

These classification results support multiple applications across institutional functions—including transaction structuring, client engagement and portfolio monitoring—and connect to UNEP FI's broader circular economy guidance suite.

These guidelines operationalize the activity-level screening methodology described in UNEP FI's *Guidance on Resource Efficiency and Circular Economy Target Setting* (UNEP FI, 2023c), enabling institutions to classify individual activities that feed into portfolio baselines and target-setting processes. For institutions that have set climate targets, UNEP FI's *Circular Solutions to Achieve Climate Targets in the Textile Sector* (UNEP FI, 2024d) offers a complementary entry point, supporting institutions to integrate circular economy contributions into climate transition planning. For institutions implementing *Circular Economy as an Enabler for Responsible Banking* guidance (UNEP FI, 2024a), these outcomes provide the detailed activity-level analysis that informs broader circular economy integration strategies across governance, operations and stakeholder engagement. In these cases, these sectoral guidelines provide the activity-level circularity screening that underpins portfolio assessment.

These outcomes can be applied at two levels: (1) structuring transactions and engaging clients and (2) aggregating exposures for portfolio management, target setting and reporting. For detailed guidance on operationalizing these outcomes, see chapter 3, Using the assessment outcomes.

Box 2: Circular economy category definitions under the European Commission circular economy business models categorization system (European Union, 2020)

Circular design and production: Activities contributing to circular design and production aim at increasing resource efficiency through (i) design innovation, (ii) process innovation and re-engineering or (iii) material innovation and substitution.

Circular use: Activities contributing to circular use aim at increasing resource efficiency through (i) product and asset life-cycle extension based on reuse, repair, repurposing, refurbishment, or remanufacturing strategies or (ii) product- and asset-use-optimizing leasing and sharing models.

Circular value recovery: Activities contributing to circular value recovery aim at increasing resource efficiency through the recovery of wastes in preparation for reuse and recycling or other circular economy strategies.

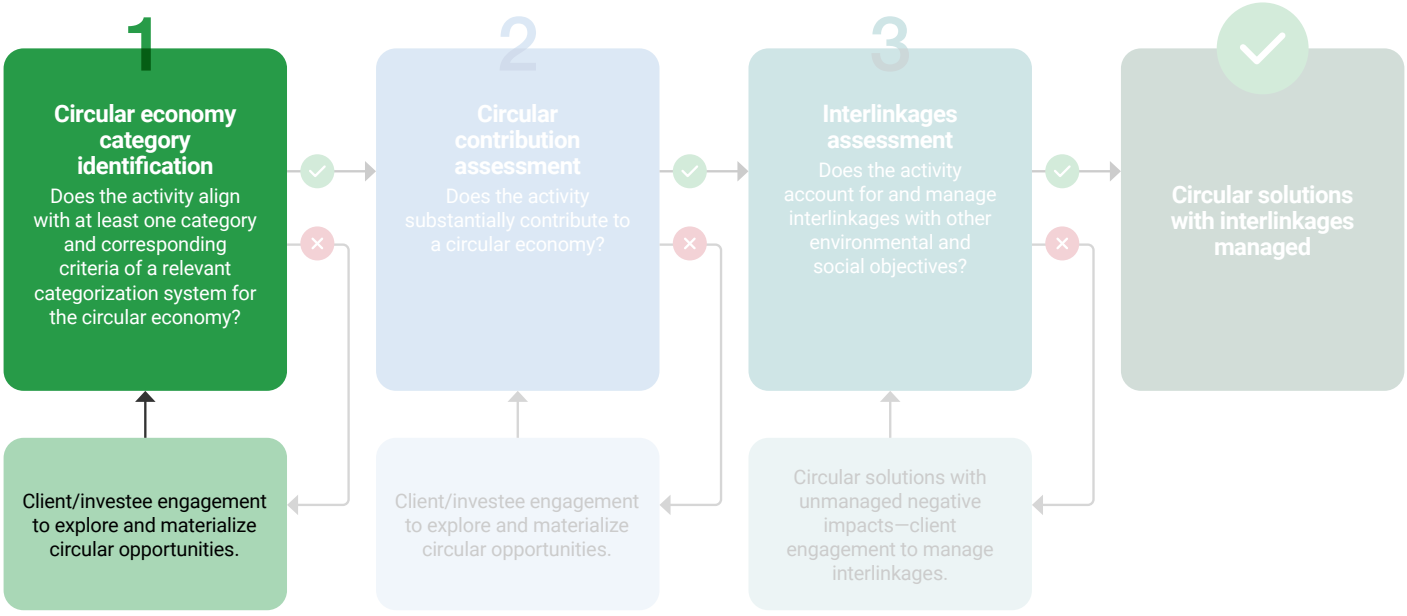
Circular support: Activities in the circular support category aim at enabling other circular activities/projects and thus indirectly contribute to increasing resource efficiency.

These categories are consistent with existing circular economy categorization systems such as the Harmonized Circular Economy Finance Guidelines developed by IFC (2025), the Circular Economy Finance Guidelines issued jointly by ABN AMRO, ING and Rabobank (2018), the methodology developed by Inter-American Development Bank (IDB), IDB Invest, BASE together with local banks in Colombia (IDB and BASE, 2022) and in Peru (IDB Invest, 2024), the methodology developed by Circular Economy Leadership Canada (CELC), UNEP FI and local banks for Canada (CELC and UNEP FI, 2024) and the categorization systems developed by UNEP FI, BASE and local banks in Chile, Costa Rica, Uruguay and Dominican Republic (UNEP FI, 2025a).

3. Application of the circular economy finance assessment methodology to the textile sector

Robust classification is essential to ensure that financial flows directed toward circular economy activities in the textile sector achieve genuine impact. Chapter 3 provides a detailed overview of each step of the decision tree, enabling financial institutions to systematically screen, classify and assess whether textile activities qualify for circular economy financing. The approach supports consistent and transparent decision-making across origination, due diligence, structuring and portfolio monitoring, while providing a clear basis for reporting to external stakeholders and regulatory frameworks. Where examples in this document reference specific jurisdictions, users are encouraged to substitute relevant regional equivalents in line with their local context and frameworks.

Step 1: Circular economy category identification



Purpose: Identify which of the four circular economy categories the textile activity falls under: circular design and production, circular use, circular value recovery, or circular support (see Box 2). This categorization forms the foundation for all subsequent assessment steps and ensures consistent classification across portfolio and transaction applications.

Distinguishing systemic circularity from resource efficiency

Before selecting a category, a nuanced understanding of circularity is essential for financial institutions seeking to credibly identify and accelerate circular economy activities in the textile sector. Circularity is not achieved through incremental sustainability or resource efficiency improvements alone, but through interventions that fundamentally shift systems toward material recirculation, extend product lifespans and enable high-value recovery and reuse at scale.

To avoid the risk of misclassification, efficiency improvements—while environmentally beneficial—should not be confused with circular solutions (see Box 3 for illustrative examples). These guidelines prioritize closed-loop, sector-specific systems where textile materials remain in circulation at their highest value. Interventions that downcycle textile waste to non-textile applications, or that rely on open-loop feedstocks from other sectors (such as PET bottles) without addressing the textile waste challenge, do not align with primary intent of these guidelines.

While diverting beverage-grade PET into textile production may contribute to broader sector-agnostic circular economy objectives, this represents downcycling within the packaging sector, where bottle-to-bottle recycling preserves the highest material. Financial institutions are encouraged to assess whether material remains in established high-value recycling loops within its original sector. Technical specifications demonstrating polymer equivalence (e.g. intrinsic viscosity or purity levels comparable to virgin or textile-grade inputs) or commercial acceptance documentation from spinners confirming the material's suitability for high-quality fibre production can support this assessment.

Box 3: Understanding efficiency and circularity in the textile sector

Linear efficiency refers to reducing resource consumption within conventional production models. Examples include implementing water-efficient dyeing processes, lowering energy use in manufacturing, or optimizing transportation logistics. While these measures yield environmental benefits and align with responsible business practices, they do not fundamentally alter the linear "take, make, waste" model that characterizes traditional textile systems.

Circularity, by contrast, requires systemic interventions that enable closed-loop material flows. These may include designing garments for disassembly and textile-to-textile recycling, establishing business models that demonstrably extend product life through repair and reuse, or building infrastructure that returns post-consumer textile waste to new textile production with traceable end-markets. Efficiency can support circularity. For instance, water-efficient processes may enhance chemical safety in recycling operations. However, efficiency improvements alone cannot generate circular outcomes (UNEP, 2023b).

Consider the difference between a dyeing facility that reduces water consumption by 30% through process optimization and a facility that adopts mono-material garment production designed for textile-to-textile recycling. The former improves environmental performance within a linear system. The latter enables circular material flows. Both may merit financing, but only the latter qualifies as circular economy finance under these guidelines.

Understanding the four circular economy categories

The four categories defined below serve as the primary classification for this methodology (see Box 2 for definitions). They are designed to capture the full life cycle of textile circularity, from design and production choices that enable future loops, through business models that maximize utilization, to the recovery systems that return materials to the value chain. While interconnected, each category has specific eligibility criteria tailored to the textile sector's unique material and market challenges.

- **Circular design and production** initiatives re-engineer garment and textile production systems. Effective approaches address textile-specific challenges such as mono-material construction to avoid recycling contamination, low-shed finishes and the elimination of hazardous chemicals to reduce microfibre and toxics release and design choices that enable disassembly without compromising durability or use of recycled content.
- **Circular use** activities are characterized by demonstrated life extension and displacement of new production, such as through repair, resale and rental models, clothing subscription systems or take-back schemes. Textile-specific considerations include seasonal demand patterns, size and fit constraints for reuse models and quality thresholds that determine multiple-use viability. Where survey-based methods are used for displacement data, they are recommended to be transparently documented and periodically updated to reflect programme-specific performance.

- **Circular value recovery** activities are defined by the ability to return post-industrial and post-consumer textiles to textile-grade inputs through high-purity sorting and contamination control. Key considerations include transparency of blend identification and separation, removal of restricted chemicals and elimination of non-textile components (e.g. zippers, buttons, adhesives).
- **Circular support** covers cross-cutting enablers that make the other categories workable at scale. Priorities include product and process information systems that can operate across multi-tier supply chains, testing protocols for durability, recyclability and microfibre release and traceability statements that can be exchanged across partners.

The quick screening pathway

Users may reference the indicative list of 44 activities eligible for circular economy financing in the textile sector provided in Annex 1, organized according to the four circular economy categories. Where a direct match exists, the user assigns the corresponding category and proceeds to Step 2 or for multi-component assessment, if applicable. Activities not explicitly listed (e.g. early-stage innovations as illustrated in Box 4), users can document the rationale for category assignment as shown in Annex 4 illustrative example.

Table 1 sets out quick screening questions to determine the circular economy category. To use the screening table, first identify which circular economy category best describes the activity based on the italic descriptors in the left column. Answer the four quick screening questions for that category. If all answers are "Yes", the activity demonstrates circular characteristics. If any answer is "No," enhanced client engagement is recommended to explore circular economy opportunities.

Table 1: Circular economy category quick screening guide

Circular economy category	Quick screening questions
Circular design and production Select this category if the activity redesigns products, processes or materials to enable circularity. **Common textile circular-economy-aligned activities:** Design for durability and repairability, design for recyclability, textile-to-textile recycled content integration, responsible man-made cellulosic inputs, substitution to circular-compatible fibres, on-demand made-to-measure production.	▪ Does the activity redesign textile production systems or processes for circularity (e.g. mono-material design, design for disassembly, elimination of hazardous chemicals)? ▪ Does it substitute virgin or hazardous materials with safer, renewable or recycled alternatives (e.g. textile-to-textile recycled content, bio-based fibres)? ▪ Is there a documented process for enabling conversion of textile waste streams into marketable textile inputs (e.g. fibre, yarn, fabric)? ▪ Are performance thresholds captured or available (e.g. textile-to-textile yield, quality specs, chain-of-custody information)?

Circular economy category	Quick screening questions
Circular use Select this category if the activity extends product life through reuse, repair, rental or resale. **Common textile circular-economy-aligned activities:** Brand-operated repair services, alteration and fit services, rental and product-as-a-service models, refurbishment and certified resale, peer-to-peer resale platforms, second-hand retail operations.	▪ Does the activity extend textile product or garment life through reuse, sharing, repair, or refurbishment? ▪ Is there a mechanism to track and optimize garment utilization (e.g. rental cycles, displacement rates, service-life extension)? ▪ Does it eliminate waste or convert textile waste streams into production inputs? ▪ Does the activity show indicators of system-level change versus incremental efficiency gains?
Circular value recovery Select this category if the activity converts textile waste into new textile production inputs. **Common textile circular-economy-aligned activities:** Mechanical recycling to yarn/fabric, chemical or enzymatic recycling for blended materials, PET depolymerization to textile-grade rPET, regenerated cellulosic production, automated composition sorting, preparation-for-reuse hubs, de-dyeing and contaminant removal.	▪ Does the activity recover value from post-consumer or post-industrial textile waste? ▪ Are recovered outputs validated for textile-to-textile reuse or input substitution (e.g. spinner acceptance, quality certification)? ▪ Does it include monitoring, traceability or verification services (e.g. digital product passports, chain-of-custody, ZDHC testing)? ▪ Is there supporting documentation that the service or tool accelerates textile circular transition at scale?
Circular support Select this category if the activity provides services, tools or platforms enabling other circular activities. **Common textile circular-economy-aligned activities:** Digital product passport traceability platforms, recycled-content chain-of-custody data services, test labs for durability, recyclability, microfibre release, LCA and eco-design software, EPR scheme operator data infrastructure, reverse-logistics orchestration, shared repair hubs, marketplaces for reuse.	▪ Does the activity provide services, tools or infrastructure enabling other textile circular activities? ▪ Are there digital platforms, certification systems, or testing protocols integral to the model? ▪ Are restoration, repair or maintenance services integral to the business model? ▪ Does it demonstrate measurable extension of service life or displacement of new production?

Assessing circularity: Key considerations

While the circular activities in Annex 1 represent promising interventions, users are encouraged to consider potential unintended effects when assessing specific business models. As producer responsibility obligations for textiles evolve, initiatives that rely on exporting low-grade textiles are recommended to demonstrate traceability and provide reliable supporting documents that receiving facilities operate in accordance with recognized environmental and social standards. This includes avoiding uncontrolled disposal or pollution in informal waste sites (Textile Exchange, 2025). Activities that do not clearly align with Table 1 may represent linear efficiency improvements, transactions suited to alternative sustainable finance frameworks or early-stage innovations (see Box 4 for illustrative examples).

Try-before-you-buy programmes can reduce mis-sizing and avoidable returns when designed with circularity incentives; however, without appropriate safeguards, they may increase return volumes, reverse-logistics emissions and packaging waste. UK analysis for the British Fashion Council's Institute of Positive Fashion estimated that fashion returns generated approximately 750,000t CO_2 in 2022 and contributed to 23 million garments sent to landfill or incineration, underscoring the importance of programme design (British Fashion Council, 2023). Peer-to-peer resale with quality verification extends product life; yet circular benefits depend on displacement of new purchases rather than supplementary consumption. Waste and Resources Action Programme's (WRAP) 2025 displacement rate analysis estimates that resale displaces approximately 65% of otherwise-new purchases, while recent research indicates that certain second-hand consumers continue to exhibit fast-fashion purchasing behaviours, suggesting rebound effects remain plausible (WRAP, 2025a). Financial institutions are therefore encouraged to assess displacement rates, utilization patterns and resource reduction outcomes as part of their classification decisions (Demailly and Novel, 2014).

