WHITE PAPER

From Catwalk to Carbon Neutral: Mobilising Funding for a Net Zero Fashion Industry

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MANUFACTURER FOREWORD

To our peers and fellow climate activists across fashion value chains and beyond,

The catalyst for co-commissioning this paper is our shared conviction that if we fail to devise new ways of funding decarbonisation, we will also fail to realise our climate goals. We wanted to inspire more expansive, creative and imaginative thinking about how the sector might go about collectively funding decarbonisation in such a way that goes beyond business-as-usual, and primarily debt-based, solutions.

Although the intention and objectives of this paper have been fairly narrowly defined, it's worth emphasising the broader context within which this paper sits. Currently, the sector's approach to climate action places the burden for action on factories in predominantly global South nations. Although this is to a certain extent rational, given that this is where the vast majority of fashion's emissions are currently concentrated, a just transition requires shared risk and responsibility.

Second, this paper's focus reflects the fact that the sector's approach to climate action more generally is overwhelmingly focused on decarbonisation—with less emphasis on adaptation and resilience. However, as the direct employers of some of the individuals most vulnerable to climate change globally, it is our shared conviction that the sector must expand the framing of the current climate action conversation to also include adaptation and resilience. Both adaptation and resilience have their own funding requirements and a just transition demands a collective approach to all three.

Third, the specific challenge of how to fund decarbonisation is an opportunity to re-imagine cost-driven supply chain structures to ensure that they are fit for the future and capable of driving sustainability more generally. Currently, funding for decarbonisation must compete with many other manufacturer investment needs such as improved wastewater management systems, worker wellbeing programmes, and more general growth and infrastructural improvement investments.

Finally, the need for this paper originated in private discussions between producers hosted by the Asia Garment Hub[1] , which led to the realisation that many of our decarbonisation funding challenges are shared. However, we also want to emphasise that our perspectives are not monolithic and we do not align on everything. Indeed, some of us are direct commercial competitors. **Nonetheless, we came together to commission this paper because of our shared belief that manufacturer perspectives on this topic—in all their breadth and complexity—must be better understood if we are serious about driving meaningful impact.**

The contents of this paper represent the outcomes of independently conducted research and not a singular point of view. We hope it inspires more producers to come together to amplify their perspectives.

Sincerely,

Artistic Milliners, Epic Group, MAS Holdings, NITEX, TAL Apparel, Pactics Group, Simple Approach

EXECUTIVE SUMMARY

Cutting roughly 50% of emissions by 2030 and achieving net zero by 2050 in the fashion sector requires significant investment. The Apparel Impact Institute (Aii) estimates fashion industry decarbonisation will cost USD1 trillion up to 2050.

The vast majority—by some estimates up to 80%—of fashion's emissions are in the supply chain. Much of the work needed to deliver on the sector's net zero goals must thus happen in production.

Yet, brands and retailers hold the largest share of revenues and margins. Upstream actors also usually have smaller turnovers and steeper debt-to-revenue ratios. **The misalignment of margins, contrasted against the concentration of emissions, poses a real challenge to funding sector decarbonisation.**

Compounding this structural inequity are the variety of decarbonisation funding needs manufacturers have, ranging from projects with payback within three years to those with payback of over ten years. Even within a single class of projects, nuances based on geography, age of the in-use infrastructure and its design, local policies and energy costs as well as relationships between the manufacturer and its brand and retail customers will change approaches to financing. Payback periods, too, are highly contextual.

It is within this complex environment that manufacturers interviewed for this report described a number of hindrances to their decarbonisation efforts. They include financing challenges; policy barriers tied to geographical location and national agendas; condition of facility infrastructures; challenges in the brand-manufacturer relationship associated with purchasing practices; and a lack of a collective approach to decarbonisation.

↓ Specifically:

Business and Financing Bottlenecks Faced by Manufacturers:

Capital expenditure (CapEx) risk not shared	Manufacturers said that, on the one hand, the full burden and risk of capital investments tended to fall on them whilst, on the other, they struggled to raise the requisite funding.
Lack of solutions beyond debt	Many manufacturers, especially in the small and medium enterprise (SME) sector, said their high leverage and limited company size placed debt out of reach. Without other (non-traditional) funding options, and the sharing of climate action risk-reward, industry-wide decarbonisation will lag and falter.
Burden of increased operating expenses (OpEx) not shared	When decarbonisation projects add to their operating costs (short-term or otherwise) without the option of sharing these among value chain participants, including consumers, manufacturers worry they cannot invest without making unworkable margin cuts.
Business cycle risk	Interviewees said they typically do not have much visibility into the order pipelines beyond a season. The fashion industry's cyclical nature thus reduces the span during which investment practically occurs.
Debt affordability	Lack of access to lower-cost US dollar or euro funds keep domestic financial markets in manufacturer countries from supporting decarbonisation. Other obstacles were high double-digit interest rates applicable in local currencies and, to a degree, the absence of financial system transparency and depth resulting in poor local capacity and resources.
Lack of tools to derisk investment and debt	An estimated 45% of Tier-1 entities and nearly 30% of Tier-2 entities are in developing countries where adverse macroeconomic conditions have led to elevated country and equity risk premiums, making them riskier to potential lenders (Appendix 2). Some manufacturers cannot raise funds because of the risk profile of their organisation or of a given project.
Lack of local policies for renewable energy and energy transition	Some respondents in certain jurisdictions lamented the lack of reliable legal frameworks, the adverse impact of certain domestic energy policies and the absence of physical infrastructure to support specific decarbonisation strategies.

Available solutions for decarbonisation projects are grossly inadequate compared with the requirement and are only accessible to a narrow group of manufacturers. Consequently, manufacturers are overwhelmingly likely to implement short-payback, smaller-scale projects. Medium, long-term and no-payback initiatives call for larger investment as well as innovative solutions that extend beyond debt and address the issues of accessibility, affordability and availability of funding.

Innovative funding solutions that could meet these challenges are:

Establishing a Fair Climate Fund	Built on the principle of equity, adopting the Fairtrade model. Each value chain partner diverts to it a portion of revenue, which is then disbursed as grants to finance supply chain decarbonisation projects.
Brand-supplied debt repaid via product discounts	The larger, more profitable brands and retailers provide funding for which repayments are through discounts on future product orders.
Cost-sharing with consumers—green tag for decarbonisation	A clothing line priced slightly over the conventional range, with clear information to consumers that the premium—displayed as a "green tag" at the point of sale—will exclusively fund decarbonisation of the product's supply chain.
Green bonds and equity	Capitalises on growing interest for green bonds and equity in an environment where investors are increasingly focused on economic, social and governance (ESG) factors.
Islamic finance	A project funding tool—particularly for countries with a majority of followers in the Islamic faith—that differs from regular bonds in that it is not speculative and derives revenue through direct asset ownership rather than interest-bearing debt.
Mitigating business cycle risk	Business cycle insurance for investment policies to cover disruptions or downturns that impact loan repayment ability.
Credit guarantees	Credit guarantees from governments, multilateral development banks (MDBs), development financial institutions (DFIs) or export credit agencies (ECAs).
A Just Transition Fund	Created through regulatory levies, it will be accessible to manufacturers in developing countries to support value chain decarbonisation.

INTRODUCTION

The apparel sector is responsible for 2-8% of global greenhouse gas emissions[2]. This contribution is compounded by the fact that worldwide consumption of clothing and footwear is projected to rise by 63%—from 62 million tonnes in 2019 to 102 million tonnes in 2030[3]. With the market more competitive and price-sensitive than ever, there is a race to the bottom in terms of production costs.

The result: fashion is a sizeable force in the global economy but its environmental and societal credentials are poor.

To demonstrate their commitment to the Paris Agreement, more than 400 apparel, footwear and textile companies have signed on to or set science-based targets[4]. As the bulk of fashion's emissions—by some estimates, over 80%[5]—are in production, much of the work needed to reduce them must necessarily happen in production. The tendency, therefore, is to assume that the manufacturers must also fund the sector's decarbonisation.

Indeed, current financing solutions predominantly seem to place the onus on the manufacturer but decarbonisation of the fashion industry requires a collective effort across the value chain[6].

The questions this paper sets out to investigate are:

- What types of funding *needs* do manufacturers have for decarbonisation and what constraints do they face?
- What *options* do manufacturers seeking to fund decarbonisation currently have? Which gaps do they or don't they fill?
- What are *innovative financing models* the sector should consider to equitably and effectively address these gaps?

How to Read this Report

Section 1 sets out context about how fashion value chains are structured and how the sector approaches climate action. It offers an introduction into how these two elements converge for climate action within the sector, including in the arena of funding.

Section 2 details the complex web of technical, business and financial challenges manufacturers confront when attempting to decarbonise. It outlines the types of funding needs they have and factors related to payback of investments. It also looks at some of the key business and financing bottlenecks they encounter when trying to address these funding needs.

The section then examines the interplay of these barriers through the lenses of availability, affordability and accessibility. It explains why financing that is available, accessible and or affordable to one manufacturer may not be so for another. A single solution will neither suit all project needs, nor universally resolve constraints and bottlenecks for all manufacturers.

The section concludes with a non-exhaustive list of existing financing initiatives that aspire to support manufacturer decarbonisation projects.

Section 3 proposes funding solutions the sector could explore to fill these gaps, and looks at how these address the bottlenecks previously identified.

Section 4 We conclude with calls to action—for where the sector might go from here, and how it might embrace a more effective, equitable approach to funding climate action.

Methodology

Research was conducted through interviews with 21 apparel manufacturers and stakeholders—many of whom wished to remain anonymous—such as representatives from brands, impact investing funds, financial institutions and relevant entities, complemented with desk studies. While we do not claim this to be a representative survey, interviewees are from a broad spectrum of countries and business types.

Specifically, the following were consulted:

NAME	TITLE	COMPANY
Anne Patricia Sutanto	Vice Chairwoman of Trade and Logistic	Indonesian Textile Association (API)
Arjen Laan	CEO	Pactics Group
Christian Schindler	Director General	ITMF
Giovanni Zenteno	Director of Sustainable Finance	Apparel Impact Institute
Ilishio Lovejoy	ESG General Manager	Simple Approach
Mamunur Rashid	Specialist-Environment	Simple Approach
Matthew Guenther	Environmental Sustainability Director	TAL Apparel
Mehak Masood	Sustainability & ESG/Responsible business	Artistic Milliners
Nemanthie Kooragamage	Director – Group Sustainable Business	MAS Holdings
Nurul Muktadir Bappy	Commercial Controller	NITEX
Quentin Thorel	Group Head of Sustainability	CIEL Textile
Saqib Sohail	Sustainability & ESG/Responsible business	Artistic Milliners
Shahid Sangani	CEO	Dynawash
Sid Amalean	Head of Strategy	MAS Holdings
Surath Chandrasena	Director – Group Finance	MAS Holdings
Vidhura Ralapanawe	EVP Sustainability & Innovation	Epic Group

1. VALUE CHAIN STRUCTURE AND FUNDING INEQUITY

This section explores how fashion value chains are generally organised and the sector's approach to climate action. It also explores how these factors converge to create key structural barriers to decarbonisation.