Box 4: Illustrative early-stage activities

Life cycle performance validation for early-stage circular innovations. Early-stage circular opportunities may benefit from life cycle assessments (LCAs) to demonstrate environmental benefits beyond technical feasibility. LCAs using recognized methods (ISO 14040/44, 2006 or PEFCR Apparel and Footwear v3.1) help confirm reductions across water, energy, chemical and climate impact categories while identifying potential burden-shifting. For example, water-minimized dyeing technologies or enzymatic recycling pilots are recommended to include third-party LCA documentation demonstrating no significant harm and environmental improvement before classification is upgraded from opportunity to Circular Solution. Where full cradle-to-gate LCA is not yet feasible, hotspot analysis or streamlined LCA focused on material impact categories may support interim classification, with full LCA required for alignment upgrade.

Automated sorting (AI, hyperspectral and near-infrared (NIR) imaging, robotics). May move towards classification upon pilot demonstration of reliable fibre identification at industrial line speeds and produce recycler-spec bales. Milestones can include purity/throughput targets and integration with DPP/traceability. Recommended inclusion throughput and purity KPIs for automated fibre identification.

Bio-based fibre innovations (e.g. mycelium leather, algae-based textiles). Classification as circular opportunity may be supported when pilot trials demonstrate fibre quality meeting textile manufacturing specifications, with compostability testing and supply chain integration pathways documented. Milestone progression tied to independent durability testing and commercial partnership development.

Digital design for zero-waste production: Classification supported by demonstrated waste reduction metrics from pilot implementations, with third-party validation of pattern efficiency and manufacturing compatibility. Scale-up milestones include multi-brand adoption and measurable resource efficiency improvements across production cycles.

Enzymatic PET depolymerization for textile-to-textile. Positive signals include pilot runs using post-consumer textiles, monomer quality that meets polymerization specs for filament and offtake agreements. Note that flagship plants are still scaling: projects may for example be classified as circular opportunity pending demonstration of stable commercial operation with textile feedstock (Tournier *et al*., 2024).

Regenerated cellulosics from textile waste (dissolving-pulp routes). Demonstrate technological potential but underscore market and financing fragility (Corvellec and Stowell, 2024); require stronger demand-visibility and offtake before upgrading from circular opportunity.

Water-minimized dyeing/finishing (e.g. supercritical CO dyeing). Positive signals are third-party LCAs using the PEFCR apparel and footwear ruleset (European Commission, 2025b) or equivalent rigor, verifiable colorfastness/quality and chemistry/worker-safety controls (Abagnato *et al*., 2024). Marketing claims vary; enquire for site-specific data before moving from circular opportunity to circular solution status.

Classifying multi-component transactions

Textile transactions often combine design changes, service-based models, new collection and recovery capacity in one project. In such complex cases, financial institutions can determine the primary category mechanism through which the activity most directly and materially advances circular textiles. They can document proportional exposure if relevant for internal tracking or regulatory compliance. The following questions can be used to identify the primary category:

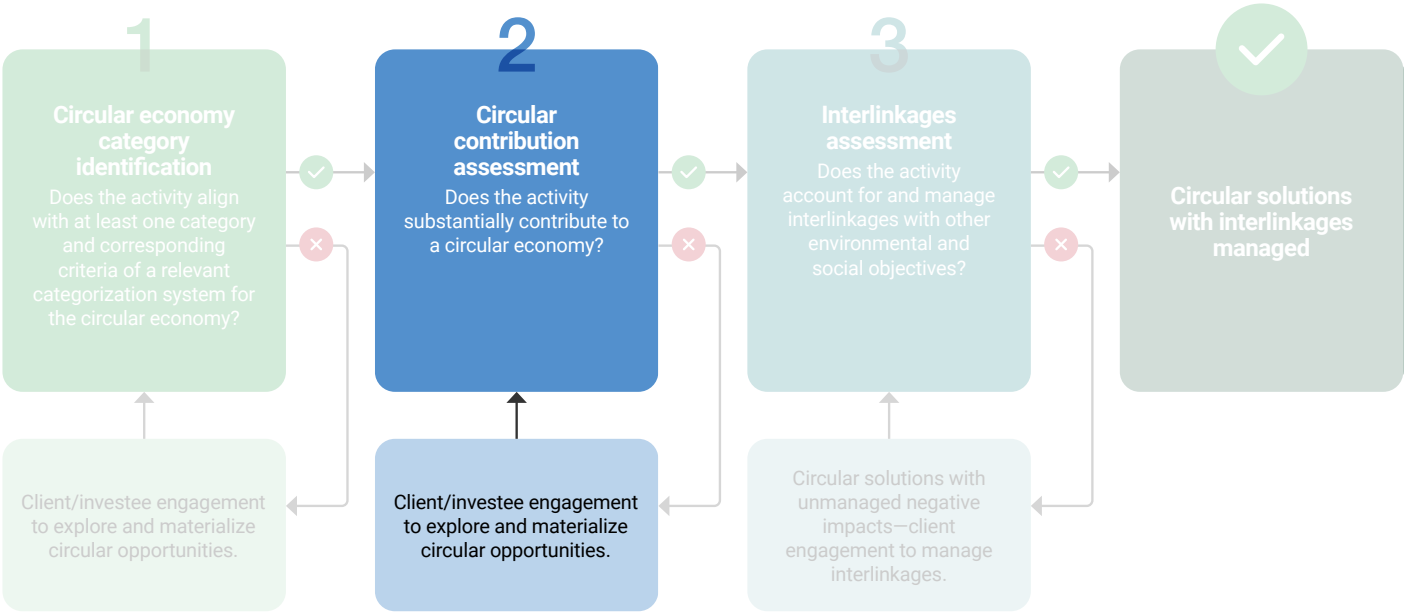
- **Capital allocation:** Which component accounts for the majority of funding?
- **Circular impact:** Which activity most directly enables material recirculation or extended use?
- **System catalysis:** Which component is most catalytic or foundational to future circularity?

Proportional allocation is appropriate only when financing lines or exposures are clearly segregated, each component maps to distinct categories and governance processes maintain auditable records. This approach prevents double-counting and ensures interoperability with emerging regulatory frameworks (IFC, 2025).

Outcomes of Step 1

Upon completion of Step 1, users will have assigned a primary circular economy category (circular design and production, circular use, circular value recovery, or circular support) and determined the classification outcome. Activities demonstrating circular characteristics are assigned a primary circular economy category and may proceed to Step 2 for circular contribution assessment. Activities not clearly aligned with one of the four circular economy categories but demonstrating circular potential can be directed to enhanced client engagement.

Step 2: Circular contribution assessment



Purpose: Step 2 assesses whether activities demonstrate a substantial contribution to circular outcomes through documented, measurable performance, whether quantitative or qualitative. Financial institutions are encouraged to select screening circularity criteria proportionate to the activity's context and scale, drawing on recognized frameworks. The criteria and KPIs presented in this section serve as informative reference points, not prescriptive requirements. Table 2 presents examples of illustrative resources and non-exhaustive application examples for textile circular economy screening under Step 2.

Table 2: Example indicators and documentation sources for Step 2 and Step 3 (non-exhaustive)

Resource type	Description / Illustrative examples	Potential Step 2 uses
Regulatory and certification	**Textile:** CCS backbone; GRS/RCS (recycled), OCS (organic) (Textile Exchange, 2024a). **GOTS v7.0:** organic processing and social criteria. **Better Cotton:** farm-level principles and chain-of-custody. **FSC/CanopyStyle:** Forest-based MMCF sourcing and Hot Button risk screening (Canopy, 2024a). **ISO 59014:2024:** Secondary material recovery principles.	Attach chain of custody documentation (CCS and GRS/RCS/OCS) for claims integrity. Use GOTS where organic processing is material. For MMCF, attach FSC/brand sourcing alignment and Canopy Hot Button rating. Use ISO 59014 principles to substantiate recovery claims.

Resource type	Description / Illustrative examples	Potential Step 2 uses
Performance data and metrics	**WBCSD CTI v4.0 and Enabling Solutions (2025):** Circular-flow metrics and enablers. **ISO 59020:2024:** Measuring circularity performance. **WRAP—Displacement Rates Untangled:** Repair/resale benchmarks. **GRI topic standards:** Disclosure-grade KPIs (Materials 301, Waste 306). **EMF Jeans Redesign/Circulytics:** Design-side KPIs and ESRS mapping.	Build activity-level KPIs: utilization/turns, displacement percentage, recycling yield and durability pass-rates. Cite the method (CTI/ISO/WRAP/GRI) in the assessment. Use EMF tools to crosswalk client data to ESRS disclosure requests.
Sectoral reports and implementation guides	**Fashion for Good (2025):** Benchmarks on circular business models (Scaling Next-Gen Materials in Fashion: An Executive Guide). **T-REX Project (2025):** Viability reports (Financing Textile-to-Textile Recycling) and technical guidance. **Circle Economy and Fashion Pact (2023):** *The Circularity Gap Report* (finance gap) and *Accelerating Circularity* (system mapping). **WRAP Design Guide (2023):** Durability and recyclability best practices . **Textile Exchange market reports (2024):** Fibre trends.	Reference T-REX and FFG reports to validate business model assumptions and technical viability. Use WRAP and T-REX guidance to assess design-for-recycling criteria. Consult market reports to benchmark material uptake against industry trends.
Environmental and safety assessment	**ZDHC:** MRSL v3.1 (Chemicals) and Wastewater Guidelines v2.2. **ISO 4484-1:2023:** Fibre fragment shedding test. **OEKO-TEX®/Bluesign:** Product safety and chemical criteria. **REACH (SVHC Candidate List):** Regulatory chemical checks.	Attach lab reports (ISO/IEC 17025 context) for shedding/quality. Provide ZDHC Gateway documentation for MRSL conformance. Use OEKO-TEX/Bluesign certificates as supporting artefacts (OEKO-TEX Assocation, 2025). Reference REACH/SVHC for market access risk.
Safeguards and risk-based assessment	**OECD due diligence guidance:** Social/environmental risk scaffold. **TNFD sector guidance:** Nature-related dependencies and impacts. **SBTi/SBTn guidance:** Science-based targets for climate and nature.	Use OECD guidance as the primary risk screening tool (Step 3). Apply TNFD/SBTi frameworks to identify material risks and align targets (SBTi, 2021).
Operational and process documentation	**ISO/IEC 17025:** Lab competence context. **ISAE 3000 (Revised):** External assurance for non-financial KPIs. **ISO 59004/59010:** Vocabulary and business model guidance. **GRI:** Structure for data lineage and KPI definitions.	File tech packs/bills of materials and sampling plans. Cite test methods and lab competence (17025). If KPIs underpin financing terms, consider ISAE 3000 assurance. Use ISO 59010 to validate business model definitions.

Resource type	Description / Illustrative examples	Potential Step 2 uses
System integration documentation	**GS1 EPCIS 2.0:** Event-level traceability standard. **UNECE Recommendation 46:** Traceability guidance. **Open Supply Hub (formerly OAR):** Facility ID mapping. **ESPR/DPP and EU EPR:** Digital product passport and producer responsibility rules (EU examples).	Supporting documentation that outcomes are embedded: traceability coverage (EPCIS/UNECE), facility IDs (Open Supply Hub) and offtake acceptance. Map regulatory compliance (DPP/EPR) where relevant to the market.
UNEP sector resources	**UNEP Textile Roadmap (2023):** Global roadmap outlining priority actions, nine building blocks and stakeholder roles. **UNEP FI Impact Protocol (2025):** Portfolio-level, PRB-aligned approach for impact analysis and management. **UNEP FI Sectors Mapping (2024b):** Charting the economic sectors and activities of the International Standard Industrial Classification (ISIC) to the different impact areas or topics of UNEP FI *Impact Radar* (2022). **UNEP FI Circular Solutions to Achieve Climate Targets in the Textile Sector (2024d):** Integrating circular solutions into climate transition plans and Scope 3 emissions, (linking circular economy to climate).	Use UNEP Roadmap to justify category materiality. Apply Impact Protocol for indicator selection and governance. Reference Circular Economy Supplement to integrate circular solutions into climate strategies.

Where there is no mandatory framework, financial institutions can select their own set of circularity criteria, consisting of material, context-specific KPIs that are aligned with recognized frameworks, to assess whether an activity makes a substantial contribution to the circular economy. The following sections outline examples of criteria to assess circularity under each category, as well as resources that can be used to identify and select circularity criteria.

Circular design and production: Product and process choices are encouraged to show potential for circular outcomes at the product level, distinct from incremental efficiency gains. Documentation typically includes features in design for durability, repairability and recyclability; conformance with recognized chemicals management protocols (for example ZDHC MRSL); microfibre-release testing for high-shed risk materials where relevant; and alignment with recognized global life cycle assessment (LCA) standards (ISO 14040/44), UNEP textile circularity roadmap metrics for durability and recyclability, regional benchmarks such as PEFCR Apparel and Footwear v3.1 (European Commission (2025b) and United Nations Economic Commission for Europe (UNECE) pilot PEF studies and national case studies (for example the United States of America Department of the Environment Clean Energy Textile Roadmap; Canada's cleantech circular textiles grants).

Table 3: Example resources and indicators for circular design and production

Activity	Example KPI metrics	Additional information
Recycled content input	Percentage of stock keeping unit (SKU) mass that is textile-to-textile recycled content, supported by third-party chain of custody documentation such as GRS/RCS and transaction certificates (TCs). May include portfolio-weighted and SKU-level data.	**Risk if absent:** Misstated recycled content; chain-of-custody breaks; mass-balance mis-allocation; greenwashing exposure. **Reference examples:** Textile Exchange GRS/RCS programme (chain-of-custody, TCs); Textile Exchange materials labelling guidance.
Design for durability and repairability	Percentage of styles demonstrating durability aligned with standards (such as ISO 12947 abrasion; ISO 13934-1 tensile; ISO 6330 wash durability) and a repairability checklist (access to closures, spare parts). May include disaggregation by product category with performance benchmarking.	**Risk if absent:** Premature failures; high returns; unverifiable "designed to last" claims; reduced circularity potential. **Reference examples :** ISO 12947 (Martindale abrasion); ISO 13934-1 (tensile strength); ISO 6330 (wash fastness); EMF Jeans Redesign durability criteria; ISO/IEC 17025 laboratory competence.
Design for high-quality recyclability	Percentage of SKUs that are mono-material or recycler-pre-accepted (documented spec from identified recycler). May include regional adaptation for different sorting infrastructure capabilities.	**Risk if absent:** "Recyclable-in-theory" only; down-cycling to lower-value applications; stranded end-of-life inventory; higher reprocessing losses. **Reference examples :** Fashion for Good Sorting for Circularity Europe; PEFCR Apparel and Footwear v3.1 guidelines; Regional textile sorting infrastructure studies.
Chemicals management (inputs and effluent)	Percentage of tier-1/tier-2 facilities with ZDHC MRSL v3.1 conformance and ZDHC wastewater/sludge compliance. May include upstream supplier screening for tier-3+ critical processes.	**Risk if absent:** Hazardous residues blocking reuse/recycling pathways; environmental permit breaches; worker safety exposure; brand delisting; regulatory fines. **References:** ZDHC MRSL v3.1; ZDHC Wastewater Guidelines; ZDHC Gateway guidance; ISO/IEC 17025 laboratory standards.
Microfibre/ fibre-fragment shedding	Fibre-fragment release index per ISO 4484-1:2023, with trend analysis and mitigation approaches. May reference innovation pathways for emerging test methods.	**Risk if absent:** Underreported microplastic environmental releases; NGO/regulatory scrutiny; non-compliance with emerging policy frameworks. **Reference examples**: ISO 4484-1:2023 (textile microfibre testing); UNEP microplastics assessment frameworks; emerging regional microplastics regulations.