How Fashion Value Chains are Structured

Most global brands and retailers, who are primarily based in the global North, do not own production facilities. They rely on vast networks of suppliers—predominantly spread across the global South and each with their own strengths and expertise—to carry out different production processes. Figure 1[7] is a simplified depiction of the fashion value chain's various tiers, from raw material extraction to the final assembly of a garment.

Figure 1. stylised representation of the fashion value chain

Tier-4	Tier-3	Tier-2	Tier-1	Tier-0
Raw Material Extraction	**Raw Material Processing**	**Material Production**	**Final Product Assembly**	**Branding and Retailing**
Raw material cultivation or extraction e.g. cotton, silk, synthetic materials	Spininning of raw materials into yarn and processing	Production and finishing of materials like textiles used to make a garment	Assembly and manufacturing of final products - cutting, sewing, etc	Pricing, packaging, branding, retailing and distribution

(Source: adapted from Aii & WRI)[8]

Thus, major international fashion brands and retailers in the US, the UK and Europe enlist Tier-1 manufacturers to produce their garments which are then retailed globally[9]. Countries with low labour costs and high labour availability, such as Bangladesh, Vietnam, India and Southeast Asia, including China, are hubs for Tier-1 garment manufacturing. For their raw materials, these manufacturers tap the upstream tiers, which are also globally distributed, creating a complex web of transactions spanning multiple geographies.

Interviewees said that global brands tend to wield strong control over pricing, and typically hold direct commercial relationships only with Tier-1 manufacturers and, at times, with some Tier-2 manufacturers. **Suppliers also said that the sector's value chains tend to be fragmented and built around transactional relationships, where many manufacturers tend to become vulnerable to cyclical fluctuations. The extreme price pressures borne by them can make capital deployment problematic.**

Fashion's Approach to Climate Action

The Greenhouse Gas Protocol Corporate Accounting and Reporting Standard (GHG Protocol) refers to a company's direct emissions, such as combustion of fossil fuels and refrigerant leakage, as "Scope 1"; and purchased electricity, heating and cooling for a company's own use as "Scope 2". All indirect emissions are "Scope 3".

For a brand, Scope 3 includes emissions from purchased goods made in fashion supply chains, emissions in the use-phase (such as from washing and drying), and from end-of-life disposal[10]. For a manufacturer, Scope 3 includes emissions from goods purchased downstream of their own supply chains, and the emissions of the brand, the consumers and from end-of-life disposal.

Fashion brands and retailers have limited direct carbon emissions from their own operations. By some estimates, 80% of the fashion industry's emissions are from producers in various tiers[11]. Only 4% of the carbon footprint of fashion companies, presumably brands, that have approved Science Based Targets initiative (SBTi) commitments come from their Scope 1 and 2 emissions[12]. Thus, because most of the sector's emissions are in Tiers 1-4, manufacturers bear a significantly higher burden for overall industry emissions reduction.

In a recent podcast by the Innovation Forum, Dr. Krishna Manda, the Vice President and Global Head of Sustainability at Lenzing, a large viscose manufacturer, shared that if they were to switch just one of their large fibre-processing facilities from coal to natural gas, it would save 200,000 tonnes of CO2. He estimated this to be more than the combined Scope 1 and 2 emissions of five large brands[13].

To signal their commitment to the Paris Agreement, fashion companies have set targets to align with the treaty's goals which envisage all companies cutting their direct absolute emissions (Scopes 1 and 2) by around half by 2030 and achieving net zero by 2050[14]. Platforms such as the Fashion Industry Charter for Climate Action (FICCA) and SBTi[15] are commonly adopted and take a flat approach to target-setting meaning that all companies must set the same targets. Thus, the expectation is that all companies, regardless of their individual capabilities and positions in the value chain, will have similarly ambitious goals.

Practically, this approach has two consequences. First, given that emissions are concentrated in production, manufacturers have exceedingly more work to do than other value chain actors to achieve these reductions. This is compounded by the fact that not all manufacturers are technically geared to decarbonise at the same speed or to the same extent. Not only do they have niche manufacturing competencies and machinery across tiers, each entity's energy transition pathways are complicated by geographical and national conditions, prevailing infrastructure and different levels of access to renewable energy[16].

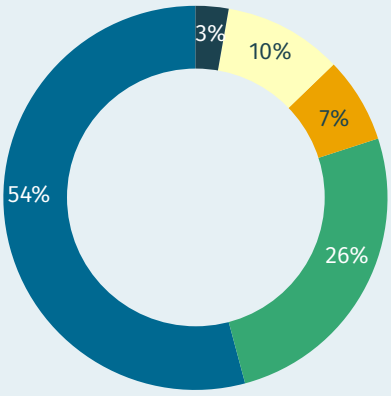
The second practical implication is that most of the signatories or companies that have set targets to date are brands and retailers. To deliver on their commitments, brands and retailers increasingly require—and the SBTi guidance for the apparel and footwear sector also recommends that—their suppliers adopt their own science-based targets despite the contextual constraints they face[17].

Structural Inequity as a Barrier to Funding Decarbonisation

Cutting 50% of global emissions by 2030 and achieving net zero by 2050 requires a significant investment of about USD4 trillion annually until 2030 on renewable energy, technology and infrastructure[18]. And Aii estimates fashion industry decarbonisation will cost USD1 trillion up to 2050[19] with the bulk of investment expected from manufacturers in Tiers 1-4 who say they not only bear responsibility for climate action but are also expected to finance it[20] while under continuous pressure from global brands and retailers to cut prices[21].

Brands and retailers have the largest share of revenues and margins, followed by garment producers and manufacturers (Figure 2)[22]. The total share of debt among Tier 1-4 manufacturers is higher than that among retailers (Figure 3). Upstream actors usually have smaller turnovers and steeper debt-to-revenue ratios[23]. Most manufacturers also hold low order visibility into the future, which further restricts their ability to raise debt whilst creating higher risk for lenders.

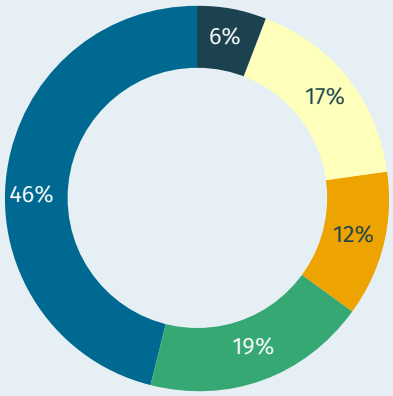
Figure 2. Revenue split of the textile universe by node.



- Raw Material Manufacturing 3%
- Fibre Production 10%
- Fabric Manufacturing 7%
- Garment Production 26%
- Retail 54%
- Post-Sale 0%

(Source: Planet Tracker, Refinitiv) [24]

Figure 3. Total debt split of the textile universe by node.



- Raw Material Manufacturing 6%
- Fibre Production 17%
- Fabric Manufacturing 12%
- Garment Production 19%
- Retail 46%
- Post-Sale 0%

(Source: Planet Tracker, Refinitiv) [25]

A manufacturer's profitability, debt level and visibility of future orders impact its ability to fund decarbonisation. The rapid change in global trends and consumer demands is coupled with pressure on brands and retailers to geographically derisk their supply chain. It is higher profitability, however, that allows a manufacturer to service existing debt whilst boosting its profile with lenders and prompting more favourable borrowing terms. Increased access to cheaper capital also supports expansion, technological upgrades or sustainability initiatives, like decarbonisation.

Conversely, steep indebtedness will shrink a manufacturer's ability to raise further loans, be they bilateral or via capital markets. Low credit ratings trigger high borrowing and debt servicing costs, again blocking fresh investments including on technology that could promote decarbonisation over cheaper alternatives that may not.

Lenders also use visibility of future orders as a measure of investment risk, preferring manufacturers with strong brand partnerships and longer visibility. Moreover, these factors provide manufacturers with a stable revenue stream, helping to advance more robust relationships within their supply chains and to optimise production schedules whilst encouraging efficient workforce and working capital management.

The challenges of accelerating decarbonisation are, therefore, closely linked with the nature of relationships between specific brands and retailers and their manufacturers. And sector-wide initiatives often fall short when they do not acknowledge the context within which individual actors, particularly manufacturers who face starkly diverse economic realities, operate.

The misalignment of emissions with revenues and margins, as well as emissions with debt-to-revenue ratios and financial health, creates a dilemma of how sector decarbonisation can work if manufacturers are constrained to raise more and more debt for it. Here, increased participation by brands and retailers in funding is an opportunity to address a both practical and ethical conundrum.

This scenario has given rise to monolithic decarbonisation programmes that fail to address these disparities—at times, even exacerbate them—whilst severely curtailing their potential for success. Without a marked change in course, the industry runs the risk of missing its targets by a wide gap.

Concerted action is essential for the equitable and effective scaleup of decarbonisation efforts across the value chain. Success lies in a collective effort that takes cognisance of context while remaining steadfast in our passion and commitment to immediate, significant decarbonisation.

2. FUNDING MANUFACTURER DECARBONISATION: CONTEXT, BOTTLENECKS AND CURRENT SOLUTIONS

The complex technical, business and financial difficulties that manufacturers face must be factored into any analysis of bottlenecks and proposed solutions. These include high upfront costs, uncertain payback periods and inaccessibility to affordable financing, aggravated by pressure to deliver attractive pricing and operational efficiency amidst steep competition. Uneven distribution of financial resources, technical expertise and skills among different value chain entities and geographies creates an added layer of challenges.

This section also lists out some existing financing initiatives for decarbonisation that are considered pioneering in the fashion industry

Types of Funding Needs

Decarbonisation projects fall into multiple categories, each with separate funding options and conditions. The project examples listed below are intended only as broad illustrations as local contexts (such as duty, taxes and energy costs) make payback periods highly contextual (see section 2.2).

- **Short-term with payback within the three years**–includes changing old-type motors to high-efficient varieties; improving steam system insulation; introducing steam traps and condensate recovery; replacing older lighting with high-efficiency LEDs.
- **Medium-term with payback of between three and 10 years**–includes adopting rooftop solar systems; replacing older compressors and air conditioners with advanced systems; using heat pumps instead of hot water boilers; shifting from older machines and equipment to advanced technology-based systems; and replacing old generators with new, higher-efficiency ones.
- **Long-term with payback beyond 10 years**–includes upgrading individual system components, where possible, or overall system overhaul of old infrastructure. Examples are systems for distributing steam power throughout a factory (replacement of piping and insulation); systems for distributing compressed air throughout a factory including network replacement; or upgrading air conditioning systems from individual small units to higher efficiency chiller-based units.
- **Projects that increase OpEx**–includes replacing unsustainably sourced with more sustainably sourced biomass; converting fossil fuel-based boilers with those powered by electricity or green hydrogen; some renewable energy supply contracts; shifting to (or farming) lower emission raw materials; introducing proper energy management infrastructure such as metering, building management systems and monitoring systems with support personnel.

How Paybacks Vary Based on Context

Manufacturers interviewed for this report stressed that paybacks, even within the same class of projects, could vary based on circumstances. A non-exhaustive list of how the payback of rooftop solar systems changes according to local conditions is illustrated in Table 1. The variation of paybacks affects the type of required funding, tenor, rate and securitisation.