Activity	Example KPI metrics	Additional information
Traceability and data (for measurement context)	Percentage SKUs with tier-level traceability and DPP-ready or equivalent product-passport data set consistent with UN/CEFACT Rec 46; mapping to ESRS E5 requirements for portfolio reporting. Include regional adaptation for non-EU jurisdictions. Where digital product passports are emerging, use interoperable data models based on open, widely adopted standards so the same activity-level documentation can support market claims, regulatory compliance and financing; GS1 EPCIS/CBV and UN/CEFACT garment-and-footwear traceability guidance provide relevant building blocks while textiles-specific delegated acts are developed.	**Risk if absent:** Inability to substantiate sustainability claims; DPP/ESPR non-compliance risk (EU); disclosure gaps under emerging regulations; lost competitive advantage. **Reference examples** : Global standards on product and data traceability (ISO/IEC 27001 information security for data management; UNECE Recommendation 46 on traceability in garment and footwear; GS1 EPCIS 2.0 global supply chain data); regional frameworks such as ASEAN Circular Economy Monitoring Framework and Asia-Pacific Economic Cooperation (APEC) eco-design guidance; EU ESPR overview and digital product passport requirements; ESRS E5 Resource Use and Circular Economy (2024 final/2025-2026 updates); and country-level disclosure frameworks (such as Japan's Circular Economy Roadmap and United States of America Securities and Exchange Commission (SEC) climate disclosure rules).

Circular use: Measured life-extension and utilization uplift are encouraged to be demonstrated through activity-level data. Examples include the percentage of items repaired and returned to service, warranty or repair volumes; utilization turns for rental and repeat use in resale models. Where relevant, apply a documented displacement method so avoided purchases are not overstated; where programme-specific data are limited, use conservative factors and transparently disclose assumptions and sensitivity bands (Waste and Resources Action [WRAP], 2025b). Supporting documents typically combine operational logs or telemetry, customer service records and independent checks.

Table 4: Example resources and indicators for circular use

Activity	Example KPI metrics	Additional information
Utilization/ turns per garment	Average turns per garment (rental) or months-in-use uplift versus baseline, supported by life cycle impact assessment or similar approach.	**Risk if absent:** Limited visibility into utilization uplift; may undermine confidence in environmental benefits. **Reference examples:** Johnson and Plepys (2021) Product-service systems and sustainability: the environmental impacts of rental clothing; Amasawa *et al*. (2023) Product-service combinations for clothing rental; Business model LCA methodologies (Böckin *et al*., 2022); ISO 14040/14044 LCA standards.
Displacement rate applied to volumes	Percentage of new purchases displaced by reuse/rental/refurbishment items using WRAP's Displacement Rates Untangled methodology, recalibrated with -specific data and validated through consumer surveys.	**Risk if absent:** Lifetime extension without meaningful demand displacement; double counting of avoided production; inflated environmental impact claims; regulatory scrutiny. **Reference examples :** WRAP Displacement Rates Untangled (2025b); WRAP methodology implementation guidance; academic studies on displacement economics; statistical validation protocols for survey-based KPIs.
Quality-controlled refurbishment	Percentage refurbished items passing first-time quality control with defined grade specifications; warranty return rate below sector benchmarks; chemical safety compliance in all refurbishment processes; post-refurbishment durability verification.	**Risk if absent:** Poor user experience; health and safety liability; failure to demonstrate genuine life extension; consumer protection issues; brand reputation damage. **Reference examples:** ZDHC MRSL framework and wastewater guidelines; EEB/ ECOS harmonized grading system for textiles; ISO 12947/13934-1/6330 durability standards; AQL (acceptable quality level) sampling protocols; garment quality control industry standards.
Reverse logistics enablement	Percentage of target market with accessible take-back infrastructure; sorting purity rates for defined textile grades; downstream with attention to destination assessment and efforts to direct materials toward circular pathways.	**Risk if absent:** Collected items routed to low-value channels or landfill; reputational damage; regulatory non-compliance; leakage undermining circular business model credibility. **Reference examples:** Fashion for Good Sorting for Circularity Europe report; Refashion stream characterization studies; EEB/ECOS end-of-waste criteria for textile reuse; EU EPR textile regulations; CISUTAC sorting tool (RISE); harmonized textile grading frameworks.

Activity	Example KPI metrics	Additional information
Chemicals and microfibre safeguards in use	Percentage of care/repair services using ZDHC-compliant chemical inventory; percentage of microfibre-prone items with documented care guidance and ISO 4484-1 shedding profiles; consumer education effectiveness measurement.	**Risk if absent:** Circular gains offset by chemical/microfibre environmental harm during extended use; regulatory non-compliance; consumer safety issues; NGO scrutiny. **Reference examples :** ZDHC MRSL v3.1 and implementation guidance; ISO 4484-1:2023 microfibre testing standard; UNEP microplastics frameworks; ISO 14001 environmental management; consumer product safety regulations.
Data integrity for SLL/SLB KPIs	Percentage of sustainability-linked financing KPIs with independent third-party verification; data lineage documentation completeness; audit trail integrity with blockchain or equivalent immutable recording where applicable.	**Risk if absent:** KPI gaming and manipulation; weak credibility for sustainability-linked financing terms; regulatory scrutiny; loss of investor confidence; potential litigation exposure. **Reference examples:** ICMA Sustainability-Linked Loan Principles (2024a); ICMA Guidelines for Sustainability-Linked Loans financing Bonds; External verification standards for sustainable finance; ISO/IEC 27001 information security management; data integrity best practices for financial services; anti-fraud frameworks for ESG reporting.

Circular value recovery: High-quality material recirculation is encouraged to be demonstrated with chain-of-custody integrity. For textile-to-textile applications, this typically includes supporting documentation of feedstock purity and sort accuracy, fibre or yarn yield and quality aligned with offtake specifications. Financial institutions are encouraged to identify credible offtake or reintegration routes.

Presence of hazardous chemical residues or uncontrolled microfibre contamination can block textile value recovery and reduce yield or recyclability. Proactive chemical phase-out and microfibre filtration (supported by ZDHC MRSL v3.1 controls and ISO 4484-1 fibre-shedding testing), therefore enhance both circularity and recycling quality.

Textile Exchange standards (e.g. CCS, GRS, RCS) may support input verification and WBCSD Circular Transition Indicators (CTIs) may be used as a measurement context for circular flows. CTI is leveraged in the Global Circularity Protocol for Business (GCP), launched by WBCSD and UNEP, which is being advanced through stakeholder consultations and can be a reference point for circular performance assessment (WBCSD and One Planet Network, 2025). Product Environmental Footprint Category Rules (PEFCR) may be used as a measurement reference to contextualize performance, rather than as a circularity eligibility gate (European Commission, 2025b).

Table 5: Example resources and indicators for circular value recovery

Activity	Example KPI metrics	Additional information
Feedstock documentation	Percentage of feedstock with textile origin, composition analysis and chain-of-custody documentation meeting international certification standards (GRS/RCS/CCS). May include mass-balance reconciliation and banned substance screening per Stockholm Convention POPs list.	**Risk if absent:** Ineligible or contaminated feedstock leading to processing failures; down-cycling lock-in; regulatory non-compliance; supply chain integrity compromised; inability to substantiate recycled content claims. **Reference examples:** Textile Exchange GRS/RCS/CCS certification frameworks; Stockholm Convention POPs screening protocols; ISO 14021 environmental labels for recycled content; EU REACH regulation for chemical safety; JRC 2025 feasibility study on textile waste management incentives.
Sorting and purity	Percentage of inbound textiles sorted to target polymer/construction specifications suitable for selected recycling processes, supported through automated NIR/AI systems with >95% accuracy and manual quality verification protocols.	**Risk if absent:** Contamination leading to process fouling; significant yield and quality losses; increased downstream processing costs; inability to meet recycler specifications; compromised circular economy objectives. **Reference examples:** Fashion for Good Sorting for Circularity Europe technical specifications; Boston Consulting Group (2025); European Commission Joint Research Centre (2025); EU harmonized textile grading frameworks (EEB/ECOS); NIR spectroscopy validation standards (>95% accuracy benchmark); Raman spectroscopy with AI integration for textile identification; CISUTAC automated sorting tools (RISE).
Process yield and quality	Percentage of production lots meeting end-user specifications (yarn count, tensile strength consistency (CV%), fibre length distribution) with comprehensive quality documentation and traceability to feedstock characteristics. May include process optimization metrics and yield efficiency tracking.	**Risk if absent**: Off-specification output forcing down-cycling; reduced bankability of recycling projects; customer rejection; compromised market credibility for recycled textile products; economic viability undermined. **Reference examples :** Chakrabortty *et al*. (2025) analytic hierarchy process for recycled cotton yarn optimization; recent advances in cotton recycling spinnability studies (MDPI Sustainability); Uster Statistics (2023) quality benchmarks for yarn performance; ISO textile testing standards (ISO 13934 tensile, ISO 12947 durability); Technical University research on recycled fibre quality optimization; commercial spinning system compatibility assessments for recycled content.

Activity	Example KPI metrics	Additional information
Environmental and chemical safety compliance	Percentage of facilities demonstrating full compliance with ZDHC MRSL requirements, Stockholm Convention POPs screening and effluent monitoring. Include worker safety protocols, emission controls and chemical inventory management with third-party verification.	**Risk if absent:** Hazardous substance carry-over into new products; non-compliant outputs requiring disposal; regulatory penalties; worker health and safety violations; environmental permit breaches; market access restrictions. **Reference examples :** ZDHC MRSL v3.1 (2023) implementation guidance for recycling processes; Stockholm Convention Persistent Organic Pollutants screening protocols; EU REACH regulation compliance for textile recycling; Industrial Emissions Directive requirements; WHO occupational safety guidelines for textile processing; ISO 14001 environmental management systems; third-party chemical testing laboratory accreditation (ISO/IEC 17025).
End-market verification and offtake security	Percentage of recycled output positioned for textile-grade end-markets with supply chain visibility, supported by offtake agreements or market research. May include market price competitiveness analysis, stockpile management and downstream customer verification protocols.	**Risk if absent:** Greenwashing through claiming recycling without genuine textile-to-textile application; stranded inventory without market offtake; economic unviability; failure to close material loops; compromised circular economy impact claims. **Reference examples:** Global recycling and feasibility studies (e.g. Accelerating Circularity Implementation Playbook (Circle Economy and Fashion Pact, 2023); OECD EPR technical guidelines (OECD, 2024); UNEP (2023b) Sustainability and Circularity in the Textile Value Chain); regional market analyses from ASEAN and North American market studies (Boston Consulting Group, 2025); EU-specific studies (European Commission JRC, 2025); supply chain verification protocols for circular flows (including GS1 EPCIS and UNECE Recommendation 46); digital product passport integration for traceability (EU ESPR requirements); and national programmes such as India's national textile recycling certification pilot.
Claims integrity and certification verification	Percentage of recycled content claims supported by third-party certification (GRS/RCS/CCS) with complete chain-of-custody documentation. Prioritize textile-to-textile pathway verification, noting that bottle-to-textile routes may be disclosed separately as transition enablers.	**Risk if absent:** Misleading recycled content claims; undermined textile-to-textile recycling integrity; consumer deception; regulatory scrutiny; brand reputation damage; potential legal liability; loss of investor confidence in circular textile investments. **Reference examples:** Textile Exchange GRS/RCS/CCS 2025 certification updates and Materials Matter Standard transition; ISO 14021 environmental labels and declarations for recycled content; EU Green Claims Directive requirements; third-party verification standards for sustainable finance; ICMA (2024a) principles for sustainability-linked financing verification; anti-greenwashing regulatory frameworks; chain-of-custody documentation requirements for recycled textiles.

Circular support: Financial institutions are encouraged to assess enablement at scale by evaluating whether the solution measurably increases other actors' capacity to deliver circular outcomes. Relevant indicators include traceability and event-data coverage across tiers, interoperability with open standards (e.g. GS1 EPCIS), adoption and data-quality rates, accredited testing capability where applicable and alignment with recognized traceability policy guidance such as UNECE Recommendation 46 (UNECE, 2022) and GS1.

Table 6: Example resources and indicators for circular support

Activity	Example KPI metrics	Additional information
Traceability/ DPP readiness	Percentage of SKUs with tier-level traceability and DPP-compatible data fields, aligned with EU ESPR emerging requirements and implementation timelines. May include blockchain integration readiness, API compatibility and consumer-facing information completeness per 2027 implementation timeline.	**Risk if absent**: Inability to substantiate circular economy claims; regulatory non-compliance with ESPR from 2027; exclusion from EU markets; competitive disadvantage; consumer trust erosion; financial reporting gaps for sustainability-linked financing. **Reference examples:** EU ESPR (2024) regulation 2024/1781 (Ecodesign for Sustainable Products); digital product passport for textile sector study (European Commission, 2024); Italian fashion DPP implementation case studies (Italian Government Blockchain Pilot, 2024); EU ESPR delegated acts for textile sector (expected 2026-2027).
Data integrity and interoperability	Percentage of supply chain data integration with API connectivity, audit trail documentation and third-party reconciliation with certification systems (GRS/RCS/OCS/CCS). May include blockchain verification, cross-system data validation and real-time traceability capabilities.	**Risk if absent:** Data silos compromising supply chain transparency; broken chain-of-custody; regulatory compliance failures; inability to prevent greenwashing; loss of investor confidence; operational inefficiencies from manual reconciliation. **Reference examples:** Textile Exchange certification integration standards (GRS/RCS/OCS/CCS) (Textile Exchange, 2024b); blockchain implementation for textile traceability (Caldarelli, 2021); API documentation standards for DPP interoperability; ISO/IEC 27001 information security management; digital twins' integration for textile circularity; third-party data verification protocols for sustainable finance.

Activity	Example KPI metrics	Additional information
Lab and testing services	Percentage of testing conducted by ISO/IEC 17025-accredited laboratories or equivalent with competency demonstrated through round-robin participation and measurement uncertainty documentation. May include reproducibility verification, inter-laboratory comparison participation and method validation for emerging standards (ISO 4484-1 microfibre testing).	**Risk if absent:** Non-comparable and unreliable test results; regulatory rejection of documentation; compromised product safety claims; supply chain quality failures; inability to substantiate technical specifications; legal liability exposure. **Reference examples:** ISO/IEC 17025:2017 laboratory accreditation requirements; UKAS/NATA/CNAS accreditation body standards; ISO 4484-1:2023 microfibre testing validation protocols; round-robin testing participation requirements; measurement uncertainty calculation standards (GUM methodology); textile industry proficiency testing schemes; third-party laboratory qualification frameworks for major brands (Nike, H&M certification requirements); International Laboratory Accreditation Cooperation (ILAC) mutual recognition agreements.
EPR/EoL data infrastructure	Percentage coverage of EPR compliance across target markets with visibility into collection rates, sorting purity documentation and textile-to-textile routing.	**Risk if absent:** Regulatory non-compliance with regional or national EPR schemes; financial penalties and market exclusion; inability to demonstrate genuine circular impact; compromised extended producer responsibility obligations; lack of end-of-life feedback for product design optimization. **Reference examples:** Global EPR frameworks and perspectives (e.g. OECD extended producer responsibility guidance; global textile EPR overview (Carbonfact, 2025); Asia-Pacific and Africa national examples (South Africa EPR scheme for textiles and packaging; Japan's Home Appliance Recycling Law and EPR for textiles); United States of America's (California SB 707 textile EPR programme, Canada's used textile diversion pilots); Europe (EU Waste Framework Directive EPR implementation, textile waste reduction rules (European Commission, 2024), Netherlands textile EPR fee structure, Hungary textile EPR requirements); global EPR perspective (Berger, 2024); and EPR operator performance monitoring frameworks (including municipal waste collection infrastructure assessment).

Activity	Example KPI metrics	Additional information
Social safeguards baseline	Percentage of supply chain aligned with OECD Garment and Footwear Due Diligence framework, with incident tracking systems and third-party social audit compliance. May include worker safety monitoring, grievance mechanism effectiveness and integration with sustainability certification schemes.	**Risk if absent:** Material social risk exposure in supply chains; regulatory non-compliance with mandatory due diligence laws; reputational damage from social incidents; inability to access ESG-focused financing; consumer boycott risks; legal liability from human rights violations. **Reference examples:** Due Diligence Guidance for Responsible Supply Chains in the Garment and Footwear Sector (OECD, 2016); sustainability certifications role in due diligence paper (OECD, 2025); due diligence implementation in garment and footwear supply chains (Fair Labor Association, 2024); SA8000:2014 Social Accountability Standard (Social accountability standards, 2014); Higg Index Social and Labor Module; third-party social audit requirements; grievance mechanism effectiveness measurement; worker safety incident reporting protocols; integration with environmental management systems.

Outcomes of Step 2

Based on the selected circularity criteria, financial institutions will be able to assess whether activities already make a substantial contribution to a circular economy or have the potential to do so, thereby classifying them into one of two outcomes:

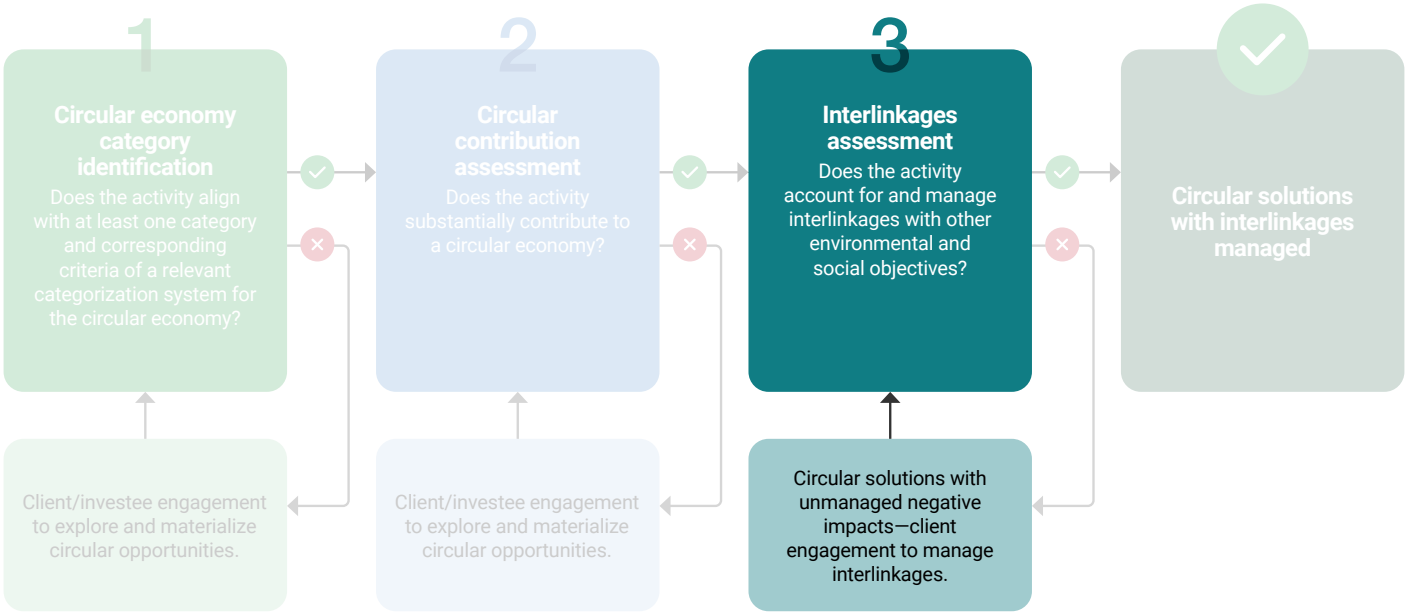
Circular solutions: Activities that meet all circularity criteria defined by the financial institution for substantial contribution and demonstrate circular performance. These activities proceed directly to Step 3 for interlinkages assessment.

Circular opportunities: Activities that demonstrate circular potential but do not yet meet all circularity criteria required by financial institutions, may need client engagement pathways. This outcome may include innovation-stage solutions illustrating clear circular potential but awaiting commercial-scale validation. For such activities, financial institutions are encouraged to:

1. Develop comprehensive documentation packages for substantial contribution assessment.
2. Understand transition plans their clients could define, with quantified circularity targets.
3. Address identified documentation gaps, scale-up requirements or performance thresholds.
4. Implement monitoring and reporting systems to track progress toward circular solutions status.

This will help financial institutions to define how to best support their clients in increasing circularity of their activities. Financial institutions can support circular opportunities through technical assistance, blended finance mechanisms and phased financing, supporting the transition toward circular solutions classification.

Step 3: Interlinkages assessment



Purpose: Step 3 assesses interlinkages between circular textile activities and other environmental and social objectives. The assessment comprises three components: (a) DNSH screening across environmental objectives; (b) social objectives assessment, confirming alignment with minimum social safeguards; and (c) co-benefits identification, capturing positive potential interlinkages across environmental and social objectives. Annex 3 provides detailed environmental and social material impacts specific to textile activities, supporting this assessment. Beyond avoiding negative impacts, circular solutions often generate substantial co-benefits across climate, nature, pollution and social dimensions, such as improved resource efficiency, cost savings, enhanced resilience and positive environmental and social outcomes.

Interlinkages assessment

Step 3 applies the established interlinkages assessment methodology, widely adopted by financial institutions globally and embedded in multiple sustainable finance taxonomies. Given the textile sector's material negative impact profile across social (modern slavery, child labour, health and safety, gender equality) and environmental (climate, water, biodiversity, pollution, resource intensity) dimensions, this assessment prioritizes interlinkages most relevant to textile-specific impacts (UNEP FI, 2024f).

Climate mitigation and adaptation: Financial institutions may reference Science-Based Targets (SBTi) frameworks to ensure circular interventions align with climate transition pathways. The SBTi Apparel and Footwear Sector Science-Based Targets Guidance recognizes that circular business models (rental, resale, repair and textile-to-textile recycling) are critical to achieving the 1.5°C pathway. Where corporate clients have committed to SBTi-validated targets (scope 1, 2 and 3), financial institutions are encouraged to verify that financed circular activities support, rather than undermine, these commitments.

Circular economy activities can generate positive climate co-benefits (e.g. textile-to-textile recycling reducing energy-intensive virgin fibre production, repair services displacing

new manufacturing) or potential negative impacts if not designed appropriately (e.g. energy-intensive recycling processes powered by fossil fuels). UNEP FI guidance *Circular Solutions to Achieve Climate Targets in the Textile Sector* (UNEP FI, 2024d) provides more information on interlinkages between circular economy and climate in the sector. Table 7 provides screening questions for climate change mitigation and adaptation.

Nature (biodiversity and ecosystems): For activities with material impacts on land use, freshwater or biodiversity (such as regenerative fibre sourcing or water-intensive recycling processes), financial institutions may additionally consider alignment with the Global Biodiversity Framework (GBF) and nature-based targets. Resources such as the Science Based Targets Network (SBTn) framework (Science Based Targets Network, 2024) and Textile Exchange's guidance on science-based targets for nature (Textile Exchange, 2024b) provide methodologies for land, freshwater and biodiversity target-setting and impact assessment.

Circular economy activities can generate positive nature co-benefits, such as reduced pressure on forests through MMCF alternatives and decreased water extraction through circular use models. However, if environmental controls are inadequate, negative impacts may occur, including chemical contamination from textile-to-textile recycling without proper effluent controls, habitat disruption from collection infrastructure, soil degradation from intensive recycling operations, increased water use in washing/sorting processes. Table 7 proposes screening questions for water, biodiversity and ecosystem protection.

Pollution prevention and control: Environmental safeguards related to pollution encompass responsible chemicals management at both policy and operational levels: including alignment with the Global Biodiversity Framework target 7 on pollution and the Global Framework on Chemicals targets for life-cycle-based policy commitments and adherence to operational chemical restrictions in textile production. Additional safeguards include mitigation of microfibre pollution (per ISO 4484-1:2023) and basin-aware water stewardship to prevent exacerbation of local water scarcity or pollution.

Circular economy activities can generate positive pollution co-benefits (e.g. reduced chemical inputs through circular design standards, eliminated dyes through fibre-to-fibre recycling that maintains colour, reduced air emissions from decreased virgin production) or potential negative impacts (e.g. hazardous chemical residues blocking textile-to-textile pathways, microfibre release during extended use or laundry cycles, air emissions from mechanical or chemical recycling processing). Table 7 proposes screening questions for pollution prevention and control.

Box 5: The Global Framework on Chemicals (2023)

Adopted at the fifth International Conference on Chemicals Management (ICCM5) in Bonn, Germany (September 2023), the *Global Framework on Chemicals* (GFC) provides comprehensive guidance for preventing adverse impacts from chemicals and waste across their life cycle. Structured around five strategic objectives and twenty-eight targets, the GFC establishes a global reference point for chemical safety and life cycle stewardship. Notably, target D3 calls on the private sector (including financial institutions) to integrate sound chemicals and waste management into finance approaches, thereby reinforcing the role of capital flows in mitigating chemical risks (UNEP, 2023a).

Anchored by the Bonn Declaration, the GFC articulates a shared vision of "a planet free of harm from chemicals and waste" and sets out principles for safe chemical use across key value chains, including textiles. While non-binding, it encourages national implementation through enabling legislation by 2030 and supports transitions to circular economy models that reduce chemical pollution across product life cycles. The GFC thus offers a strategic reference for financial institutions seeking to align with emerging norms on chemical safety, life cycle accountability and circularity.

Social objectives assessment: Financial institutions are encouraged to verify that textile-related activities meet core social safeguard standards, demonstrating alignment with international labour and human rights standards including safe working conditions, reasonable working hours, living wages, non-discrimination and effective grievance mechanisms across all supply chain tiers (from fibre production through manufacturing, collection, sorting, repairs and recycling operations).

Financial institutions are encouraged to integrate circularity screening with human rights and labour due diligence using frameworks such as *Due Diligence Guidance for Responsible Supply Chains in the Garment and Footwear Sector* (OECD, 2025) and the *UN Guiding Principles on Business and Human Rights* (UN, 2011). The textile sector module of the UNEP FI *Human Rights Toolkit for Financial Institutions* provides practical tools including human rights impact assessment templates, supply chain due diligence checklists, stakeholder engagement protocols and grievance mechanism design guidance specifically calibrated to textile value chain risks including forced labour, child labour, unsafe working conditions and gender-based discrimination.

Circular economy activities can generate positive social co-benefits (e.g. repair services creating local employment with fair wages, inclusive business models engaging marginalized communities and informal workers in formalized circular value chains, improved working conditions through modernized circular infrastructure, skills development and training opportunities, gender-inclusive employment pathways) or potential negative impacts (e.g. exploitative labour conditions in sorting or recycling facilities, informal waste picker displacement by automated systems without just transition provisions, inadequate occupational health and safety protections in new circular operations, gender pay gaps in emerging circular roles).

Circular economy activities can generate material social resilience co-benefits by building community adaptive capacity to climate and economic shocks: diversified income streams through repair services and collection employment reduce household vulnerability to single-income dependency; skills development and vocational training enhance livelihood options; formalization of informal waste picker ecosystems provides social protection and income stability; inclusive circular supply chains create pathways for marginalized communities (women, youth, low-income households) to participate in job creation. These social resilience outcomes complement environmental and economic resilience, enabling comprehensive vulnerability reduction.

Textile activities that exacerbate worker exploitation, discriminate against vulnerable groups, or fail to uphold labour and human rights standards across circular value chains cannot be credibly classified as circular solutions. Table 7 provides screening questions for labour rights and community rights.

Assessment process

Step 3 assesses interlinkages by applying structured illustrative screening questions from table across environmental and social objectives. For environmental objectives, the assessment applies DNSH principles to avoid burden shifting. For social objectives, the assessment confirms alignment with minimum social safeguards. Sector-specific resources for each objective are detailed in Table 7. Responses to screening questions can be supported by permits, audit reports, environmental impact assessments, soil health records and third-party certifications.

Financial institutions are encouraged to evaluate magnitude and likelihood of identified impacts using two-dimensional assessment, considering both potential severity of harm (or benefit) and probability of occurrence. Impact classification can be aligned with taxonomy frameworks. Documenting the impact rating rationale with quantitative data (where available) is encouraged.

Table 7 presents an illustrative interlinkage screening matrix enabling financial institutions to systematically assess whether textile activities: (a) cause significant harm to other environmental objectives (DNSH screening); (b) meet minimum social safeguards (social objectives assessment); or (c) generate positive co-benefits across environmental and social objectives. Financial institutions can use the screening questions and supporting documentation to inform their assessment. Detailed impact dimensions and textile-specific impact profiles are provided in Annex 3.

Table 7: Interlinkages assessment with other environmental and social objectives for circular economy activities in the textile sector (non-exhaustive)

Environmental objective	Illustrative screening criteria questions and examples	Examples of source frameworks
Climate mitigation	**Question:** Does the activity minimize GHG emissions consistent with a 1.5°C pathway, for example through renewable energy use or alignment with SBTi apparel and footwear sector targets? **Illustrative examples:** Energy source documentation, carbon footprint assessments, emission reduction targets with timelines.	ASEAN Taxonomy V4 (ASEAN Taxonomy Board, 2025); Monetary Authority of Singapore (MAS, 2024).
Climate adaptation	**Question:** Has the activity implemented physical climate risk assessment (PCRA) and adopted adaptive measures that reduce vulnerability to location-specific climate hazards, thereby enhancing operational and supply chain resilience? **Illustrative examples:** Physical climate risk assessment using the Hazard × Exposure × Vulnerability framework; documented adaptation measures including water-efficient circular systems (waterless dyeing, closed-loop water recycling), drought-resilient material sourcing, flood-resistant sorting/recycling infrastructure, early warning systems for climate hazards; evidence of reduced climate vulnerability or enhanced adaptive capacity demonstrated through maintained operations during extreme weather events, documented recovery times, reduced income volatility, or resilience-outcome metrics; alignment with National Adaptation Plans (NAPs) where applicable; climate scenario analysis (1.5°C, 2°C, 4°C pathways) for supply chain viability.	UNEP FI *PRB Adaptation and Resilience Guidance* (2025d) and see Box 6; UNEP FI *Adaptation and Resilience Impact Measurement Toolkit* (2025c); TNFD LEAP methodology (TNFD, 2025); ASEAN Taxonomy adaptation criteria (ASEAN Taxonomy Board, 2025); Science Based Targets network adaptation guidance.
Sustainable use of water and marine resources	**Question:** Does the activity maintain water quality and avoid aquatic ecosystem degradation? **Illustrative examples:** Environmental impact assessments, water conservation plans, effluent quality monitoring, basin risk analysis using WWF Water Risk Filter or WRI Aqueduct.	WWF Water Risk Filter (WWF, 2024); WRI Aqueduct (WRI, 2025); ASEAN water criteria (ASEAN Taxonomy Board, 2025).
Protection of biodiversity and ecosystems	**Question:** Does the activity avoid significant harm to ecosystems through responsible sourcing and habitat protection? **Illustrative examples:** TNFD LEAP biodiversity assessment, supplier deforestation policies, ENCORE ecosystem services mapping, protected area impact analysis and nature-positive sourcing targets aligned with Science Based Targets Network (SBTN) textile guidance (2025).	TNFD LEAP methodology (TNFD, 2025); ENCORE database (ENCORE, 2025); ASEAN biodiversity standards (ASEAN Taxonomy Board, 2025); EU Taxonomy biodiversity and ecosystems criteria (European Union, 2020).