Table 1: Variation of paybacks based on context, using rooftop solar systems as an example.

CONDITION	IMPACT ON PAYBACK	EXAMPLES
Electricity cost (present and future projections)	Varies by geography and facility. Payback could be longer if the site has low-cost self-generation.	Payback could be longer for facilities with cheaper on-site electricity generation from sources such as natural gas.
Solar radiation	Varies on the amount of sunlight received, which is dependent on latitude, cloud cover and pollution. Lower yield equals longer payback.	For a 1kW solar system installed, the following figures show how many units of electricity (kWh) are produced in each city[26]: Ahmedabad–1702 kWh Colombo–1570 Dhaka–1392 kWh Ha Noi–1076 kWh
Roof angles and shadows	Solar installations have optimum angles and a mismatch with the roof slope can cause a substantial reduction in generation. Vegetation or building shadow will curtail solar radiation on panels. Reduced generation equals longer payback.	A facility in Dhaka should install solar panels at an angle of 23 degrees, South-facing, for optimal generation. A North-facing installation at the same 23-degree angle can result in up to 30% generation loss.
Import duty and taxes	Duties and taxes increase a project's capital cost, making payback longer.	Bangladesh imposes 1% import duty on solar panels, 37% import duty on inverters and approximately 15%-58% duty on other system components[27]. Sri Lanka has an 18% VAT on imported components of solar systems[28].
Roof modification needs	Many roofs are not designed to hold the weight of solar panels, requiring additional structural support such as columns. Old roof sheets need changing before installation as fixing leaks is difficult after the system is up. These costs increase the payback period.	In some facilities, structural strengthening could hike project costs by 100% or more.
Net metering	Solar rooftop systems are generally installed under a net metering facility with the utility. When the factory is not working, the utility absorbs the generated energy and offsets this in the bill. Where net metering is not allowed, a facility typically loses approximately 30% of generation, making payback longer.	Export zones in Bangladesh do not allow net metering facilities to connect rooftop solar systems.

Another example of how paybacks vary based on context is in decarbonisation of thermal energy. It necessitates improvement of system efficiency; replacement of fossil fuel boilers with those fired by biomass or electricity; and, sometimes, a change of steam machinery to electric ones. Table 2 is a non-exhaustive list of how payback changes depending on context.

Table 2: Variation of paybacks based on solutions and context for thermal decarbonisation

CONDITION	PAYBACK Period	EXAMPLES/CHALLENGES
Improvement of efficiency of steam system	Short-to-medium. Paybacks are dependent on the cost of the underlying energy source.	E.g., condensate recovery systems, steam traps and insulation.
Improvement of efficiency of steam system/system up-grades	Medium to no-payback, dependent on the cost of the underlying energy source.	Based on age and efficiency of design, these may require a complete overhaul of steam distribution systems. Many systems designed during cheap fossil fuel eras require substantial modernisation or complete replacement of piping and insulation, including all accessories that provide efficiency.
Replacing fossil fuel boiler with biomass	Dependent on cost of original fuel versus biomass. Could be short-payback in some cases, while increasing OpEx in others (especially if the boiler uses sustainably sourced biomass).	Biomass availability is tied to geography. It is not found in some locations while supply is severely limited in others, thereby posing supply chain risks to the company. In many locations, this option is not viable for Tier-2.
Replacing fossil fuel boiler with electric boiler	Generally raises the facility's OpEx and has no payback. Cost may be as high as three times the previous source of energy.	Electric boilers are currently available only in small capacities.
Replacing steam using equipment to electricity	Can be short, medium or no-payback.	Limited solutions exist for some equipment and requirements. Steam irons replaced with irons with electric mini-boilers. Hot water generated through waste heat recovery systems or electric heat pumps.

Business and Financing Bottlenecks

Among impediments to decarbonisation that manufacturers described were financing issues; policy barriers tied to geographical location and national agendas; condition of facility infrastructures; challenges in brand-manufacturer relationships associated with purchasing practices; and the absence of a collective approach to decarbonisation. Debt financing, too, was deemed a major obstacle—especially the disconnect between increasing brand pressure, available funding options and order reliability.

The below sections explore some of these challenges.

Not Sharing CapEx Burdens

A recurring theme in our research was the disappointment among manufacturers at being expected to bear the full burden and risk of decarbonisation capital investments amidst a continuing struggle to raise the requisite funding. Moreover, existing programmes mostly provided technical support for short-payback projects and were not linked to accessible, affordable financing solutions.

In the last few years, a few financing solutions initiated by brands and third parties for short and medium-payback projects have emerged (see Table 4). But these favour a narrow set of manufacturers who are more mature in their decarbonisation journey, have good credit standings and are larger-than-average with a diversified customer base to hedge demand-side risks.

The high interest rates mean SMEs and highly leveraged entities are confronted with even greater capital costs. So, some felt their only viable decarbonisation options were projects with quicker paybacks that needed smaller investments (e.g., energy efficiency measures); and that capital-intensive initiatives like major machinery replacements and large-scale system upgrades were unattainable.

These are pressing realities as brands and retailers in the global North can generally borrow at lower rates than manufacturers in the global South. **Successful decarbonisation will, therefore, require systematic and inclusive engagement, drawing in those at the periphery of the value chain network.**

Lack of Solutions Beyond Debt

Manufacturers cited industry conversations as consistently assuming decarbonisation will be debt-funded. **They cautioned that the scale of investments needed and the challenge of funding these through debt would be unviable from a company perspective and, sometimes, a country perspective.** One multi-stakeholder organisation representative even felt that creating debt instruments for decarbonisation "carried the risk of creating a financial crisis". High leverage and small company size, especially in the SME sector, made debt unattainable to many manufacturers. Without non-traditional funding options that allow for the risk-reward of climate action to be shared, industry-wide decarbonisation will lag and falter.

Not Sharing the Burden of Increased OpEx

Fashion brands and retailers influence the fashion industry's sourcing choices and pricing, interviewees said. Even the larger, more profitable brands and retailers hesitate or face constraints due to market pressures in their ability to adjust prices even when there are underlying increases in manufacturing costs.

A manufacturer's bargaining power within this extremely price-competitive market is limited, interviewees said. And when projects add to their OpEx (short-term or otherwise) without the option of distributing these among value chain participants, including consumers, manufacturers worry they cannot invest without impractical margin cuts.

On the working capital front, Tier-1 manufacturers deemed this lack of clout with brands to be their main challenge and rued that lengthy payment terms were punitive. Receivables from some brands stood at 120-180 days, against 30 days for payables to their own manufacturers. When receivables take up to six times longer to arrive than the time required to settle payables, and amidst significant interest rate hikes, cash flow management is complicated.

Manufacturers repeatedly flagged that spending capital upfront on decarbonisation was difficult without avenues for returns. It was also problematic to allocate working capital to longer initiatives, even where a project pays its way.

Business Cycle Risk

Interviewees typically did not have much visibility into their order pipelines beyond a season. Depending on their business models and brand relationships, some manufacturers had higher business variability and lower order visibility. Additionally, their customers were generally unwilling to commit long-term. Order volatility also exacerbates cash flow challenges, curtailing manufacturer access to funding.

The COVID-19 pandemic showcased the fashion value chain's structural weaknesses, It revealed the levels of exposure and vulnerability of most manufacturers while cancelled orders forced many small businesses in South Asia to scale down or wind up, triggering sizeable job losses[29]. Some fear that the muted demand in 2023/24, especially from the US and Europe, will extend into 2025.

These periodic stresses constantly threaten the balance sheets of manufacturers, compelling them to avoid new capital investments during lean spells. Wariness of the next downturn also reduces visibility. This cycle cuts the number of years within which investment practically occurs, seriously undermining the 2030 decarbonisation targets.

Debt Affordability

Lack of access to lower-cost US dollar or euro funds prevent domestic financial markets in manufacturing countries from supporting decarbonisation. Other obstacles were double-digit interest rates applicable in local currencies and, to a degree, the absence of financial system transparency and depth resulting in poor local capacity and resources.

As previously observed, prevailing high interest rates on USD and euro loans have significantly raised project financing costs. The secured overnight financing rate (SOFR) to which nearly all lending rates are indexed and which hovered around 2% in 2018, now stands at 5.3%. Soaring rates hamper investment and incentivise the retention of inefficient, high-carbon systems while propelling manufacturers towards the cheapest machinery and equipment replacements over high efficiency and low emissions.

A large brand as well as a global manufacturer explained how they raised finance through sustainability-linked bonds (SLBs) and sustainability loans (SLs), respectively. Only a fraction of brands and manufacturers enjoy parallel benefits of size and financial health to attract financiers; and SLBs and SLs seem available mainly to lower-risk developing countries with interest rates that are often just marginally under regular commercial rates.

Although relatively cheaper, interviewees had difficulty accessing development financial institution (DFI) funding owing to rigid selection criteria incompatible with vulnerable companies that most need financial and technical backing. DFIs also had constraints screening and monitoring projects, thus delaying fund deployment and stranding manufacturers in their decarbonisation efforts. Many DFIs considered fashion manufacturing to be a high-risk industry saddled with a myriad of perils related to fire hazards, health, safety, social, labour and environmental issues in addition to shortcomings in supply chain transparency. DFIs also prefer larger ticket sizes of, say, USD 20 million and above and thereby gravitate towards bigger, established manufacturers.

Lack of Tools to Derisk Investments and Debt

An estimated 45% of Tier-1 entities and nearly 30% of Tier-2 entities are in developing countries[30] where adverse macroeconomic conditions have resulted in elevated country and equity risk premiums (Appendix 2). Continuing country and foreign exchange rate risks, as defined by lenders, make it difficult for manufacturers in these jurisdictions to access external funds. Ratings downgrades have hampered commercial banks and asset managers in North America, Europe, Japan, etc., from lending to them. And fragile domestic macroeconomic conditions have triggered high tariffs on capital goods imports, including for renewable technology.

Manufacturers in the global South were generally hesitant to borrow in currencies such as EUR, USD, JPY, GBP, etc., despite relatively lower interest rates to those imposed on the local currencies in their base countries. This was because any depreciation of the local currency against the debt currency would heighten repayment risk. In many projects, savings (such as on electricity costs) are local currency denominated.

There were no organised mechanisms to underwrite risks such as adverse exchange rate movements, or the increase in borrower risk premiums due to ratings downgrades. Solutions structured to address such concerns, manufacturers said, would significantly improve availability and affordability of funding.

Lack of Local Policies for Renewable Energy and Energy Transition

Some respondents in certain jurisdictions said the absence of reliable legal frameworks, adverse impact of certain domestic energy policies and the lack of physical infrastructure to support specific decarbonisation strategies complicated payback periods and their ability to raise funds. These include directives that discourage energy efficiency and renewable energy adoption like high duties on essential equipment and components; limits on net metering for rooftop solar systems; lack of off-site renewable energy power purchase agreements (PPAs); absence of domestic policies to support agricultural waste biomass or biofuels, etc.

Impact of Funding Constraints

The following model was developed to demonstrate the interplay between business and financing bottlenecks when an individual manufacturer attempts to secure decarbonisation financing.

- **Availability**–the extent to which financial capital can be received by an entity looking to implement a project. Unavailability will force companies to cease existing projects and to avoid new ones.
- **Affordability**–considered one of the greatest barriers to securing financial services, they are the costs associated with using these services and include interest rates and fees.
- **Accessibility**–the ability of companies to obtain financial services. Entities with no or limited access to such services are called "unbankable". Certain projects are also deemed unbankable as they are located in high-risk jurisdictions.

The extent these factors impact on a manufacturer depends on context, size, the tenor of the order cycles they receive from their buyers and the leverage on their balance sheets[31].

We now look at how these constraints affect different project categories.

→ Short-Term Payback Projects

Larger and medium-scale manufacturers with fair visibility of order cycles and moderate leverage have managed to raise funding for short payback projects. Affordability and accessibility remain elusive to smaller manufacturers with higher leverage levels (even for such projects) but is helped, to some extent, by rising availability of concessional funding. Many countries offer limited local funds at lower interest rates for manufacturers. But securing it may entail significant indirect costs tied to lengthy, complex application processes. Upon disbursement, monitoring and reporting requirements create further expenses for manufacturers while fulfilling additional key performance indicators (KPIs) would require skilled, dedicated staff.

→ Medium-Term Payback Projects

Limited funding is available for larger manufacturers with low levels of leverage. Yet affordability and accessibility remain challenging. For medium and small manufacturers, availability, affordability and accessibility is scarce, regardless of their leverage levels.

→ Long-Term and No-Payback Projects

It is not immediately clear how manufacturers can fund their decarbonisation when paybacks stretch beyond 10 years, as traditional debt instruments are not designed to support this. Novel frameworks are needed to share decarbonisation benefits upstream by supporting borrowers in different ways, including through revenue sharing and offtake agreements.

→ Projects That Increase Operational Costs

Some decarbonisation projects generate higher OpEx for manufacturers. Even in instances where financing is available, affordable and accessible, this could mean the project is not commissioned.

The key finding of this section is that manufacturers are overwhelmingly likely to implement short-payback, smaller-scale projects. Medium, long-term and no-payback initiatives require larger investment and entail production disruptions that necessitate the creation of funding mechanisms that share the risk-reward of climate action throughout the value chain. Manufacturers say prevailing solutions focus on short-payback projects and that they would like obstacles such as increased operational costs to be recognised and addressed.

Table 3 below summarises current funding availability, affordability and accessibility for different project types, attempting to rate them according to feedback from our interviewee sample. We stress, however, that what one manufacturer finds available, affordable and accessible could be expensive, unavailable and inaccessible to another (contextual).

Table 3: Current funding availability, affordability and accessibility for different project types, rated based on feedback from the interviewees

	PROJECT TYPE BASED ON PAYBACK			
	Short-Term < 3 years)	**Medium-Term (>3 years & < 10 years)**	**Long-Term (>10 years)**	**Increase in OpEx**
Availability of Funding	Good *Sector Examples:* • *Fashion Climate Fund (& Climate Solutions Portfolio)* • *H&M Group Green Finance Fund, with limitations (see below)* • *H&M Group & DBS Fund* • *Hugo Boss & Collateral Good Venture Capital Fund*	Good *Good Fashion Fund, with limitations (see below)*	Limited	Very limited
Affordability of Funding		Limited	Very limited	Very limited
Accessibility of Funding		Limited	Very limited	Very limited

Existing Financing Options for Manufacturers

Table 4 below, while not exhaustive, endeavours to list pioneering financing initiatives for fashion sector projects. They are predominantly debt-based and manufacturers pointed to significant availability, accessibility and affordability barriers in addition to insufficient options for long-term or no-payback initiatives. **Therefore, while they fill important gaps in the financing landscape, they alone will not allow the fashion industry supply chain to deliver on ambitious climate goals. That would require more innovative funding solutions (see Section 3).**

Manufacturers can also sometimes—though here, too, there are barriers—access financing through development banks and geography-specific programmes. These are not included in the table.

Table 4: Main finance initiatives for projects in the fashion sector.

INITIATIVE	WHAT IS IT?	TYPE OF FINANCING	PROJECT TYPE SUITABILITY	AVAILABILITY, AFFORDABILITY, ACCESSIBILITY TO MANUFACTURERS
Apparel Impact Institute Fashion Climate Fund (FCF)	The Fashion Climate Fund is a $250M donor-pooled fund with contributions from fashion brands and philanthropy[32]. Grants are awarded through the Climate Solutions Portfolio (CSP). and will range from USD 50K–250K per year of the relevant project[33]. CSP is Aii's collection of proven carbon-reducing programmes and solutions from pre-seed to pilot to model to scale phase.	Debt and grants	The FCF has used grant funding to subsidise technical assistance fees for suppliers to participate in Aii-managed decarbonisation programmes, such as Clean by Design. It does not distribute loans, and the funds are not designed for debt financing of CapEx. FCF dollars may be used in the future as junior debt in a financial vehicle to secure attractive financing for suppliers' CapEx.[34]	Although it does issue grants, the degree to which FCF meets manufacturers' project financing needs (whether for quick-payback or long-payback projects) is unclear, given its focus on third-party solutions and technical experts rather than on direct investment in production facilities.[35]
H&M Group Green Fashion Initiative	Provides debt and direct financial assistance to its suppliers for energy efficiency projects and fossil fuels phase-out. Direct financial support takes into consideration the Group's business share at a given facility.[36]	Debt and direct financial assistance	The ratio of debt to direct financial assistance is not known. This initiative could support H&M manufacturers with both short to medium-payback projects.[37]	H&M offers rates more favourable to manufacturers than commercial facilities. Factories can request the loan currency of choice.[38] However, several interviewees cited restrictions unrelated to the H&M Group's official policy that nonetheless made hard currency the only viable option.

Good Fashion Fund (GFF)	Provides long-term debt for up to USD 2.5 million, focused on reductions of energy, GHGs, water and chemical consumption. It also supports circularity-related investments. Over USD 10 million was disbursed by the end of 2023.[39]	Debt	Tenor of 5-6 years is beneficial for medium-payback projects but GFF's interest rates (SOFR + risk margin) may not offer a major reduction from commercial rates.	GFF will be fully disbursed in 2024. Suppliers note that its initial due diligence and ongoing monitoring expenses add to financing cost. This, and its complex contracting and additional ESG KPIs, lower accessibility.
Hugo Boss & Collateral Good Venture Capital Fund	Launched in December 2023, this venture capital fund prioritises companies in start-up and early growth stages and focuses on developing innovative sustainability-related solutions and technology. It has a total target volume of EUR 100 million, of which approximately 10% will be for investments by Hugo Boss. The investment period is 3-5 years.[40]	Venture capital	Given its focus on innovation and technology, it's unclear whether this fund will be a viable pathway for its manufacturers' project financing needs.	First investments are yet to be made.
H&M Group & DBS Fund	Launched in November 2023, it is described as a collaborative funding tool intended to fast-track the adoption of green initiatives by financing manufacturers through DBS and technical support from sustainability consultant, Guidehouse.[41]	Debt with "highly favourable terms"	As it was recently launched, H&M was unable to discuss the details publicly.	H&M Group states that "unlike traditional banking solutions which seek to encourage such green activities indirectly, this programme directly provides financing with highly favourable terms to manufacturers for specific GHG emissions reduction activities, as approved by H&M Group".[42] We were unable to discuss it with manufacturers.

While good starting points, these initiatives are insufficient to address manufacturer constraints. Industry-wide initiatives are laudable for their broad reach but do not stretch far enough to fund existing decarbonisation needs. Brand initiatives could support deeper decarbonisation efforts but clearly lack the required industry-wide scale to meet stated goals.

With funding to date going towards initiatives that deliver quick paybacks (cost reduction), accessibility remains elusive to smaller manufacturers and upstream tiers as they lack a strong track record or are too peripheral to the main brands driving decarbonisation.

Consequently, the industry will likely meander towards decarbonisation by making mostly fast-payback investments—those, too, subject to business cycles. These barely scratch the surface of the required interventions, leading to a collective failure of the fashion industry climate targets of halving emissions by 2030 and achieving net zero by 2050.

To quicken the pace, we must scale up current funding streams while innovating financial, business model and regulatory tools to collectively support decarbonisation.

3. FUNDING SOLUTIONS FOR DECARBONISATION

To boost investment in decarbonisation projects industry-wide, solutions must address issues of accessibility, affordability and availability that manufacturers face. They must support medium, long-term and no-payback initiatives that call for larger-scale investments. And they must look beyond the belief that decarbonisation should be exclusively debt-based.

This section explores innovative funding models that could potentially meet these needs. Solutions are presented in three categories: models that evolve the business models, models that increase penetration of existing financial products for manufacturers, and models that address policy and regulatory frameworks.

Table 5 below offers a broad overview of how each of the proposed fundraising solutions could support different value chain entities, with emphasis on their leverage and visibility of their order cycles. The lines between these classifications could be blurred as it may be possible to design bespoke financing solutions, or to fine-tune a specific one to suit categories of manufacturers where it currently does not.

Table 5: Overview of how various proposed fundraising solutions could apply across different types of value chain entities, depending on their balance sheet structure.

Leverage is total debt divided by total equity. A high leverage ratio is considered to be over 1.5 or 2.0. Being classified as high or low-leverage impacts the tier. High order visibility is where the manufacturer has a line of sight of their orders beyond six to 12 months.

Manufacturing companies are categorised as large, medium and small, based on their annual sales value. More than USD 100 million is considered as large, USD 25 to 100 million is medium and below USD 25 million is defined as small. A supplier's position in the value chain (i.e., Tier-1 or Tier-4) is also relevant.

FUNDRAISING SOLUTION		COMPANY LEVERAGE AND ORDER VISIBILITY LEVEL			
		Low Leverage & Good Order Visibility	Low Leverage & Low Order Visibility	High Leverage & Good Order Visibility	High Leverage & Low Order Visibility
Business Model Evolution					
1	**The Fair Climate Fund**	Large, Medium and Small			
2	**Brand-Supplied Debt Repaid via Product Discount**	Large, Medium and Small			
3	**Cost-Sharing with Consumer/Green Tag for Decarbonisation**	Large, Medium and Small			
Increase Penetration of Existing Financial Products Across Manufacturers					
4	**Green Bonds and Equity**	Large and Medium	Large and Medium	Large and Medium	Large
5	**Islamic Financing**	Large and Medium	Large and Medium	Large and Medium	Large
6	**Business Cycle Insurance**	Large and Medium	Large and Medium	Large and Medium	Large
7	**Credit Guarantees**	Large, Medium and Small			
Policy and Regulatory Frameworks					
8	**A Just Transition Fund Raised Through a Regulatory Levy**	Large, Medium and Small			

The Fair Climate Fund

Which bottlenecks this solution addresses

Not Sharing CapEx burdens

Lack of solutions beyond debt

Business Cycle Risk

Debt Affordability

What is it?

Built on the principle of equity defined in Fairtrade model,[43] the Fair Climate Fund will pool value chain resources for decarbonisation. Each value chain partner diverts into it a portion (say, 1%) of sales revenue from each order, which is then disbursed as grants to finance (or co-finance) supply chain decarbonisation. This is the best possible collective approach and could support decarbonisation of SMEs that find other models difficult to access.