Environmental objective	Illustrative screening criteria questions and examples	Examples of source frameworks
Pollution prevention and control	**Question:** Does the activity prevent significant pollution through compliant chemical management and emission control? **Illustrative examples:** Chemical inventory verification against Global Framework on Chemicals (UNEP, 2023a) for policy-level phase-out targets; ZDHC Roadmap to Zero Programme, or adherence to the MRSL v3.1 (ZDHC, 2025) for operational supplier compliance; ISO 4484-1:2025 (ISO, 2023) for microfibre shedding tests.	Global Framework on Chemicals (UNEP, 2023a); ZDHC MRSL v3.1 (ZDHC, 2024); ISO 4484-1:2023 (ISO, 2023); EU Taxonomy pollution criteria (European Union, 2020).
Social objectives assessment		
Labour rights and community rights	**Question:** Does the activity uphold international labour standards through supply chain due diligence? **Illustrative examples:** OECD garment and footwear guidance compliance documentation, International Labour Organization (ILO) core labour standards verification, occupational health and safety management systems, supply chain audit reports covering all tiers.	OECD garment and footwear guidance (OECD, 2016); ILO core standards (ILO, 1998); ASEAN social criteria (ASEAN Taxonomy Board, 2025).
	Question: Does the activity respect community rights through stakeholder engagement and human rights due diligence? **Illustrative examples:** Community consultation records, free prior and informed consent documentation, human rights impact assessments, grievance mechanism establishment, social impact monitoring systems.	UN Guiding Principles on Business and Human Rights (UN, 2011); Global Framework on Chemicals Target E6 (UNEP, 2023a).

Box 6: Cross-cutting climate adaptation and resilience

Circular economy activities in textiles can generate material climate adaptation and resilience co-benefits by reducing exposure and vulnerability to physical climate risks:

Supply chain resilience through reduced virgin material dependency: Textile-to-textile recycling ecosystems reduce exposure to climate-vulnerable virgin material supply chains (cotton regions experiencing water stress and yield variability; viscose feedstocks from drought-affected regions; polyester supply chains subject to energy price volatility). Diversified sourcing through local/regional secondary material networks is inherently less vulnerable to single-region climate disruptions or geopolitical supply chain shocks.

Operational resilience through water-efficient circular systems: Waterless dyeing technologies and closed-loop water recycling reduce exposure to basin-level water scarcity, a material physical climate risk for textile processing facilities in water-stressed regions (India, Pakistan, China, Sub-Saharan Africa). This reduces both operational risk and regulatory risk from emerging water access regulations and scarcity pricing.

Climate transition resilience through lower-emission circular pathways: Textile-to-textile recycling and repair services generate substantially lower emissions (60-80% reduction vs. virgin production per PEFCR Apparel and Footwear v3.1) and reduce exposure to carbon pricing and climate transition risk under tightening climate policy. This protects business model viability under Paris Agreement alignment scenarios (1.5–2°C pathways).

Asset and infrastructure resilience: Climate-resilient design of circular infrastructure (collection networks, sorting facilities, recycling plants) protects asset value and operational continuity under physical climate stress (flooding in monsoon regions, heat stress on mechanical systems, drought-driven power constraints). Modular, repairable product design maintains market relevance and functionality during supply chain disruptions caused by extreme weather or resource constraints.

Measuring climate adaptation and resilience outcomes of circular textile activities can be structured using the UNEP FI *Adaptation and Resilience Impact Measurement Toolkit* (2025c), which provides practice indicators (institutional capabilities) and results indicators (real-economy outcomes) across the Five Dimensions of Impact (what, who, how much, contribution, risk).

Financial institutions are encouraged to reference the UNEP FI *PRB Adaptation and Resilience Guidance* (2025d) for comprehensive methodologies on physical climate risk assessment using the Hazard × Exposure × Vulnerability framework, resilience-outcome measurement and design of adaptation-and-resilience-linked financial products.

Outcomes of Step 3

Following interlinkages assessment, circular solutions from Step 2 are classified into one of two outcomes:

Circular solutions with interlinkages managed: Activities with potential co-benefits identified across climate, nature, pollution, or social dimensions and/or with negative impacts in other impact areas appropriately managed/mitigated. No unmanaged significant negative impacts across environmental objectives (DNSH) and social objectives (minimum safeguards). Where co-benefits are identified, financial institutions are encouraged to document them to support impact reporting and portfolio strategy.

Circular solutions with unmanaged negative impacts: Activities generating negative impacts, but with identifiable transition pathways, typically require client engagement support. For these activities, financial institutions are encouraged to engage clients to develop transition plans and pathways to address negative impacts, which may include time-bound transition plans by clients, enhanced covenants and monitoring protocols and regular progress reporting against clients' commitments.

This graduated approach ensures financing decisions align with both circular economy objectives, broader environmental and social objectives, while capturing co-benefits to maximize positive impacts and supporting clients in managing interlinkages effectively.

Using the assessment outcomes

Upon completion of the three-step assessment, financial institutions will have determined two key outputs: i) circular solutions with interlinkages managed—where co-benefits are identified and/or negative impacts in other impact areas are appropriately managed/mitigated, or ii) circular solutions with unmanaged negative impacts, for which client engagement support is encouraged to address and mitigate those impacts. These outputs support multiple applications across institutional functions, from transaction structuring to portfolio-level integration complementing UNEP FI's broader circular economy guidance suite.

The present guidelines can help operationalize the activity-level screening methodology described in UNEP FI's *Guidance on Resource Efficiency and Circular Economy Target Setting* (UNEP FI, 2023c), enabling institutions to classify individual activities that feed into portfolio baselines and target-setting processes and action plans. For institutions implementing *Circular Economy as an Enabler for Responsible Banking guidance* (UNEP FI, 2024a), these outcomes provide the detailed activity-level analysis that informs broader circular economy integration into sustainability strategies and action plans for climate or other impact areas across governance, operations and stakeholder engagement.

The sections below illustrate how to use assessment outcomes at two levels: (1) structuring transactions and engaging clients and (2) aggregating exposures for portfolio management, target-setting and reporting aligned with UNEP FI guidance and regional sustainable finance frameworks.

1. Transaction and client-level applications

Assessment outcomes can enable financial institutions to structure financing and engage clients based on classification status and circular potential.

For circular solutions, financial institutions can structure financing with direct circularity linkages:

- **Sustainability-linked instruments (SLLs, SLBs):** Financial institutions can use Step 2 KPIs (e.g. recycled content percentage, displacement rates, textile-to-textile yield, durability pass-rates) as sustainability performance targets (SPTs) with pricing adjustments, covenant structures, or reporting obligations tied to achievement (Maples Group, 2024). The Loan Market Association Sustainability-Linked Loan Principles (LMA, 2023b) and ICMA Sustainability-Linked Bond Principles (ICMA, 2024a) provide structuring guidance.
- **Use-of-proceeds financing:** Ring-fence proceeds for specific circular activities (e.g. textile-to-textile recycling infrastructure, design-for-recyclability investments, circular use platforms) with traceability documentation and periodic reporting. The Loan Market Association Green Loan Principles (LMA, 2023a) and ICMA Green Bond Principles (ICMA, 2025) support documentation standards.
- **Product development:** Financial institutions can embed circularity KPIs into lending policies, investment mandates, stewardship frameworks and client engagement strategies. Examples include requiring Step 3 interlinkages assessment outcomes in textile sector portfolios, using Step 2 metrics for ESG ratings, or structuring revolving facilities conditional on maintaining circular classification.

For circular opportunities, financial institutions can support client progression toward circular solutions through structured pathways:

- **Transition financing:** Financial institutions can structure tranches, or facility increases on achieving specific targets (e.g. reaching certified recycled content threshold, implementing ZDHC MRSL v3.1 compliance, obtaining third-party certification for durability standards). Time-bound transition plans (e.g. 12–24 months) enable clients to transition from circular opportunities to circular solutions status with clear performance expectations.
- **Technical assistance:** Financial institutions can pair financing with capacity-building support to address documentation gaps, performance improvements, or safeguards strengthening. Examples include funding for ISO/IEC 17025 laboratory accreditation, ZDHC conformance support, supply chain transparency implementation, or LCA methodology development.
- **Blended finance structures:** Commercial terms for initial circular opportunities tranches can be combined with concessional or catalytic capital for early-stage innovations, de-risking progression to circular solutions. Examples include grants for research and development, subordinated debt for scaling, or credit enhancement through guarantees.
- **Client engagement:** Clear pathways can be established to support clients in realizing circular opportunities across their activities and value chains, with the goal of upgrading to circular solutions status upon documented achievement of transition plan. Financial

institutions can use Step 1–3 assessment results to identify specific circularity gaps and co-develop improvement strategies with clients.

2. Portfolio and institutional applications

Assessment outcomes can enable aggregation of activity-level classifications into portfolio-level insights for target-setting, climate, nature, pollution and social action integration and regulatory reporting.

2.1 For target setting and portfolio management

Financial institutions using UNEP FI's *Guidance on Resource Efficiency and Circular Economy Target Setting* (UNEP FI, 2023c) can aggregate circular economy finance percentages (see Box 7) across portfolios to:

- **Establish baselines:** Determine the proportion of portfolio exposure classified as circular versus screened negatively or with circular potential. This baseline reflects the distribution of exposures across circular solutions and circular opportunities that are directed to inform client engagement.
- **Set targets:** Define SMART targets for increasing circular economy exposure (e.g. "Increase textile circular economy financing from X% to Y% by 2030") or for transitioning circular opportunities to circular solutions status.
- **Track progress:** Monitor portfolio composition over time and report against commitments to stakeholders, investors and regulators. Financial institutions can use Step 2 and Step 3 outcome data to monitor both volume and quality of circular exposure, including interlinkages assessment outcomes.

2.2 For climate, nature, pollution and social integration

The classification outcomes can help integrate circular economy metrics into financial institutions' climate, nature, pollution and social strategies and action plans. For climate-related integration, Step 3 outcomes on climate mitigation and adaptation co-benefits and risks can inform SBTi targets and climate transition planning, refer to UNEP FI's *Circular Solutions to Achieve Climate Targets in the Textile Sector* (UNEP FI, 2024d) to support alignment with e.g. the Global Framework on Chemical targets. For nature-related disclosures and target-setting, financial institutions can use Step 3 interlinkages outcomes (including DNSH screening results, social safeguards verification, identification of positive co-benefits) to support TNFD disclosure requirements, nature-related target-setting to align with the Global Biodiversity Framework and integration into nature action plans.

2.3 For reporting and disclosure

The assessment outcomes can support reporting under ESRS E5 (Resource Use and Circular Economy), GRI 301 (Materials), Circular Transition Indicators (CTI) and other disclosure standards and enable consistent documentation across institutional functions:

- **Regulatory disclosure:** Report circular economy exposure under sustainable finance taxonomies, or regional equivalents) with activity-level detail supporting classification and reporting.
- **Risk and compliance:** Evaluate environmental and social objectives assessment outcomes (Step 3) to support due diligence processes, risk assessment, regula-

tory compliance (e.g. CSRD, ESRS, SEC climate disclosure) and responsible banking commitments.

- **Portfolio strategy and stewardship:** Use aggregated circular economy finance percentages to inform sectoral allocation decisions, client engagement prioritization and stewardship strategies. Track transitions from circular opportunities to circular solutions to monitor portfolio quality improvement.
- **Investor and stakeholder reporting:** Disclose circular economy exposure volumes, composition by circular economy category and activity type, performance against targets and safeguards outcomes through annual impact reports, sustainability disclosures (ESRS, GRI, ISSB) and investor communications.

Box 7: Determining the circular economy finance percentage

The circular economy finance percentage quantifies the proportion of financing directly supporting circular outcomes. Financial institutions can determine this percentage using the following approaches, consistent with the IFC *Harmonized Circular Economy Finance Guidelines* (IFC, 2025):

- **Project finance and earmarked facilities:** Financial institutions may allocate 100% of proceeds if all are dedicated to circular solutions. Where proceeds finance multiple activities, proportional allocation based on capital distribution is recommended.
- **General corporate purpose financing:** Financial institutions may calculate the percentage of total revenues or total assets derived from or dedicated to circular solutions. The chosen methodology is recommended to be applied consistently across the loan tenor.
- **Multi-component transactions:** Financial institutions are encouraged to apply the proportional allocation determined in Step 1, documenting which components qualify as circular solutions.

Documentation may include the allocation methodology (project, revenue, or asset-based), calculation basis (numerator/denominator) and monitoring approach for verifying continued alignment over the life of the financing. For activities classified as circular solutions with negative interlinkages, the circular economy finance percentage may be subject to adjustment or achievement of agreed transition plan.

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Annexes



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Annex 1: Illustrative list of circular economy activities for the textile sector

This annex provides an illustrative, non-exhaustive list of activities eligible for circular economy financing in the textile sector. The activities are organized according to the four circular economy categories defined in Step 1: Circular design and production, circular use, circular value recovery and circular support.

Financial institutions can use this list to identify potential circular opportunities during origination or portfolio screening. While these examples represent common circular interventions, other activities may also qualify if they demonstrably contribute to circular outcomes in line with the methodology provided in chapter 3.

Note on NACE and ISIC Codes

The activities listed in this annex often represent sectoral practices, integrated systems, or emerging business models that may not correspond to a single, distinct industrial classification code. Where a unique NACE or ISIC code does not exist, activities are mapped to the closest available industrial classification (e.g. textile manufacturing, wholesale trade, or services). Some activities may legitimately span multiple codes (e.g. textile-to-textile recycling may be classified under waste treatment, manufacturing, or both). Financial institutions are encouraged to select the classification code(s) that most accurately reflect the primary economic activity and revenue stream of the financed entity, consistent with their internal portfolio tagging and regulatory reporting requirements. The codes provided are illustrative and intended to support interoperability with existing taxonomies and data systems.

Table 8: Indicative list of circular economy activities by category—textile sector. Source: Compiled from UNEP (2023), IFC (2025), ABN AMRO, ING and Rabobank (2018), EMF (2015, 2020, 2024), PACE Circular Economy Action Agenda for Textiles (2020) and WRAP (2025). Digital Product Passport and traceability activities informed by European Commission (2024a) and Textile Exchange (2022).

Circular category	Aligned activity	NACE Rev.2	ISIC Rev.4
Circular design and production	Textile-to-textile recycled content integration.	13.10 / 13.20 / 13.91	1311 / 1312 / 1391
	Responsible man-made cellulosic inputs including deforest-free recycled pulp.	20.6	2030
	Substitution to circular-compatible fibres/polymers enabling recovery (bio-based, regenerative).	13.1	1311
	Design for durability and repairability.	74.1	7410
	Design for recyclability.	74.1	7410
	Design for disassembly and take-back readiness.	74.1	7410
	Design for low-shed fabric finishes.	13.3	1313
	Modular/workwear design for multi-cycle refurbishment.	14.12 / 14.19	1410
	On-demand and made-to-measure production systems	14.19	1410
Circular use	Brand-operated repair services with warranty.	95.29	9529
	Alteration and fit services.	95.29	9529
	Care and cleaning services. **Laundry NACE Rev. 2.1**	96.01 **96.10**	9601
	Returns prevention and refurbishment.	52.1	5210
	Try-before-buy and returns prevention services.	47.91	4791
	Product-as-a-Service, rental and access-based models	77.29	7729
	B2B (business to business) textile service models.	77.29	7729
	Take-back and reissue (graded for multiple cycles).	47.79	4774
	Refurbishment and certified resale.	47.79	4774
	Peer-to-peer resale platforms with quality verification.	63.12	6312
	Second-hand retail operations.	47.79	4774
	Industrial remanufacturing (with take-back).	14.19	1410

Circular category	Aligned activity	NACE Rev.2	ISIC Rev.4
Circular value recovery	Separate collection for EPR.	38.11	3811
	Manual triage and grading.	38.32	3830
	Automated composition sorting.	38.32	3830
	Preparation-for-reuse hubs with traceability.	38.32	3830
	Pre-processing for contaminants.	38.32	3830
	De-dyeing/contaminant removal for textile-to-textile.	38.32	3830
	Mechanical recycling to yarn/fabric.	38.32 / 13.10	3830 / 1311
	PET depolymerization to textile-grade rPET.	20.16 / 38.32	2013 / 3830
	Chemical and enzymatic recycling for blended materials.	20.60 / 38.32	2030 / 3830
	Regenerated cellulosic production from textile waste.	20.6	2030
Circular support	Digital product passport and traceability platforms.	62.01 / 63.11	6201 / 6311
	Recycled-content/chain-of-custody and data services.	63.11	6311
	Data interoperability/APIs linking DPP to ESRS E5 datapoints.	62.01	6201
	Test labs: durability, recyclability, microfibre.	71.2	7120
	LCA/eco-design and life-cycle-performance software.	62.01 / 74.90	6201 / 7490
	Sorting quality standards.	74.9	7490
	Export-compliance and chain-of-custody.	74.9	7490
	EPR scheme operator and data infrastructure.	82.92 / 63.11	8292 / 6311
	Capacity building and technical assistance services for circular transition.	85.59 / 74.90	8549 / 7490
	Reverse-logistics orchestration.	52.1	5210
	Shared repair/reverse-logistics.	95.29 / 52.10	9529 / 5210
	Marketplaces for reuse.	47.91 / 63.12	4791 / 6312
	Spare parts for repair.	46.42	4641

Annex 2: Portfolio screening guidelines for circular textile activities (NACE Rev.2, ISIC Rev.4)

This portfolio screening guide supports financial institutions in systematically identifying, mapping and monitoring textile sector exposures aligned with the circular economy. The purpose is to enable systematic identification of circular economy exposures across existing loan books using standardized industry classification codes.

When to use this annex

- Mapping textile sector exposures in existing portfolios
- Setting institutional circularity targets
- Portfolio strategy and stewardship activities
- Risk and compliance screening at scale
- Conducting large-scale portfolio reviews (100+ exposures)

Portfolio screening steps

Phase 1: Extract NACE or ISIC codes from loan book

Most financial institutions maintain NACE, ISIC, or equivalent industry classification codes (e.g. NAICS, ANZSIC, NIC) in their core banking systems as part of standard client data fields. Extract codes at division, group or class level for all textile-related holdings. Extract NACE/ISIC codes for all textile-related holdings in the user's loan book.

Implementation tip: For non-EU users, map to national codes using official UNSD and Eurostat correspondence tables. For procurement/trade analytics, use CPV/UNSPSC and HS/CN crosswalks.

Phase 2: Match codes to circular activities

Cross-reference extracted codes against tables 9–12 below to identify likely circular economy activities:

- **Table 9:** Circular design and production activities
- **Table 10:** Circular use activities
- **Table 11:** Circular value recovery activities
- **Table 12:** Circular support activities

Supplement NACE/ISIC codes with revenue descriptors and product-specific keywords (e.g. “rPET pellet”, “CMT”, “weaving”, “e-commerce apparel”) to surface nuanced activities, particularly within multi-activity entities.

Phase 3: Assign primary circular economy categories

Backfill identified exposures to one of four circular economy categories using tables 9-12:

- Circular design and production
- Circular use
- Circular value recovery
- Circular support

Clear mapping pathway: NACE/ISIC code → Activity (tables 9–12) → Category

Phase 4: Estimate exposure and coverage

Calculate aggregate portfolio volume by category. Apply proportional exposure calculation for multi-activity entities where businesses span multiple codes or categories. Use revenue data or financing allocation as proportional basis where available.

Phase 5: Flag exposures for detailed review

Code-based screening identifies potential exposures but requires transaction-level validation for use-of-proceeds structuring or substantial contribution verification. Where further data is needed, refer flagged cases to the client assessment pathway (chapter 3, Step 1) for detailed assessment.

Additional classification guidance for portfolio users

Retail and logistics differentiation

Use merchant category codes (MCC) and point-of-sale (POS) data to distinguish physical retail from digital commerce and last-mile logistics. Focus on NACE divisions 47 (retail trade) and 53 (postal and courier activities) to isolate operational modalities and service channels.

Recycled polymer producers

- Entities primarily engaged in resin manufacturing: Classify under NACE 20.16/ISIC 2013.
- Entities focused on recovery or sorting: Tag under NACE 38.32/ISIC 3830, with 20.16 added as secondary code where applicable.

This distinction supports precise mapping of upstream and downstream recycling activities.

Limitations of portfolio screening

- Code-based screening identifies potential exposures but does not replace transaction-level circular economy contribution assessment.
- Multi-activity entities may require supplemental revenue data for accurate proportional allocation.
- Industry codes capture primary economic activity but may not reflect all circular activities within diversified operations.
- For transaction structuring, use-of-proceeds verification or substantial contribution assessment, use the client assessment pathway (chapter 3, Step 1)

Reference tables

The following tables provide non-exhaustive NACE Rev.2 and ISIC Rev.4 mappings for all 44 circular economy activities identified in the guidelines. Portfolio search keyword examples are included to support targeted screening.

Note: NACE and ISIC codes are illustrative and provided to help users locate textile activities in common statistical classifications. Users are encouraged to map to national and sectoral systems (e.g. NAICS 2022, ANZSIC, CNAE Brazil, NIC 2008 India, JSIC Japan) and to product/trade/procurement systems (e.g. HS 2022, EU CN 2025, CPA/CPC, CPV, UNSPSC) where useful for origination, trade analytics, EPR or procurement screening.

Circular design and production

Table 9: Circular design and production activities mapped to NACE Rev. 2, ISIC Rev. 4 and portfolio keywords.

Circular activity	NACE Rev.2	ISIC Rev.4	Portfolio search keywords
Textile-to-textile recycled content integration	13.10/ 13.20/ 13.91	1311/ 1312/ 1391	recycled content yarn; weaving, knitting, open-end/ ring spinning; recycled PET staple fibre; rCotton; recycled nylon yarn, crochet knit fabrics
Responsible man-made cellulosic inputs including deforest-free recycled pulp	20.60	2030	manmade cellulosic fibre; lyocell; viscose staple fibre; dissolved pulp; deforestation free MMCF
Substitution to circular-compatible fibres/ polymers (bio-based, regenerative)	13.10	1311	fibre substitution; mono-material knits; recycled polyester; recycled cotton blends
Design for durability and repairability	74.10	7410	product durability spec; tear/abrasion testing; lifetime guarantee; repairable design
Design for recyclability	74.10	7410	mono-material design; circular design; fibre-to-fibre compatibility
Design for disassembly and take-back readiness	74.10	7410	design for disassembly; reversible stitching; separable trims; take-back ready
Design for low-shed fabric finishes	13.30	1313	low-fuzz finish; microfibre shedding reduction; anti-pilling finish
Modular/workwear design for multi-cycle refurbishment	14.12 14.19	1410	modular garments; component replacement; workwear durability
On-demand and made-to-measure production systems	14.19	1410	made-to-measure; mass customization; micro-factory; on-demand manufacturing

Circular use

Table 10: Circular use activities mapped to NACE Rev. 2, ISIC Rev. 4 and portfolio keywords

Circular activity	NACE Rev.2	ISIC Rev.4	Portfolio search keywords
Brand-operated repair services with warranty	95.29	9529	apparel repair service; mending; warranty repair; brand repair centre
Alteration and fit services (in-house/ partner)	95.29	9529	alterations; tailoring; hemming; resizing
Care and cleaning innovations (wet cleaning, microfibre capture) Laundry NACE Rev. 2.1	96.01 **96.10**	9601	wet cleaning; laundry with microfibre filter; garment care service
Returns prevention and refurbishment hubs	52.10	5210	reverse logistics; refurbishment hub; returns triage; restocking
Try-before-buy and returns-prevention services	47.91	4791	try-before-you-buy; home try-on; e-commerce returns prevention
Product-as-a-Service rental subscriptions (B2C)	77.29	7729	apparel rental; subscription models; clothing subscription; kids wear rental
B2B textile service models (leasing + laundering, workwear/ linen)	77.29	7729	textile services; workwear leasing; linen rental; industrial laundry service
Take-back and reissue (brand-operated)	47.79	4774	brand take-back; certified reissue; brand recommerce
Refurbishment and certified resale (brand or third-party)	47.79	4774	refurbished apparel; certified resale; quality-graded resale
Peer-to-peer resale platforms with quality verification	63.12	6312	resale marketplace; P2P resale; authentication service; web portal
Second-hand retail operations (offline/ online)	47.79	4774	second-hand retail; thrift store; consignment shop
Industrial remanufacturing with take-back (up-/ re-manufacture at scale)	14.19	1410	remanufactured apparel; upcycled at scale; factory rework

Circular value recovery

Table 11: Circular value recovery activities mapped to NACE Rev. 2, ISIC Rev. 4 and portfolio keywords

Circular activity	NACE Rev.2	ISIC Rev.4	Portfolio search keywords
Separate collection for EPR/brand take-back	38.11	3811	textile collection; non-hazardous waste collection; EPR logistics
Manual triage and fibre-grade sorting	38.32	3830	manual sorting; textile grading; materials recovery facility
Automated composition sorting (NIR/AI)	38.32	3830	NIR sorting; optical sorting; AI composition detection
Preparation-for-reuse hubs with traceability	38.32	3830	preparation for reuse; PRF hub; traceability tagging
Pre-processing for contaminants (buttons/ zips removal, fraying)	38.32	3830	pre-processing; de-trimming; contaminant removal
De-dyeing/ contaminant removal for fibre-to-fibre	13.30	1313	De-dyeing; colour stripping; chemical cleaning
Mechanical recycling to fibre/yarn/fabric	38.32	3830	textile mechanical recycling; tearing/shredding; re-spinning
PET depolymerization to textile-grade rPET	20.16 20.14	2013 2011	PET chemical recycling; depolymerization; rPET pellets; plastics in primary form; monomers
Chemical/enzymatic recycling for blended materials (e.g. PA, blends)	20.14	2011	polyester/nylon depolymerization; monomer recovery; solvent recycling; organic basic chemicals
Regenerated cellulosic production (from pulp)	20.60	2030	viscose/lyocell fibre production; regenerated cellulose fibre

*Collection rather than processing add NACE 38.11/ ISIC 3811.

*Traders/aggregators rather than processors add NACE 46.77/ ISIC 4667 (Wholesale of waste and scrap).

Circular support

Table 12: Circular support activities mapped to NACE Rev. 2, ISIC Rev. 4 and portfolio keywords.

Note: These codes are sector agnostic. Keyword triangulation is essential to avoid false positives.

Circular activity	NACE Rev.2	ISIC Rev.4	Portfolio search keywords
Digital product Passport (DPP) and traceability platforms	62.01	6201	product passport; traceability SaaS; DPP integration; QR/RFID
Recycledcontent/ chain-of-custody and data services (testing, verification, data exchange)	71.20	7120	technical testing; recycled-content verification; CoC audit; lab services
Data interoperability/ APIs linking DPP to ESRS E5 datapoints	62.01	6201	API integration; ESRS E5 data exchange; interoperability; DPP connectors
Test labs: durability, recyclability, microfibre release	71.20	7120	textile testing; durability test; recyclability test; microfibre release; accredited lab
LCA/eco-design and life-cycle-performance software	62.01	6201	LCA software; eco-design tools; product footprinting SaaS
Sorting quality standards (conformance audit services)	71.20	7120	sorting quality audit; sampling protocol; conformance assessment
Export-compliance and chain-of-custody (customs + chain-of-custody documentation)	52.29	5229	customs brokerage; export compliance; chain-of-custody documents; certificate of origin
EPR scheme operator and data infrastructure	38.11 63.11	3811 6311	producer responsibility organization; textile EPR operator; take-back data platform; data hosting, processing
SME onboarding/ training for circular models	85.59	8549	training; onboarding; capacity building; academy
Reverse-logistics orchestration	52.29	5229	reverse logistics; returns management; transport planning; consolidation
Shared repair/reverse-logistics hubs	95.29 52.10	9529 5210	shared repair hub; mending hub; reverse-logistics depot; warehousing

Circular activity	NACE Rev.2	ISIC Rev.4	Portfolio search keywords
Marketplaces for reuse (B2B/B2C platforms)	63.12 47.91 47.79	6312 4791 4774	reuse marketplace; resale portal; web platform; Internet retail; second-hand in stores
Spare parts for repair (trims, fasteners)	46.49	4649	trims wholesale; zippers; buttons; spare parts

Notes

- When an activity spans multiple codes (e.g. MMCF involves pulp [17.11/1701] and fibres [20.60/2030]), the primary code shown reflects the core economic activity for most dedicated operators; secondary relevant codes can be logged in the taxonomy crosswalks.
- Portfolio search keywords are indicative; tune with local language and common synonyms to reduce false positives.

Annex 3: Environmental and social material impacts for the textile sector

An overview of sustainability issues across the three dimensions of sustainable development is provided by the UNEP FI *Impact Radar* (UNEP FI, 2022); the most common circular economy interlinkages for textiles are illustrated in *the Circular Economy as an Enabler for Responsible Banking* guidance (UNEP FI, 2024c). The textile sector exhibits a particularly material impact profile. According to UNEP FI's Sectors Mapping (UNEP FI, 2024b), the sector demonstrates strong negative impact associations across multiple sustainability topics:

Social impacts: Modern slavery and forced labour risks, child labour, health and safety hazards (inadequate working conditions), wages (potentially low and irregular), gender equality gaps (high gender inequalities and disrespect of women's rights) and risks to vulnerable groups (human rights violations of minorities, particularly migrant workers).

Environmental impacts: Climate stability (high GHG emissions), waterbodies (contamination risk), air quality (contamination risk), soil quality (pollution and ecosystem degradation), habitat disruption (terrestrial ecosystems and species), biodiversity pressure (animal fur sourcing and conservation threats), resource intensity (fossil fuels, plastics, animal skins, cotton and other fibres, high freshwater use, production chemicals) and waste (significant waste from processing and machinery).

These sectoral impact interlinkages provide the foundation for assessing how circular textile activities interact with and can improve the sector's overall sustainability performance. Table 13 provides a science-based mapping of two material environmental and social topics associated with each circular textile activity, alongside screening guidance and illustrative mitigation approaches.

Science-based risks associated with textile activities

Table 13 provides a science-based mapping of two material environmental topics (impact areas) for each of the 44 textile-sector circular economy activities identified in Step 1. The matrix is grounded in peer-reviewed studies and authoritative sector reports, helping financial institutions focus Step 3 interlinkages reviews on the harm pathways most likely to be consequential.

Each activity is mapped to its highest-priority environmental impact areas based on the magnitude and likelihood of harm documented in textile-specific assessments. For

example, water stress may be a primary concern for fibre cultivation and dyeing, while chemicals management can be a secondary risk in post-consumer sorting and recycling due to legacy contaminants in feedstock. This illustrative selection directs assessment efforts to the topics most likely to be materially affected by each circular activity.

Use this matrix alongside Step 3's interlinkages assessment method. The matrix flags which impact topics warrant deeper testing; the illustrative example (Annex 4) provides the screening questions, data source examples and example indicators to complete that evaluation methodology consistently.

Table 13: Science-based mapping of the most material environmental topics for the textile-sector circular economy activities identified in Step 1.