Fund inputs would be based on value addition to the final product by each entity. Let's assume the Tier-1 cost for a typical garment is approximately 45% and the Tier 2-cost is 30%. Thus, for a USD 100 sale, the retailer would contribute USD 1, the Tier-1 manufacturer USD 0.45 and the Tier-2 manufacturer USD 0.30. Accordingly, all value chain parties bear a proportionate and fair share of responsibility towards decarbonisation. These contributions will increase the cost of the garment by a total of USD 1.75 or 1.75%, with its price rising to USD 101.75.

Key elements to be considered include:

- **Streamlined application and assessment**–simplified application process, clear and transparent prequalification criteria and rapid assessments accessible to SMEs.
- **Risk assessment and monitoring**–robust yet straightforward risk assessment that balances due diligence with expedited fund disbursement. Establish a system for regular monitoring and auditing to ensure monies are appropriately used, and make these public.
- **Training and SME support**–provide resources or workshops for SMEs on effectively identifying projects and dealing with application processes as well as technical support for implementation.
- **Low overheads for enhanced impact**–build a low-overhead model with a focus on transparency, accountability and measurable impact.

Manufacturer funding needs it would meet

Can be used for medium to no-payback projects, thereby resolving accessibility difficulties faced by most fashion industry manufacturers. It can expand into the SME sector and, by pooling funds across multiple orders, enable high CapEx investments.

Constraints it would address

This solution would increase availability of funding across all value chain components. Affordability is addressed as it does not require interest payments, and accessibility could also be addressed by ensuring the Fair Climate Fund's operational structure prioritises investments that other financing schemes do not favour. Its nature may limit large-scale investments but it can act as a co-financing grant.

Brand-Supplied Debt Repaid via Product Discount

Which bottlenecks this solution addresses

Not Sharing CapEx burdens

Business Cycle Risk

Debt Affordability

What is it?

The solution envisages provision of funding by larger and more profitable brands and retailers with repayment structured through discounts on future product orders. This not only facilitates necessary decarbonisation investments but also aligns manufacturers' and customers' financial interests with long-term partnerships and sustainability goals. To be workable, manufacturers must carefully manage their cash flows as the discounts impact revenue. Products must be strategically priced to ensure the business remains profitable and able to cover its operational costs and loan repayments. This approach derisks order volatility for manufacturers. It creates investment opportunities even under adverse business conditions. It also incentivises the brands or retailers to maintain continuous order supplies with participant manufacturers.

Manufacturer funding needs it would meet

As it is independent of commercial lenders, this type of funding can assist manufacturers with higher leverage levels who are looking to invest even in long-payback decarbonisation.

Constraints it would address

The solution would increase availability of funding for suppliers (can be Tier-1, 2 or even farmers) who have direct working relationships with larger, more profitable brands and retailers . The prerogative to offer credit lies with brands and retailers who, to a degree, are unfettered by lending policies or capital adequacy requirements applied by regulators on commercial banks and other financial institutions. Affordability is dependent on the terms set by the brand or retailer. To mitigate risk, they are more likely to extend the facility to financially sound, established and strong supply chain partners, resulting in limited accessibility.

Cost-Sharing with the Consumer-Green Tag For Decarbonisation

Which bottlenecks this solution addresses

Not Sharing CapEx burdens

Lack of solutions beyond debt

Not Sharing the Burden of Increased OpEx

Debt Affordability

What is it?

A fashion brand could introduce a clothing line priced slightly more than the conventional range, with clear information to consumers that the premium—displayed as a "green tag" at the point of sale—will go into a fund that exclusively supports decarbonisation of the product's supply chain. This strategy requires careful consideration of market dynamics, the target consumer and overall impact on sales and brand image. Balancing the need for environmental responsibility with business viability is crucial. It also adds transparency and tangibility to the cost of decarbonisation and could finance projects like supporting cultivators to adopt lower-carbon farming, investment in clean energy for factories or research into new sustainable materials. Effective communication is the key to success.

Manufacturer funding needs it would meet

As the monies are raised through a premium, there is no repayment obligation for the brands. Thus, the funds should support longer-term payback and no-payback projects, and higher OpEx initiatives if these orders are continuous and high volume. The supply chain could receive them as outright grants or extremely long-term debt with zero interest. They could also be deployed as equity investments in decarbonisation projects. From a governance perspective, the funds could be spread across the supply chain's full spectrum, regardless of manufacturer size. This solution is applicable to brands or retailers with large volume orders, meaning that funds are significant enough to be converted into a viable investment.

Constraints it would address

This solution would increase availability of funding for all tiers but would be limited according to order quantity and premiums. Thus, it would not be helpful for larger projects. Only the supply chain of the specific product would be eligible. Affordability and accessibility will increase as the funds raised could be used as low-cost debt, equity or even grants to support multiple types of projects including those that bloat OpEx. A solution of this nature must be buttressed by an accountability framework and a well-documented and established framework that explains the governance structure.

Green Bonds or Equity

Which bottlenecks this solution addresses

Not Sharing CapEx burdens

Debt Affordability

What is it?

This solution capitalises on growing investor interest and market for green bonds. Equity investors, increasingly focused on ESG factors, are pushing companies to develop and report on their sustainability efforts. Consequently, fashion companies with high sustainability credentials could attract enhanced interest. The larger and more profitable brands and retailers stand to benefit by issuing lower-yield green bonds or by raising equity at a premium. This could then finance their decarbonisation plans, including in the supply chain. Larger manufacturers, especially those headquartered or domiciled in mature financial markets such as Europe, the USA, Singapore or Hong Kong, can also underwrite their decarbonisation initiatives this way, through lower-cost funding.

Between 2020 and 2023, total sustainable bond issuances amounted to USD 3,078 billion of which green bonds were USD 1,643 billion.[44] Repayment terms on bonds raised by entities in this space extended beyond 15 years. Available information shows that green bonds were issued by a few companies such as VF Corporation[45], Addias[46], Burberry[47] and H&M[48]. Overall, however, the number of fashion sector companies raising long-term debt via green bonds is small, interviewees said..

Given the size and number of investors eyeing investment opportunities, and the success had by those raising debt in these markets, fashion sector companies must become far more active issuers. Below are two examples of how this could be implemented.

Green bond issuance for sustainable supply chain initiatives

A major clothing retailer or large manufacturer headquartered or domiciled in the UK, Europe, the USA, etc., could issue green bonds to finance its supply chain's transition to sustainable practices—such as through retrofitting manufacturing facilities with renewable energy sources, adopting energy-efficient machinery or implementing sustainable material sourcing. The issuance would be marketed to ESG-focused investors, playing up the environmental benefits and alignment with sustainable development goals (SDGs). The funds thus secured by the retailer should be passed on to the manufacturer at a price close to or at the rate it was raised, to increase affordability.

The issuance of green bonds allows the company to secure funding for its decarbonisation initiatives whilst demonstrating its commitment to the environment. And lower capital costs associated with green bonds make them an attractive option for large-scale sustainability projects.

ESG-linked stock offerings for decarbonisation initiatives

Another approach is for the bigger, more profitable brands and retailers or large manufacturers headquartered or domiciled in the UK, Europe, the USA, etc., to launch a new stock offering with the explicit commitment that funds thus raised will underwrite decarbonisation efforts. The offering could be premium-priced, reflecting the company's high sustainability focus and expected positive impact on long-term profitability. The capital could be directed towards developing innovative and disruptive technologies such as waterless dyeing or next-generation materials and circularity solutions.

An ESG-linked stock offering could pull in investors committed to sustainable business, thereby expanding a company's investor base. The premium stock pricing reflects the added value of its sustainability agenda. Moreover, successful implementation of the decarbonisation initiatives could promote improved brand loyalty and decoupling from regulatory risk, enhancing its financial performance.

In both examples, transparent and regular reporting on progress and impact of supported initiatives is critical.

Manufacturer funding needs it would meet

As a majority of manufacturers are in jurisdictions with low credit ratings, bond or equity issuances by them would be a challenge. This solution would work primarily for larger manufacturers in mature financial markets. Larger, more profitable brands and retailers in countries with large capital markets can raise the funds and provide debt to support decarbonisation of their supply chain partners in developing countries. Capital markets for such bonds can be up to 10 years, even longer. The tenor of financing extended by the brands to their manufacturers could, therefore, back long-payback projects. Funding may also be available to large to medium-sized manufacturers with longstanding brand relationships and good order visibility. Brands must pass on all or much of their cheaper funding costs to the supply chain to facilitate the intended implementation of decarbonisation projects, rather than target additional profits.

Constraints it would address

Funds raised by a large brand or retailer via a green bond or equity issue can be directed to its supply chain for decarbonisation. This solution would thus increase availability, availability and accessibility for manufacturers who have relationships with these brands and retailers. Affordability is dependent on interest rates or terms extended to the manufacturer. Accessibility would be a challenge should the brand or retailer that raises these funds only direct it to lower-risk supply chain partners.

Use of Islamic Finance

Which bottlenecks this solution addresses

Not Sharing CapEx burdens

Lack of solutions beyond debt

Debt Affordability

What is it?

Islamic finance broadly refers to a banking system or financial activity consistent with Islamic (Sharia) law which prohibits payment or acceptance of interest (*riba*) for lending and obtaining money. It also involves investing in businesses that provide goods or services aligned with Islamic principles, avoiding those considered as *haram*, or forbidden.

Islamic finance is equity-based and asset-backed and promotes risk sharing between the fund provider and recipient. The industry has expanded rapidly over the past decade, growing at 10-12% annually. Today, Sharia-compliant financial assets are estimated at roughly USD 2 trillion, covering bank and non-bank financial institutions, capital markets, money markets and insurance[49]. Institutions such as the Islamic Development Bank have raised their focus on green Islamic finance products with a climate action plan targeting a 35% commitment to climate finance by 2025[50]. Given its size and depth, this space can significantly boost crucial funding for decarbonising the fashion sector value chain.

Islamic finance can be a powerful tool, particularly in countries with a majority of followers in the Islamic faith (like Egypt, Bangladesh, Turkey, Indonesia and Pakistan) but also potentially in countries where the Islamic faith is not prevalent. The amounts raised can vary based on the scale of the *sukuk* issuance (a *sukuk* is an Islamic bond, which differs from regular bonds because it is not speculative and derives revenue through direct asset ownership rather than through interest-bearing debt),[51] the number of investors, and the projects. The success of Islamic finance tools in funding decarbonisation depends on the regulatory environment, investor interest and the effectiveness of selected projects.

- ✓ **Green *sukuk***–Sharia-compliant bonds specifically used to finance environmentally friendly projects. Egypt, for example, has shown interest in exploring green *sukuk* for eco-friendly initiatives and set a precedent with the issuance of sovereign green bonds in 2020[52]. This could potentially be a model for issuing green *sukuk* for decarbonisation.
- ✓ **Transition *sukuk***–similar to green sukuk but provides financing to high-emitting sectors and projects essential for transition to a low-carbon economy. The Islamic finance sector has also witnessed the issuance of transition *sukuk*, like the one by Etihad Airways in 2020[53] which raised funds for investment in sustainable aviation. Similarly, transition sukuk can be issued for projects to reduce the carbon footprint.
- ✓ **Islamic social finance instruments**–like *zakat* (compulsory almsgiving), *sadaqah* (voluntary charity) and waqf (endowment), they can be aligned with decarbonisation initiatives. For instance, UNDP has worked with Islamic finance institutions to apply *zakat* funds towards local SDG plans[54], including renewable energy projects in underserved communities.