Aligned activity	Material impact topic #1	Material impact topic #2
Circular design and production		
Textile-to-textile recycled content integration	**Pollution—Microfibre shedding from recycled textiles.** Screen for standardized low-shed fabrics and in-plant capture based on ISO 4484-1/Microfibre Consortium methods. Documentation may include test results from an ISO/IEC 17025-accredited laboratory using ISO 4484-1, with method parameters disclosed. (Allen, 2024; ISO, 2024)	**Climate—Process energy and electricity mix.** Assess metered energy intensity and electricity source at collection, sorting, recycling and re-spinning stages and disclose LCA goal, scope and boundaries. Where processes are energy-intensive, show that low-carbon power and process improvements deliver a benefit versus virgin production using recognized apparel methods. Use sector rules and recent European work to identify hotspots and sensitivities. (Duhoux *et al*., 2021).
Responsible MMCF inputs (including deforestation-free recycled pulp)	**Biodiversity—Deforestation risk in MMCF feedstock.** Screen for ongoing risk of sourcing from ancient/endangered forests without credible certification (WRAP, 2025a).	**Social—Worker CS_2 exposure in viscose.** Screen for closed-loop/lyocell-class recovery and workplace air monitoring aligned with toxicology guidance (ILO, 2022; ZDHC, 2023).
Substitution to circular-compatible fibres/polymers (bio-based, regenerative)	**Water—Irrigation risk in cotton basins.** Screen for basin-context irrigation risks; require site water-risk screening (e.g. WWF Water Risk Filter) and ICAC-based water footprint disclosure (WWF, 2024	**Biodiversity International Cotton Advisory Committee–Soil ecosystem degradation from conventional systems.** Screen for data of regenerative practices with measurable outcomes (erosion/SOC (soil organic carbon)) rather than claims. Use WWF basin guidance (UNEP, 2023a; WWF, 2024).
Design for durability and repairability	**Pollution—Chemicals. persistence/toxicity of PFAS-based finishes.** Consider applicable regulatory restrictions on PFAS used in durable water-repellent or soil-repellent finishes and demonstrate MRSL conformance (Schellenberger *et al*., 2022)	**Climate—Unrealized use-phase benefits.** Demonstrate that life-extension displaces new production using a documented displacement method and transparent assumptions. Pair displacement data with product-level durability testing so claimed extra wears are credible and repeatable. Update displacement factors periodically as programmes scale. (Abagnato *et al*., 2024; WRAP, 2025c).

Aligned activity	Material impact topic #1	Material impact topic #2
Design for recyclability	**Pollution—Substances of concern harming recyclability.** Blends, coatings and hard-to-remove trims materially reduce fibre-to-fibre yields; design rules (e.g. EMF Jeans Redesign) mitigate. Screen for MRSL compliance and design rules (mono-material, removable trims) to enable current EU-relevant tech pathways (EMF, 2023; ZDHC MRSL V3.1, 2023b).	**Climate—System GHG outcome.** Screen for realistic recovery yields per recent life cycle assessment studies (Köhler *et al*., 2021; Hasanbeigi and Price, 2015; Circle Economy, 2024)
Design for disassembly and take-back readiness	**Pollution—Export leakage to illegal dumping.** Screen for conformity with applicable waste shipment regulations (Basel Convention requirements; regional frameworks such as EU WSR (Waste Shipment Regulation), national regulations) (European Commission, 2024b; EEA, 2023).	**Climate—Reverse-logistics emissions increase.** Screen for optimized reverse-logistics and low-emission fleets; require routing KPIs (WEF, 2025.
Design for low-shed fabric finishes	**Pollution prevention and control—Microfibre shedding.** Screen for ISO 4484-1/TMC test data showing material shedding reduction; avoid "untested" coatings (ISO, 2023).	**Pollution prevention and control—PFAS finishes risk of persistent pollution.** Screen for PFAS-free alternatives aligned with emerging global restrictions (Stockholm Convention considerations, regional frameworks such as EU PFAS roadmap and United States of America EPA TSCA, national regulations).
Modular/workwear design for multi-cycle refurbishment	**Pollution prevention and control—Industrial wastewater non-conformance risk.** Screen for ZDHC Wastewater Guideline v2.2 compliance at refurbishment sites (EPA, 2023; ZDHC, 2022).	**Climate—GHG from added logistics/processing.** Screen for energy source and cycle count assumptions that deliver reductions (WEF, 2025).
On-demand and made-to-measure production systems	**Climate—Logistics last-mile emissions escalation risk.** Screen last-mile profile and consolidation; prefer zero-emission vans and urban hubs (WEF, 2025).	**Social—OHS under rush-order workflows.** Screen for ILO OSH (occupational safety and health) code alignment (working hours, ergonomics, tool safety) (ILO, 2022).

Aligned activity	Material impact topic #1	Material impact topic #2
Circular use		
Brand-operated repair services with warranty	**Social—Solvent exposure in cleaning operations.** Screen cleaning chemistries against ZDHC MRSL and local indoor air standards (ZDHC, 2024).	**Climate—Repair logistics erode net savings.** Where repair is central to the model, assess transport intensity, hub location and energy sources so reverse-logistics and workshop energy do not outweigh the avoided production. Use consolidated pick-ups, localized hubs and low-carbon energy to keep repair within a lower-emissions envelope and displacement so repairs demonstrably offset novel items (WRAP, 2025b).
Alteration and fit services	**Social—OHS (Repetitive-task and sharp-tool injuries).** Screen OSH systems per ILO code (training, guarding, PPE (personal protective equipment) (ILO, 2022).	**Climate—Customer/courier transport emissions footprint.** Screen for in-store/localized alterations to minimize customer travel and courier emissions (WEF, 2025).
Care and cleaning services	**Pollution—Toxic solvents (Perc (PCE) toxicity in dry cleaning).** Screen out PCE (perc) uses with United States of America EPA Toxic Substance Control Act (TSCA) restrictions and require safer alternatives, compliant wastewater treatment (EEA, 2023; France, Ministère de l'Environment, 2020).	**Water and climate—High water/energy in commercial laundering.** Screen for closed-loop water systems and heat recovery in commercial laundries (Procházková *et al*., 2022; ZDHC, 2024).
Returns prevention and refurbishment	**Climate—Reverse-logistics GHG burden.** Screen for consolidated, low-emission returns and refurbishment hubs (Marriott *et al*., 2025; WEF, 2025).	**Pollution—Unsaleables diverted to disposal/export.** Screen for formal resale/recycling channels; align with EEA guidance on used textiles (EEA, 2023).
Try-before-buy and returns-prevention services	**Climate—Last-mile multi-parcel last-mile emissions.** Screen programme design to avoid multiple shipments per order; favour pick-up and drop-off/lockers/BEV (battery electric vehicle) fleets (WEF, 2025).	**Pollution—Reconditioning wastewater pollution.** Screen cleaning and finishing against ZDHC Wastewater v2.2 (EEA, 2023; ZDHC, 2024).

Aligned activity	Material impact topic #1	Material impact topic #2
Product-as-a-Service/ rental/ access-based models	**Climate—Rental cleaning and logistics hotspots.** For rental, quantify per-wear emissions from cleaning and transport and show conditions under which rental outperforms ownership. Avoid dry cleaning where possible, minimize transport distances and increase utilization so the service achieves lower impacts per wear. Provide per-wear comparisons and the cleaning method used (Amasawa *et al*., 2023).	**Water and pollution—Frequent laundering increases pollutant loads.** Screen laundering tech, chemistry and MRSL/wastewater compliance (ZDHC, 2024).
B2B textile service models	**Pollution—Microfibres and wastewater non-compliance.** Screen industrial laundries for filtration and ZDHC wastewater conformance (ZDHC, 2024).	**Climate—Facility and transport GHG intensity.** Screen energy source and van electrification pathway (EEA, 2023).
Take-back and reissue (multi-cycle grading)	**Pollution—Export leakage to dumping/burning.** Screen chain-of-custody and legal conformity with EU WSR 2024 (European Commission, 2024).	**Social—Worker dust/biological exposure in sorting.** Screen OSH controls (local exhaust, PPE) per ILO code (ILO, 2022).
Refurbishment and certified resale	**Pollution—Wet-process chemicals and effluents.** Screen MRSL conformance and ZDHC wastewater results for any wet processes (ZDHC, 2024).	**Climate—Energy-intensive hub operations.** Screen for renewable electricity and efficiency KPIs (EPA, 2024).
Peer-to-peer resale platforms with verification	**Climate—Cross-border shipping emissions.** Screen for "local-first" routing and consolidated shipments (The Interline, 2024; WEF, 2025).	**Pollution—Leakage to waste/export channels.** Screen platform policies/ controls to prevent dumping; align with EEA insights (EEA, 2023).
Second-hand retail operations	**Pollution—Unsaleables risk uncontrolled disposal.** Screen for formal end-markets (repair/recycling) to avoid uncontrolled disposal (EEA, 2023).	**Climate—Store/logistics energy emissions.** Screen store energy sourcing and inbound/outbound logistics decarbonization (EEA, 2024).
Industrial remanufacturing (with take-back)	**Pollution—Legacy chemicals concentrate in residues.** Screen incoming streams against MRSL; require hazardous residue handling compliant with WSR/Basel (ZDHC, 2024).	**Climate—High re-processing energy demand.** Screen for renewable energy and yield thresholds from recent European Union process reviews (Duhoux *et al*., 2021).

Aligned activity	Material impact topic #1	Material impact topic #2
Circular value recovery		
Separate collection for EPR	**Pollution—Stockpiling/exports cause leakage.** Screen for compliance with revised Waste Framework Directive/EPR and WSR destination checks (EEA, 2025; European Commission, 2024).	**Social—Collector OHS risks without controls.** Screen PPE/training and contractor OSH controls per ILO (ILO, 2022).
Manual triage and grading	**Social—Dust/respiratory exposure in sorting.** Screen ventilation, housekeeping and respiratory protection programmes (ILO OSH code) (ILO, 2022).	**Pollution—Reject-stream diversion to informal disposal.** Screen for audited partnerships with recyclers; no informal disposal (EEA, 2024).
Automated composition sorting (including NIR)	**Climate—Electricity intensive sorting operations.** Screen facility electricity source; track kWh/tonne and continuous efficiency improvements (Duhoux *et al*., 2021).	**Social—Dust exposure at mechanical interfaces.** Screen enclosures/LEV and maintenance protocols (ILO OSH code) (ILO, 2022).
Preparation-for-reuse hubs with traceability	**Water—Cleaning/sanitation water burdens.** Screen for closed-loop, reuse and ZDHC wastewater compliance (ZDHC, 2024).	**Climate—Hub energy and logistics emissions.** Screen renewable power and optimized transport (WEF, 2025.
Pre-processing for contaminants (feedstock prep)	**Pollution—Hazardous residues requiring controlled treatment.** Screen for compliant stripping/printing removal with hazardous waste treatment; verify manifests under WSR (European Commission, 2024).	**Social—Worker exposure to solvent/acids.** Screen engineering controls, monitoring and PPE to recognized OSH standards (ILO, 2022).
De-dyeing/ contaminant removal (textile-to-textile)	**Pollution—High-strength effluent pollution risk.** Screen for tertiary treatment performance and ZDHC wastewater parameters (Amasawa *et al*., 2023; ZDHC, 2024).	**Water and climate—Water/energy intensity of processes.** Screen for closed-loop water and heat recovery (process LCA check) (Duhoux *et al*., 2021).
Mechanical recycling to yarn/fabric	**Social—Airborne fibre dust exposure.** Screen enclosure/LEV and exposure monitoring in shredding/tearing (ILO OSH code) (ILO, 2022; Visileanu *et al*., 2025).	**Pollution—Microfibre in process waters.** Screen capture/filtration and disposal practices; verify against lab methods (Allen, 2024).

Aligned activity	Material impact topic #1	Material impact topic #2
PET depolymerization to textile-grade rPET	**Climate—High process energy requirements.** Screen site electricity/heat sources and energy-recovery; benchmark against recent PET chemical recycling reviews (Duhoux *et al*., 2021).	**Social—Chemical exposure (glycolysis vapour exposure risks).** Screen for local exhaust and exposure monitoring with published occupational exposure limites (OELs) (NIOSH, 1991).
Chemical and enzymatic recycling for blends	**Pollution—Solvent toxicity and containment risk.** Screen for toxicity management, closed loops and spill control to MRSL+/permit requirements (Ghosh *et al*., 2025; ZDHC, 2024).	**Pollution—Concentrated hazardous residues/wastes.** Screen hazardous waste handling capacity and downstream permits (ISO, 2023; European Commission, 2024).
Regenerated cellulosic (process choice)	**Pollution—CS_2/H_2S air emissions in viscose.** Screen shift to lyocell-class solvents and recovery rates per ZDHC MMCF Guidelines v2.2 (EEA, 2024; ZDHC, 2024).	**Climate—High thermal energy demand.** Screen for renewable heat/ steam strategy and efficiency KPIs (Duhoux *et al*., 2021).
Circular support		
Digital product passport and traceability platforms	**Climate—ICT electricity footprint, scaling risk.** Screen hosting/data-centre energy mix and efficiency (IEA guidance); prefer low-energy architectures (EPA, 2024).	**Climate and social—Compliance with ESPR/DPP requirements.** Screen alignment with ESPR/DPP framework and data governance; plan for climate hazards to data centres (European Commission, 2024).
Recycled-content/ chain-of-custody and data services	**Climate—Platform energy and integrity risks.** Screen for renewable-powered infrastructure and verifiable audit trails (EPA, 2024).	**Social—Auditor safety in informal settings.** Screen for formal OSH risk assessments and training when auditing informal settings (ILO guidance) (ILO, 2022).
Data interoperability/ APIs linking DPP to ESRS E5	**Climate—Processing energy growth in data flows.** Screen projected data-processing loads and renewable sourcing commitments (EPA, 2024).	**Policy—Regulatory conformance.** Screen alignment with ESPR/DPP timelines and ESRS E5 data requirements (European Commission, 2024).
Test labs: durability, recyclability, microfibre	**Pollution—Microfibre test effluent management gaps.** Screen lab capture/filtration and waste handling; require ISO 4484-1/TMC methods in ISO/IEC 17025-competent labs (ISO, 2023).	**Climate—Lab energy management shortfalls.** Screen for energy-efficient equipment and renewable electricity use (EPA, 2024).

Aligned activity	Material impact topic #1	Material impact topic #2
LCA/eco-design and life-cycle-performance software	**Climate—ICT energy/materiality under-managed.** Screen provider data-centre energy mix and transparency; avoid inflated precision without robust primary data (IEA 4E TCP, 2024; EPA, 2024).	**Governance—LCA boundary and data bias.** Ensure impact claims rest on declared system boundaries, allocation rules and data-quality ratings, with methods aligned to sector rules. Where product-level impacts inform targets or claims, use recognized apparel category rules and make sensitivity to energy mix and logistics explicit. Independent review is encouraged when results underpin financing terms (European Commission, 2025).
Sorting quality standards (performance specs)	**Pollution—Rejects diverted to disposal/export.** Screen whether standards are coupled to capacity (reuse/recycling) to avoid diversion to waste/export (EPA, 2024; Fashion for Good and WRI, 2025).	**Social—Just transition for SMEs (small- and medium-sized enterprises).** Screen for phased implementation and OSH support to avoid precarization (ILO, 2022).
Export compliance and chain-of-custody (used textiles)	**Policy—Illegal shipment/non-compliant destinations.** Screen documentation and consignee verification under updated EU WSR regime. (European Commission, 2024; ISO, 2023).	**Social—Sorting OHS in exporting hubs.** Screen for OSH controls consistent with ILO code (ILO, 2022).
EPR scheme operator and data infrastructure	**Pollution—System leakage to non-compliant markets.** Screen KPIs for domestic treatment and supporting documentation of compliant destinations (EPR and WSR) (European Commission, 2024).	**Climate—Collection/IT energy footprint.** Screen route efficiency and data-centre energy mix (EPA, 2024).
SME onboarding/ training for circular practices	**Pollution—Chemical management non-conformance.** Screen MRSL adoption and wastewater conformance training (ZDHC) (EPA, 2023; ZDHC, 2024).	**Social—HRDD/OSH capacity.** Screen for adoption of ILO OSH code and basic HRDD (human rights due diligence) procedures (ILO, 2022).
Reverse-logistics orchestration	**Climate—Freight emissions from multi-leg returns.** Screen consolidation, BEV vans, lockers, track gCO_2e per return (WEF, 2025).	**Pollution—Storage/handling of leakage to waste.** Screen damage and loss controls; transparent tracking to approved outlets (European Commission, 2024; EPA, 2024).