Green sukuk for renewable energy in garment factories

A government or large manufacturer could issue a green sukuk to raise capital for transition of their factories to renewable energy sources. The issuance would be compliant with Islamic finance principles which prohibit interest and emphasise asset-backed financing. Investors would bank on the tangible assets of the renewable energy installations. Therefore, funds raised through the green sukuk will go towards, for e.g., introducing solar panels or wind turbines to factory sites and investors will earn a share of the profits generated from these projects in line with Islamic finance principles. This approach not only supports decarbonisation but can also potentially lower a factory's operating costs in the long-term.

Sukuk for sustainable supply chain initiatives

A consortium of fashion supply chain companies could collaboratively issue a sukuk to finance a broad range of sustainable supply chain initiatives. Investors will receive a return based on the performance or revenues generated by these projects. The approach allows for resource pooling and sharing of best practices across the fashion industry, leading to more significant and impactful sustainability projects. Investors benefit from the social and environmental impact of their investment, consistent with the principles of Islamic finance which emphasise social responsibility and ethical investing.

In both examples, projects must align with the Sharia law which underpins Islamic finance. This can attract a wider base of investors looking to promote sustainable development while adhering to their ethical and religious principles. Additionally, the use of Islamic finance could help foster local economic development and social responsibility in regions where conventional financing might not be as prevalent or accessible.

- ✓ **The Sustainable and Responsible Investment (SRI)**–the Sukuk Framework of the Securities Commission Malaysia enabled Malaysian entities to issue the world's first green SRI *sukuk* in 2017 to finance the construction of large-scale solar photovoltaic power plants in Kudat, Sabah[55]. Below are two examples of how Islamic finance can be utilised.

Manufacturer funding needs it would meet

The funds raised via a green or transition sukuk could be used by small to large manufacturers looking to implement decarbonisation projects, even long-payback ones. If, on the other hand, the monies are secured via a *zakat* (compulsory almsgiving) or *sadaqah* (voluntary charity), they could serve as equity or grants for no-pay back or long-payback projects.

Constraints it would address

This solution would increase funding availability in specific geographies that allow easy deployment of such instruments. It can also be used in other parts of the world. The funding structure could increase affordability for financing projects in countries such as Egypt, Bangladesh and Pakistan which in the recent past faced significant credit ratings downgrades causing manufacturers located there to lose access to financing or having to pay far higher costs for it. Supplier collaboration or state intervention to issue sukuks can boost accessibility for manufacturers including SMEs.

Business Cycle Insurance

Which bottlenecks this solution addresses

Business Cycle Risk

What is it?

The fashion industry is cyclic in terms of order volumes and manufacturers face significant business cycle volatility. This blocks investments into essential decarbonisation projects. Reaching sectoral targets for 2030 (and beyond) is dependent on decoupling decarbonisation investment from business cycle fluctuations. Below is a potential strategy to address this risk.

Business cycle insurance for investment policies should be tailored to cover significant disruptions or downturns that impact loan repayment ability, such as spells of reduced orders from major markets like the UK, the US or the EU. Brands and manufacturers can alongside large global insurance providers design products to guard against fashion sector downturns. This may require detailed risk assessments and negotiations to arrive at feasible premiums as well as adequate coverage and brand commitment to further funding. The premiums should be part of a manufacturer's financial planning and/or supported by brands and retailers to make insurance a sustainable business model component. Similar schemes are available in multiple other markets, such as agriculture, where they are even used to protect against climate-related crop failures[56].

Manufacturer funding needs it would meet

Appropriately designed insurance schemes (for e.g., by governments) can foster a better decarbonisation investment environment for all types of business entities. This solution is likely to be leveraged by large to medium-sized manufacturers with more partnership-type relationships with their brand and retail partners. Depending on its structure and repayment terms agreed upon with the manufacturer, funding thus raised can support short to long-term projects.

Constraints it would address

This solution does not improve availability of funds. It can make funds accessible to a group who would otherwise be classified as high risk. The derisking can reduce the interest rates due to lower risk profile but the insurance premiums would be an added cost, contingent on how they are structured and what type of underwriting is available. Depending on specific terms, the affordability may improve or decrease.

Credit Guarantees

Which bottlenecks this solution addresses

Lack of tools to derisk investments and debt

Debt Affordability

What is it?

With the recent deterioration in credit ratings in developing nations, fashion industry manufacturers based in these countries face challenges securing financing for decarbonisation projects. Whatever is available carries with it increased costs and would be short-tenor. To obtain cheaper funding, manufacturers in countries that have undergone downgrades can use various types of guarantee structures that not only facilitate access to capital but can also be designed to help financiers mitigate their credit risk, country default risk, exchange rate risk, etc. Below are some strategies.

Sourcing guarantees and insurance

- Guarantees from MDBs or DFIs: These can cover a portion of a manufacturer's loan in case of default and reduce the perceived risk for lenders.
- Guarantees from ECAs: They can provide insurance or guarantees for export-related projects, and are particularly useful for manufacturers in the heavily export-oriented fashion sector.
- Government guarantees: In some cases, national governments may offer loan guarantees aimed at promoting sustainable practices, thereby reducing lender risk.
- Financial institutions: They can provide financial instruments to the manufacturers enabling them to have a guaranteed interest rate or currency exchange rate for repaying the borrowed funds (e.g., currency and exchange rate derivative transaction)

These can be used on a case-by-case basis by individual manufacturers for their decarbonisation projects, or implemented via a broader platform. For instance, national apparel industry associations (or governments) could spearhead the creation of a loan pool to fund decarbonisation projects across different manufacturers, then wrap a credit guarantee across it by working collaboratively with insurance providers or credit guarantors.

The pool could even be securitised[57] and offered to a broader base of institutional investors, including ones with mandates for ESG investment in the global South. (Securitisation is where certain types of assets are pooled so they can be repackaged into interest-bearing instruments such as bonds).

These institutions[58] can participate in the securitisation structures by providing the credit guarantees and/or investing in the programme. With securitisation of the initially identified loan pool completed, there would be opportunity for those that had pitched in with funding first to lend more to other fashion sector manufacturers. This continues on a revolving basis with lenders creating fresh pools of assets which are then sold down with repeated support via the securitisation process. The solution could significantly enhance the ability to fund SME decarbonisation projects in the global South.

Manufacturer funding needs it would meet

All types of manufacturers can use credit risk mitigation via a guarantee provider but it would generally be for financing of a longer tenor and where costs are prohibitive. Guarantor involvement may offer the lender additional comfort to extend the tenor and/or reduce the facility cost. Due to the potential longer tenor, these structures could support medium to long-payback projects by manufacturers of all sizes, regardless of the stability of their order cycles.

Constraints it would address

The solution could increase availability across all sectors of the value chain. As bringing in a guarantor would result in a lower cost of funds, affordability will improve. Accessibility expands in cases where lenders are currently unwilling to back projects in countries that saw significant credit ratings downgrades.

A Just Transition Fund Raised Through a Regulatory Levy

Which bottlenecks this solution addresses

Lack of solutions beyond debt

Debt Affordability

What is it?

This initiative envisages creating a Just Transition Fund for developing nations fueled by a regulatory levy that can support value chain decarbonisation. "Just transition" is defined by the Intergovernmental Panel on Climate Change (IPCC) as a set of principles, processes and practices, the aim of which is to ensure no people, workers, places, sectors, countries or regions are left behind in the transition from a high-carbon to a low-carbon economy[59].

The solution can be implemented along the lines of the European Union's (EU) Just Transition Fund[60], with monies reserved for the fashion industry value chain. It can be managed by a dedicated body or trust to ensure transparent and effective allocation of revenue to decarbonisation projects in developing countries across Tiers 1-4. It could be extended to climate change adaptation initiatives, targeting fashion supply chain worker communities.

Inputs can be raised through a climate levy on fashion imports by the EU, the USA or the UK. It can be a minimal percentage charge on fashion with a higher rate for luxury goods. The targeted approach means average customers are not overly-burdened by the extra cost. The Fund could significantly contribute towards large-scale sustainability projects, and support segments that find financing difficult, thereby driving significant reduction in the industry's carbon footprint.

Manufacturer funding needs it would meet

Funds can be disbursed as grants for medium to long-payback projects. As a Just Transition Fund, it should prioritise the SME sector as well as highly leveraged, economically disadvantaged manufacturers. Overall, support could be debt, grants or equity.

Constraints it would address

This solution would increase funding availability across all sectors of the value chain. The size of the total fund depends on how the levy is applied by the regulators.The proposed structure could significantly enhance affordability and accessibility for many small and medium-sized manufacturers in developing markets. It must focus on supporting companies that have lower access.

4. CONCLUSIONS AND CALLS TO ACTION

Our research indicates that significant funding is required for apparel sector decarbonisation to align with industry targets specified in the Paris Agreement. Yet, only a fraction of solutions are available and they are mostly debt instruments from commercial lenders, governments and multi-stakeholder initiatives (MSIs).

Moreover, small or medium-scale manufacturers, companies that are already heavily leveraged and entities with low visibility into future order cycles (with high volume volatility) struggle to access even these. And affordability varies, particularly for companies with low credit ratings, and during high interest rate spells, such as at present.

Existing finance streams gravitate towards fast and medium-payback projects. They do not favour investment on long or no-payback projects, or ones that increase operational costs. Among multiple other risks we identified that make debt financing difficult to leverage are poor country risk ratings; weak relationships with brand partners leading to higher borrower risk and cash flow; the industry's boom-bust cyclical nature; and fashion brands' eagle-eyed focus on cost reductions versus sustainability gains.

To accelerate apparel sector decarbonisation—with due consideration to prevailing financing challenges faced by the supply chain which is concentrated in developing countries—we make a strong and urgent call to action amongst all industry stakeholders. Our recommendations aim to foster collaboration, to draw focus to value chain decarbonisation and to enhance funding accessibility, availability and affordability.

1. Policy advocacy that supports financing for decarbonisation
Manufacturers (in partnership with brands, where appropriate) must demand and actively lobby their governments for policies that prioritise and financially support apparel industry decarbonisation. These include subsidies, tax and duty incentives as well as regulatory frameworks promoting this shift. Separately, fashion brands—supported by manufacturers and NGOs—must actively lobby the EU, the UK and the USA for policies that build more funds for value chain decarbonisation, as part of a just transition. It can include creating a Just Transition Fund to support vulnerable manufacturers in the global South, and generating monies from specific tariffs and levies (such as the luxury tax for decarbonisation).

2. Impose transparency and reporting standards
Compel industry adherence to strict transparency and sustainability reporting standards that cover value chain decarbonisation efforts. Reporting by fashion brands and retailers must indicate the direct and indirect financing schemes made available to value chain partners for decarbonisation, and the resultant emissions reductions. The GHG Protocol and SBTi must also compel additional reporting for Scope 3 emissions reductions, linking them to the specific programmes created and supported.

3. Establish the Fair Climate Fund
Brands and retailers along with their value chain partners must pilot and scale up the Fair Climate Fund, backed by an independent operation and verification agency and built on Fairtrade principles.

4. Increase availability, accessibility and affordability of finance
MSIs and DFIs, large brands, retailers and governments must significantly boost current funding for decarbonisation in countries where manufacturing is located. These schemes should include low interest funding as well as financial support accessible to SMEs,. They must work with organisations to underwrite risks such as currency and business cycle risk.

5. Seize the moment, by commercial banks and private sector lending institutions
Commercial banks have a unique opportunity to show climate leadership by significantly increasing their funding for decarbonisation projects in the apparel manufacturing industry's supply chain. Listed banks in the UK, the US, Europe, Japan, etc., could start by agreeing to develop a framework to allocate a fixed percentage of their lending portfolios to this end, thereby setting a new finance industry standard. We urge commercial banks to seize this moment to become pioneers in promoting a greener, more sustainable world.

6. Change the narrative
The conversation around value chain decarbonisation today places a disproportionate burden on the manufacturer. Unless this shifts to one that focuses on supply chain decarbonisation, the targets set for the apparel sector will not be achieved. All stakeholders must echo this message.

7. Create an environment that facilitates value chain decarbonisation
The prevailing approach to value chain decarbonisation places significant business risk on manufacturers, fostering an environment of extreme caution towards debt, especially with regards to sustainability-related investment. The transactional nature of relationships and business cycle risks are some concerns. Value chain actors must revisit the wider contextual conditions by reevaluating their relationships with their suppliers and jointly finding solutions to mitigate such risks so that decarbonisation investments are viewed in a positive light.

These action points are imperative and must be non-negotiable for a rapid and effective decarbonisation of the apparel industry's value chain. The urgency and gravity of the climate crisis demands immediate and concerted action from all stakeholders.

APPENDIX 1: KEY FINANCING CONCEPTS

Table 1: Decarbonisation funding options, financier types and risk-return considerations. Adapted from Aii & FFG (2021)

TYPE OF FINANCING INSTRUMENT	WHAT IS IT?	FUNDING SOURCE	BENEFICIARIES
Debt instruments like short, medium and long-term loans	Borrowed monies re-payable within a given time frame, usually with interest.	-Domestic/region-al/global financial institutions. -Governments. -DFIs, etc.	Tier 1–4 supply chain actors based in developing markets.
Debt Instruments like bonds or pub-licly and privately traded instruments.	Instead of a bank loan, a company gets capital from investors buying its bonds. Terms can vary significantly.[61] Green bonds are designed to support sustainability or climate-related investments[62] and must be issued in line with Green Bond Principles[63]	-General public, for public issuances of debt venture capital. -Private equity funds and other in-stitutional investors. -DFIs. -High-net-worth investors. -Family offices and private clients.	-Brands and retail companies in Tier-0, based in developed markets. -In limited cases, Tier 1-4 supply chain actors headquartered in developed nations may be able to access these funding sources.
Equity instruments, such as common and preferred shares, in the form of publicly and privately traded instruments (e.g., ownership certifi-cates).	Capital raised by granting investors partial ownership of a company rather than through debt. Investors expect the company's value to increase over time, thereby giving them a return on investment when their shares are sold.		-Branding and retailing companies in Tier-0 based in developed markets can opt for public and private equity issuances. -Going down the supply chain from Tier 1-4, the ability to raise equity via public issues diminishes. However, private placements of equity could be a viable solution.

Grants, donations and concessional finance.	Funds that don't have to be paid back or are payable at reduced interest rates. In other words, concessional capital where the provider has no/low return expectations. Funds largely target capacity building or mitigating the risk profile of high-risk projects to reduce the all-in cost of capital and to attract additional commercial and or development capital.	-Corporates. -DFIs. -Governments. -Philanthropy. -Organisations providing know-how and training on the ground (non-cash contributions).	-Tier 1-4 manufacturers, on condition that they have the capacity/resources to approach/access providers who are typically based in developed countries where brands and retailers operate. -There are instances of recipients being Tier-0 brands/retailers in developed markets who then channel the funds to their supply chain.
Loan guarantees/ underwritings	One entity promises to underwrite or guarantee part of another entity's debt should it be unable to repay. For e.g., a brand/retailer could provide a guarantee for debt assumed by one of its manufacturers. Credit guarantees mitigate the default risk of debt instruments and loan facilities to facilitate debt issuance at lower cost.	-Corporates. -Investment banks -DFIs. -Governments. -Philanthropy.	-Tier 1-4 manufacturers in developing markets (entities facing the greatest difficulty in accessing financing at affordable rates, etc.).
Offtake agreements/value chain loans	A buyer agrees in advance to buy goods that are yet to be produced, thereby helping the producer to obtain financing.[64]	-Trading houses. -Corporates. -Commercial banks	-Tier 1-4 manufacturers in developing countries and their immediate customers.
Blended financing	Broadly defined as the combination of public concessional official development assistance (ODA) funding with private or public resources, generally with the aim of mobilising or leveraging development finance from other actors.	-Development aid agencies and philanthropic organisations. -Commercial lenders including banks, investment funds, private equity funds, etc.	-Tier 1-4 manufacturers in developing countries and their immediate customers.

APPENDIX 2: COUNTRY RISK PREMIUM AND EQUITY RISK PREMIUM

Adapted from Aswath Damodaran Country Default Spreads and Risk Premiums January 5 2024[65]

Country	Country Risk Premium	Equity Risk Premium	Moody's rating
Large Retail Locations			
Canada	0.00%	4.60%	Aaa
Germany	0.00%	4.60%	Aaa
Singapore	0.00%	4.60%	Aaa
Switzerland	0.00%	4.60%	Aaa
United States	0.00%	4.60%	Aaa
France	0.72%	5.32%	Aa2
Belgium	0.88%	5.48%	Aa3
Hong Kong	0.88%	5.48%	Aa3
United Kingdom	0.88%	5.48%	Aa3
China	1.03%	5.63%	A1
Japan	1.03%	5.63%	A1
Large Manufacturing Locations			
Portugal	1.75%	6.35%	A3
Spain	2.34%	6.94%	Baa1
Thailand	2.34%	6.94%	Baa1
Indonesia	2.78%	7.38%	Baa2

Mexico	2.78%	7.38%	Baa2
India	3.21%	7.81%	Baa3
Italy	3.21%	7.81%	Baa3
Brazil	4.40%	9.00%	Ba2
Vietnam	4.40%	9.00%	Ba2
Bangladesh	6.58%	11.18%	B1
Cambodia	8.04%	12.64%	B2
Kenya	9.51%	14.11%	B3
Turkey	9.51%	14.11%	B3
Egypt	10.97%	15.57%	Caa1
Maldives	10.97%	15.57%	Caa1
Ethiopia	13.17%	17.77%	Caa2
Laos	14.63%	19.23%	Caa3
Pakistan	14.63%	19.23%	Caa3
Sri Lanka	17.55%	22.15%	Ca

Non Investment Grade

ENDNOTES

1. Note: The Asia Garment Hub is a regional knowledge platform initiated by the International Labour Organisation (ILO) and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). On the Asia Garment Hub high-quality resources from leading industry organisations and respected voices as well as a collaborative online community can be found, bringing together manufacturers/producers, suppliers, brands, worker and employer organisations, governments, civil society, and multi-stakeholder initiatives.

2. Figures vary based on methodology:

- 2% comes from "Roadmap to Net Zero Delivering Science-Based Targets in the Apparel Sector Preliminary Draft for Stakeholder Feedback." (Published 2020 by World Resources Institute and Apparel Impact Institute) https://mcusercontent.com/02d7a943deeb-0be5c375f4552/files/ce1eb77e-f71f-4ecb-8634-3c71afdd64dd/Roadmap_to_Net_Zero_Preliminary_Draft_Final_Sept_2020.pdf
- 4% comes from "Fashion on Climate: How the Fashion Industry can Urgenty Act to Reduce Its Greenhouse Gas Emissions." (Published 2020 by McKinsey & Company and Global Fashion Agenda) www.mckinsey.com/~/media/mckinsey/industries/retail/our%20insights/fashion%20on%20climate/fashion-on-climate-full-report.pdf
- 8% comes from "Measuring Fashion: Environmental Impact of the Global Apparel and Footwear Industries Study." (Published 2018 by Quantis) https://quantis.com/wp-content/uploads/2018/03/measuringfashion_globalimpactstudy_full-report_quantis_cwf_2018a.pdf

3. According to "Textiles and the environment in a circular economy" (Published November 2019 by the European Environment Agency and the European Topic Centre on Waste and Materials in a Green Economy) https://ecodesign-centres.org/wp-content/uploads/2020/03/ETC_report_textiles-and-the-enviroment-in-a-circular-economy.pdf

4. According to the SBTi dashboard, there are 465 Textiles, Apparel, Footwear and Luxury Goods taking action, 233 of which have approved targets. https://sciencebasedtargets.org/companies-taking-action#dashboard, (Accessed February 2024).

5. Emissions figures vary based on methodology. "Roadmap to Net Zero: Delivering Science-Based Target in the Apparel Sectors" excludes consumer-use phase. (Published November 2021 by the World Resources Institute and the Apparel Impact Institute) https://apparelimpact.org/wp-content/uploads/2022/02/roadmap-net-zero-delivering-science-based-targets-apparel-sector.pdf

6. According to "Towards a Collective Approach: Rethinking Fashion's Doomed Climate Strategy" (Published November 2023 by the Transformers Foundation) https://www.transformersfoundation.org/annual-report-2023

7. Note: Brands and retailers are not monolithic. Some brands have their own retail operations while others may use third party retailers or operate in hybrid mode. Many larger retailers rely on brands to supply them with goods. There are also agents, who source finished garments from Tier-1 manufacturers and supply to brands/retailers. Tier-1 manufacturers may work with separate washing/dyeing/embroidery plants. Material production can include facilities that make the fabric and separate facilities that dye and finish the same.