Aligned activity	Material impact topic #1	Material impact topic #2
Shared repair/ reverse-logistics services	**Climate—Service emissions from facilities/fleets.** Screen energy sources and low-carbon fleets for shared facilities. Determination of destinations is key (WEF, 2025).	**Social—OHS for gig/itinerant workers.** Screen standardized OSH protocols and training (ILO, 2022).
Marketplaces for reuse	**Pollution—Oversupply causing waste/export leakage.** Screen for demand-matching and anti-dumping controls; verify destinations (EPA, 2024).	**Climate—Cross-border shipping GHG impacts.** Screen for local-first settings and consolidated shipping (Rosas *et al*., 2025; WEF, 2025).
Spare parts for repair	**Repair blocked by non-standard or unavailable spare parts.** Check that garments use standardized, replaceable hardware (zippers/sliders, buttons, snaps, reflective tapes) with documented service part numbers and multi-year availability and that components are designed for disassembly (e.g. removable buttons) to enable repair. For PPE workwear, confirm equivalent-certified replacement components are used so repairs maintain compliance (e.g. EN ISO 20471 tapes under the EU PPE Regulation).	**Climate—Sourcing/transport GHG.** Screen localized sourcing for small components; avoid air freight (WEF, 2025).

Annex 4: Illustrative assessment example: mechanical textile recycling models (circular value recovery)

This annex presents a hypothetical illustrative example demonstrating how a financial institution might apply the three-step assessment methodology described in chapter 3. The example is intended to show how the steps connect in sequence and what types of information and considerations may arise at each stage. It does not prescribe specific outcomes, thresholds, or documentation requirements. Financial institutions would adapt the assessment to the specific context, scale and geography of each activity.

Activity description

A mid-sized textile recycler operates a mechanical recycling facility that processes post-consumer textile waste into recycled yarn. The facility sources baled post-consumer textiles from municipal collection schemes and brand take-back programmes, sorts by fibre composition using near-infrared (NIR) technology, removes non-textile components (zippers, buttons, elastics) and mechanically shreds and re-spins the material into yarn sold to fabric mills for use in new textile products. The facility processes approximately 8,000 tonnes of post-consumer textiles per year. The recycler holds a Global Recycled Standard (GRS) certificate covering chain-of-custody from bale intake to yarn output. The company has applied for a working capital facility to expand sorting capacity and install additional spinning lines.

Step 1—Circular economy category identification

The financial institution begins by applying the quick screening questions from Table 1 to determine whether the activity demonstrates circular characteristics and to identify the primary circular economy category. The activity is assessed against the circular value recovery category, as the facility converts post-consumer textile waste into new textile production inputs. The screening questions for this category are applied as follows.

Table 14: Circular economy category quick screening—illustrative application for mechanical textile recycling

Table 1 quick screening question	Illustrative case answer
Question 1. Does the activity recover value from post-consumer or post-industrial textile waste?	The facility processes post-consumer textiles collected through municipal and brand take-back channels. The answer to this question is **yes**.
Question 2. Is there a documented process for enabling conversion of textile waste streams into marketable textile inputs (e.g. fibre, yarn, fabric)?	The facility operates a documented mechanical recycling process—NIR sorting, component removal, shredding, carding and ring spinning—that converts post-consumer textiles into yarn sold to fabric mills. The answer to this question is **yes**.
Question 3. Are recovered outputs validated for textile-to-textile reuse or input substitution (e.g. spinner acceptance, quality certification)?	The facility holds GRS certification covering chain-of-custody from bale intake to yarn output. Additionally, the recycler has documented offtake agreements with two fabric mills that confirm acceptance of the recycled yarn against defined quality specifications (fibre length, tensile strength, colour consistency). The answer to this question is **yes**.
Question 4. Are performance thresholds captured or available (e.g. textile-to-textile yield, quality specs, chain-of-custody information)?	The company reports a textile-to-textile yield and maintains GRS transaction certificates for each production batch. Quality specifications are documented in offtake agreements. The answer to this question is **yes**.

All four screening questions are answered affirmatively. The activity is assigned to the **circular value recovery** category and proceeds to Step 2.

Cross-reference with Annex 1. The activity corresponds to "Mechanical recycling to yarn/fabric" in the indicative list of circular economy activities (Annex 1, circular value recovery category). The corresponding NACE codes are 38.32 (Recovery of sorted materials) and 13.10 (Preparation and spinning of textile fibres). The corresponding ISIC codes are 3830 and 1311.

Step 2—Circular contribution assessment

In Step 2, the financial institution assesses whether the activity demonstrates a substantial contribution to circular outcomes. Drawing on the example indicators and documentation sources outlined in tables 2 and 5, the institution identifies relevant circularity criteria proportionate to the activity's context and scale. The following information is gathered during the assessment. The indicators selected below are illustrative; financial institutions are encouraged to select criteria proportionate to the activity's context.

Table 15: Circular contribution assessment—illustrative documentation for mechanical textile recycling

Circular economy criteria	Illustrative case data
Recycling yield and output quality	The financial institution requests documentation on the facility's textile-to-textile recycling yield, defined as the mass of textile-grade yarn output as a proportion of textile feedstock input. The recycler provides production records showing yield data over the previous 12 months. The institution notes that there is currently no universally agreed benchmark for mechanical recycling yield in textiles and considers the reported figure in the context of available industry references, including the WBCSD Circular Transition Indicators (CTI v4.0) framework for measuring material circularity flows and the specific feedstock composition (post-consumer, mixed fibre types). The recycler also provides quality test results for the output yarn, including fibre length distribution, tensile strength and colour consistency, referenced against the specifications in its offtake agreements with fabric mills (see Table 5, mechanical recycling to yarn/fabric indicators; ISO 59020:2024).
Chain-of-custody and material traceability	The recycler provides GRS transaction certificates for each production batch, covering chain-of-custody from bale intake to yarn output. The institution reviews these certificates to verify that recycled content claims are supported by third-party documentation. The financial institution notes whether the GRS scope certificate is current and whether any non-conformances have been recorded in recent audits (see Table 2, regulatory and certification resources; Textile Exchange GRS/RCS programme).
Feedstock sourcing and contamination management	The financial institution reviews documentation on feedstock sourcing, including contracts with municipal collection schemes and brand take-back partners. The institution considers whether the recycler has documented procedures for managing contamination in incoming bales (non-textile components, hazardous residues) and whether rejected or non-recyclable fractions are tracked and disposed of in accordance with applicable waste management regulations (see Table 5, contamination management indicators; ZDHC MRSL v3.1 where hazardous residues are identified).

Step 2—Assessment outcome

Based on the information gathered, the financial institution determines whether the activity meets the circularity criteria sufficient for classification as a circular solution, or whether it is classified as a circular opportunity requiring further client engagement.

In this illustrative example, the financial institution determines that the documented recycling yield, third-party chain-of-custody certification, offtake agreements confirming textile-to-textile end markets and contamination management procedures are sufficient to classify the activity as a circular solution. The institution notes that the activity's circularity performance could be further quantified using established measurement frameworks such as the WBCSD Circular Transition Indicators (CTI v4.0) or ISO 59020:2024 and records this as an area for potential future monitoring. The activity proceeds to Step 3.

Note: Had the financial institution identified gaps—for example, if chain-of-custody documentation were incomplete, if the recycled yarn lacked confirmed textile-to-textile end markets, or if contamination management procedures were not documented—the activity might instead be classified as a circular opportunity. In that case, the institution would engage the client to establish a milestone-based pathway toward addressing the identified gaps before reclassification.

Step 3—Interlinkages assessment

In Step 3, the financial institution assesses interlinkages between the activity and other environmental objectives, comprising: (a) environmental DNSH screening, (b) social objectives assessment (aligned with minimum safeguards) and (c) co-benefits identification. The assessment draws on the textile sector impact profile (chapter 1), Table 7 and the environmental and social material impact mapping for this activity in Annex 3.

Consistent with the textile sector impact profile presented in chapter 1 (Figure I), the financial institution notes that mechanical textile recycling directly addresses two circular economy impact drivers identified in the Impact Radar: resource intensity (by substituting virgin fibre with recycled yarn) and waste (by diverting post-consumer textiles from landfill and incineration). The Impact Radar provides an overview of the sector's prominent negative impacts which can be addressed by the circular textile activity, guiding the institution's screening across environmental objectives (DNSH), social objectives (minimum safeguards) and co-benefits.

Annex 3 identifies the following material environmental topics for mechanical recycling activities: pollution (microfibre shedding from recycled textiles) and climate (process energy and electricity mix). In line with UNEP FI's *Practical Guidance on Adaptation and Resilience for Banks* (2025d), the institution treats this assessment as part of its wider climate risk and resilience analysis for the textile sector portfolio, noting how circular economy activities can reduce exposure to physical and transition risks over time. The financial institution uses these as the starting point for screening, while also considering the remaining environmental and social objectives.

Table 16: Interlinkages assessment—illustrative DNSH screening, social objectives assessment and co-benefits identification for mechanical textile recycling.

Environmental interlinkages	Assessment
Climate mitigation	The financial institution reviews the facility's energy consumption data and electricity sourcing. The recycler provides metered energy intensity data (kWh per tonne of output) and documentation of its electricity supply contract showing the grid mix for the facility's location. The institution considers whether the mechanical recycling process, when compared to virgin fibre production, is likely to deliver a net reduction in greenhouse gas emissions. The institution notes that a full comparative life cycle assessment has not been conducted and records this as a potential area for future documentation. Based on the available energy data and the inherent lower energy intensity of mechanical recycling relative to virgin polyester production, the institution does not identify significant harm to climate mitigation at this stage.
Climate adaptation	The financial institution considers whether the activity contributes to or undermines climate adaptation and resilience. By sourcing post-consumer textiles rather than virgin cotton from drought-vulnerable regions, the activity is not identified as causing significant harm to climate adaptation. The institution documents associated adaptation co-benefits below.
Pollution prevention and control	Annex 3 flags microfibre shedding as a material pollution concern for mechanical recycling. The financial institution requests documentation on fibre fragment release. The recycler provides test results from an ISO/IEC 17025-accredited laboratory using the ISO 4484-1 method for fibre fragment shedding, covering the output yarn. The institution also reviews the facility's chemicals management practices against the ZDHC MRSL v3.1 to assess whether hazardous substances are adequately controlled in the recycling process. No significant harm is identified, though the institution notes that microfibre testing covers the yarn output but not downstream fabric finishing, which falls outside the recycler's operational boundary.
Water and marine resources	The facility uses water in its washing and preparation processes. The financial institution reviews the facility's water consumption data, effluent discharge permits and compliance records. The recycler operates under a valid environmental permit with effluent quality monitoring. No significant harm to water and marine resources is identified.
Biodiversity and ecosystems	The financial institution considers whether the facility's operations or feedstock sourcing present risks to biodiversity. Given that the facility processes post-consumer textiles (not virgin natural fibres) and is located in an established industrial zone, the institution does not identify significant harm to biodiversity at this stage.
Social safeguards	The financial institution assesses whether the activity meets minimum social safeguards. The recycler provides documentation on its labour practices, including employment contracts, health and safety records and working hour policies. The facility operates in a jurisdiction with established labour protections and is subject to regular labour inspections. The institution reviews the company's alignment with the OECD Guidelines for Multinational Enterprises and the UN Guiding Principles on Business and Human Rights, noting that the company has a documented grievance mechanism and supplier code of conduct covering its feedstock suppliers. No significant social safeguard concerns are identified.

Identification of co-benefits

The co-benefits are documented using the impact areas and topics of UNEP FI's *Impact Radar* as a reference point, ensuring that climate stability, employment quality and other impact topics relevant to textiles are considered systematically. The financial institution documents the following potential co-benefits:

- **Climate mitigation:** Mechanical recycling of post-consumer textiles into yarn is expected to have lower greenhouse gas intensity compared to virgin fibre production, though the magnitude depends on feedstock mix, energy sources and system boundaries. The institution notes that a comparative life cycle assessment would strengthen this claim.
- **Climate adaptation and supply chain resilience:** By sourcing post-consumer textiles as feedstock rather than relying on virgin cotton from drought-vulnerable production regions, the activity reduces the client's exposure to physical climate risks—including water scarcity and crop failure—that can disrupt raw material supply and increase input costs. In line with UNEP FI's *Practical Guidance on Adaptation and Resilience for Banks* (UNEP FI, 2025d), the institution considers this feedstock diversification as a climate adaptation co-benefit, noting that circular sourcing models can strengthen supply chain resilience against physical climate hazards while simultaneously reducing resource intensity. This is documented as part of the institution's wider climate risk and resilience analysis for the textiles portfolio.
- **Waste reduction:** The facility diverts post-consumer textiles from landfill or incineration, contributing to waste reduction objectives.
- **Employment and local economic activity:** The facility provides formal employment in sorting, processing and spinning operations, contributing to job creation in circular economy activities. The institution notes this as a positive social outcome alongside the minimum social safeguards assessment.
- **Resource intensity:** The activity directly reduces resource intensity by substituting virgin fibre with recycled yarn, decreasing demand for virgin raw material extraction and associated environmental pressures across the upstream value chain.

Step 3—Assessment outcome

Based on the interlinkages assessment, the financial institution classifies the activity as a circular solution with interlinkages managed. No significant negative impacts on other environmental objectives were identified, minimum social safeguards were verified and potential co-benefits were documented across climate, waste reduction and supply chain resilience dimensions.

The institution records the assessment in its internal systems and uses the classification outcome to inform its circular economy finance strategy for the textiles portfolio. The activity is classified as circular economy finance aligned exposure. This classification contributes to the institution's objective of increasing financing directed toward circular solutions, identifying circular opportunities within its client base and progressively shift-

ing its textiles portfolio composition from linear to circular business models (UNEP FI, 2023c). The classification also supports the institution in engaging the client on potential enhancements, such as transitioning to renewable energy sources for process energy, or expanding feedstock diversity, which could further strengthen the activity's co-benefits profile and circular performance over time. Documented co-benefits and interlinkages outcomes can additionally inform regulatory and voluntary reporting (for example under ESRS E5—Resource use and circular economy) and contribute to broader climate, nature and pollution strategies, including those aligned with UNEP FI's *Circular Solutions to Achieve Climate Targets in the Textile Sector* (UNEP FI, 2024d).

Summary of illustrative assessment

Step 1 outcome: Circular value recovery—all four screening questions answered affirmatively.

Step 2 outcome: Circular solution—documented recycling yield, GRS chain-of-custody, confirmed textile-to-textile end markets and contamination management procedures.

Step 3 outcome: Circular solution with interlinkages managed—no significant harm identified across environmental objectives and minimum social safeguards verified; co-benefits documented across climate mitigation, climate adaptation and supply chain resilience, waste reduction, resource intensity and employment.

Note: This example is illustrative and does not represent a specific company or transaction. The information presented is hypothetical and intended solely to demonstrate the application of the assessment methodology. Financial institutions are encouraged to adapt the assessment to the specific circumstances of each activity, including the regulatory context, available documentation and proportionality considerations outlined in chapter 2. Where this example records a positive finding (e.g. "no significant harm identified"), this reflects the hypothetical documentation provided in the scenario; actual assessments would depend on the evidence available in each case.

UN environment programme

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