8. According to "Roadmap to Net Zero: Delivering Science-Based Target in the Apparel Sectors" excludes consumer-use phase. (Published November 2021 by the World Resources Institute and the Apparel Impact Institute) https://apparelimpact.org/wp-content/uploads/2022/02/roadmap-net-zero-delivering-science-based-targets-apparel-sector.pdf

9. According to "The environmental price of fast fashion" (Published April 2020 by K. Niinimaki, G. Peters, H. Dahlbo, P. Perry, T. Rissanen, A. Gwilt) https://doi.org/10.1038/s43017-020-0039-9

10. According to Greenhouse Gas Protocol "Corporate Value Chain (Scope 3) Accounting and Reporting Standard" (Published by World Resource Institute and World Business Council for Sustainable Development) https://ghgprotocol.org/sites/default/files/ghgp/standards_supporting/Diagram%20of%20scopes%20and%20emissions%20across%20the%20value%20chain.pdf

11. Emissions figures vary based on methodology. "Roadmap to Net Zero: Delivering Science-Based Target in the Apparel Sectors" excludes consumer-use phase. (Published November 2021 by the World Resources Institute and the Apparel Impact Institute) https://apparelimpact.org/wp-content/uploads/2022/02/roadmap-net-zero-delivering-science-based-targets-apparel-sector.pdf

12. Note: "Roadmap to Net Zero: Delivering Science-Based Target in the Apparel Sectors" excludes consumer-use phase. (Published November 2021 by the World Resources Institute and the Apparel Impact Institute)

https://apparelimpact.org/wp-content/uploads/2022/02/roadmap-net-zerodelivering-science-based-targets-apparel-sector.pdf

13. According to " Climate action: collaboration that delivers apparel supply chain decarbonisation" (Podcast published

August 2023 by K. Manda, I. Welsh and T. Webb) https://www.innovationforum.co.uk/articles/climate-action-collaboration-that-delivers-apparel-supply-chain-decarbonisation

14. Note: The Paris Agreement has set multiple goals including emissions reductions to maintain 1.5°C maximum temperature increase from pre-industrial levels (as an aspirational target), building adaptation and climate resilience, enabling finance flows to support decarbonisation. The fashion industry's adoption of it, however, is only for emissions reduction, and does not address other elements including finance flows, adaptation and resilience. Yet, they are important to apparel supply chains and will be a significant financial burden for manufacturers in the future. Some solutions proposed in this paper are targeted at finance flows. The dominant approaches use RCP 2.6, a socio-economic pathway developed by the Intergovernmental Panel on Climate Change (IPCC) aligned with the 1.5°C temperature increase. The global emissions reductions envisaged in RCP 2.6 are now flatly allocated to each company within fashion as a sector and as a geography-agnostic tool which is at odds with the modelling in RCP as well as the International Energy Agency's (IEA) net zero transition pathways. An important principle of the Paris Agreement, common but differentiated responsibility and respective capabilities, is likely the critical missing link in the fashion industry that may need to be addressed to ensure decarbonisation occurs, both as an ethical issue and a matter of practicality. For more information, please see: https://ar5-syr.ipcc.ch/topic_futurechanges.php; https://unfccc.int/news/the-explainer-the-paris-agreement#:~:text=The%20agreement%20adheres%20to%20the,on%20their%20differing%20national%20circumstances

15. According to "Towards a Collective Approach: Rethinking Fashion's Doomed Climate Strategy" (Published November 2023 by the Transformers Foundation) https://www.transformersfoundation.org/annual-report-2023

16. According to "Towards a Collective Approach: Rethinking Fashion's Doomed Climate Strategy" (Published November 2023 by the Transformers Foundation) https://www.transformersfoundation.org/annual-report-2023

17. According to "Apparel and Footwear Sector Science-Based Targets Guidance", (Published 2022 and developed by World Resources Institute on behalf of the Science Based Targets Initiative) https://sciencebasedtargets.org/resources/legacy/2019/06/SBT_App_Guide_final_0718.pdf

18. More information about renewable energy solutions can be found at United Nations Climate Action. https://www.un.org/en/climatechange/raising-ambition/renewable-energy

19. According to "Unlocking the Trillion-Dollar Fashion Decarbonisation Opportunity Report: Existing and Innovative Solutions." (Published by November 2021 by Apparel Impact Institute and Fashion For Good). https://apparelimpact.org/reports/unlocking-the-trillion-dollar-fashiondecarbonisation-opportunity-report

20. According to "Towards a Collective Approach: Rethinking Fashion's Doomed Climate Strategy" (Published November 2023 by the Transformers Foundation) https://www.transformersfoundation.org/annual-report-2023

21. There is extensive literature on the problem of unfair purchasing practices in the apparel sector. Here are some example publications:

- "Squeezing Workers' Rights in Global Supply Chains: Purchasing Practices in the Bangladesh Garment Export Sector in Comparative Perspective." (Published June 2019 by Taylor & Frances Online) https://www.tandfonline.com/doi/abs/10.1080/09692290.2019.1625426
- "Paying for a Bus Ticket and Expecting to Fly: How Apparel Brand Purchasing Practices Drive Labor Abuses." (Published April 2019 by Human Rights Watch) https://www.hrw.org/report/2019/04/24/paying-bus-ticket-and-expecting-fly/ how-apparel-brand-purchasing-practices-drive

22. According to "Following the Thread, tracking value and finance through the apparel industry" (Published June 2023 by Planet Tracker) https://planet-tracker.org/wp-content/uploads/2023/06/Following-The-Thread.pdf

23. According to "Following the Thread, tracking value and finance through the apparel industry" (Published June 2023 by Planet Tracker) https://planet-tracker.org/wp-content/uploads/2023/06/Following-The-Thread.pdf

24. According to "Following the Thread, tracking value and finance through the apparel industry" (Published June 2023 by Planet Tracker)

https://planet-tracker.org/wp-content/uploads/2023/06/Following-The-Thread.pdf

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26. For more information, please see https://globalsolaratlas.info/map.

27. According to "Towards a Rooftop Solar Transition in Bangladesh" (Published December 2023 by the Institute for Energy Economics and Financial Analysis) https://ieefa.org/sites/default/files/2023-12/Towards%20a%20rooftop%20solar%20transition%20in%20Bangladesh_Dec23.pdf

28. According to "VAT exemption removal sparks fears of increased power and energy costs" (Published November 2023 by the Daily Mirror Online). https://www.dailymirror.lk/breaking-news/VAT-exemption-removal-sparks-fears-of-increased-power-and-energy-costs/108-271295

29. According to "COVID-19 debunks the myth of socially sustainable supply chain: A case of the clothing industry in South Asian countries" (Published October 2020 by A. Majumdar, M. Shaw, S. K. Sinha) https://doi.org/10.1016/j.spc.2020.07.001 and "Risk Management: Rethinking Fashion

Supply Chain Management for Multinational Corporations in Light of the COVID-19 Outbreak" (Published August 2020 by M. McMaster, C. Nettleton, C. Tom, B. Xu, C. Cao, P. Qiao) https://doi.org/10.3390/jrfm13080173

30. These figures depend on how one classifies a "developing" country, see page 62 of "Unlocking the Trillion-Dollar Fashion Decarbonisation Opportunity Report: Existing and Innovative Solutions." (Published by November 2021 by Apparel Impact Institute and Fashion For Good) https://apparelimpact.org/reports/unlocking-the-trillion-dollar-fashiondecarbonisation-opportunity-report

31. Note: Manufacturer size is categorised on factors such as annual revenue, number of employees, or market share. Tenor of order cycle refers to the length of time remaining before a financial contract that manufacturers receive from their buyers expires. Order cycles also change depending on the forecasted performance of economies. Balance sheet leverage indicates overall financial strength based on the company's ratio of total debt to total equity. A higher leverage typically suggests a higher level of risk for a lender, and vice versa.

32. According to the Fashion Climate Fund data on philanthropic and brand funds https://www.fashionclimatefund.org/

33. According to Apparel Impact Institute announcement of the Climate Solutions Portfolio https://apparelimpact.org/climate-solutions-portfolio/

34. Note: Email exchange with Aii, dated 30 January 2024.

35. According to Apparel Impact Institute's information on Climate Solutions Portfolio software platform: https://www.fashionclimatefund.org/climate-solutions-portfolio

36. "Towards a Collective Approach: Rethinking Fashion's Doomed Climate Strategy." (Published November 2023 by Transformers Foundation) https://www.transformersfoundation.org/annual-report-2023

37. "Towards a Collective Approach: Rethinking Fashion's Doomed Climate Strategy." (Published November 2023 by Transformers Foundation) https://www.transformersfoundation.org/annual-report-2023

38. Note: Email correspondence with H&M Group, dated 23 Jan 2024.

39. According to Good Fashion Fund project information https://goodfashionfund.com/index.php/investment-focus/ and email correspondence with the Good Fashion Fund, dated 23 January 2024.

40. According to Hugoboss Group news release on investing in strategic partnership https://group.hugoboss.com/en/newsroom/news/news-detail/hugo-boss-invests-in-strategic-partnership-with-sustainable-venture-capital-fund-collateral-good-1 and email correspondence with Collateral Good, dated 2 February 2024.

41. According to H&M Group news release on collaborative financing solutions https://hmgroup.com/news/hm-group-drives-the-agenda-on-collaborative-financing-solutions/

42. According to H&M Group news release on collaborative financing solutions https://hmgroup.com/news/hm-group-drives-the-agenda-on-collaborative-financing-solutions/

43. According to Fairtrade model description https://www.fairtrade.net/about/how-fairtrade-works#:~:text=For%20farmers%20and%20workers%2C%20Fairtrade,community%20projects%20of%20their%20choice

44. According to the International Capital Market Association data on sustainable bonds https://www.icmagroup.org/sustainable-finance/sustainable-bonds-database/ Note: From the Landing Page, see Market Analytics tab (all Sustainable bonds and Green Bonds).

45. According to VF Corporation press release on green bond https://www.vfc.com/news/press-release/1752/vf-corporation-allocates-green-bond-net-proceeds-to-advance

46. Accordint to Adidas Group news release on sustainability bond https://www.adidas-group.com/en/media/news-archive/press-releases/2020/adidas-successfully-places-its-first-sustainability-bond/

47. According to London Stock Exchange news release on Burberry https://www.londonstockexchange.com/discover/news-and-insights/burberry-launches-its-inaugural-sustainability-bond-london-stock-exchange

48. According to H&M Group news release on green bond https://hmgroup.com/news/hm-group-issues-inaugural-eur-500-million-green-bond-to-support-financing-of-its-circularity-and-climate-roadmap/

49. According to the World Bank report on global islamic finance development https://www.worldbank.org/en/programs/global-islamic-finance-development-center#1

50. According to Islamic Development Bank report https://www.isdb.org/sites/default/files/media/documents/2024-01/Issue%20155%20English%20%282%29.pdf

51. According to Investopedia terms definition https://www.investopedia.com/terms/s/sukuk.asp#:~:text=A%20sukuk%20is%20a%20sharia,indirect%20interest%2Dbearing%20debt%20obligations.

52. According to the World Bank news release on Egypt green bond issuance https://www.worldbank.org/en/news/feature/2022/03/02/supporting-egypt-s-inaugural-green-bond-issuance

53. According to Etihad Airways news release on sustainability linked suksuk https://www.etihad.com/en/news/etihad-becomes-first-airline-to-issue-sustainability-linked-sukuk

54. According to the United Nations Development Programme blog https://www.undp.org/eurasia/blog/working-islamic-finance-achieve-sdgs-win-win

55. According to Capital Markets Malaysia data on SRI Sukuk https://www.capitalmarketsmalaysia.com/public-sri-sukuk/

56. According to Asian Development Blog on crop insurance https://blogs.adb.org/blog/here-s-how-better-crop-insurance-can-help-asia-s-farmers-survive-climate-change

57. According to Investopedia terms definition https://www.investopedia.com/terms/s/securitize.asp

58. Note: Securitisation can be supported by DFIs and even organisations like European Central Bank (ECB) who has a record of supporting ESG initiatives in developing countries.

59. According to the Intergovernmental Panel on Climate Change report https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_Annex-I.pdf Note: IPCC also states that, just transitions may embody the redressing of past harms and perceived injustices

60. For more information, please see theo European Parliament fact sheet on their Just Transition Fund, https://www.europarl.europa.eu/factsheets/en/sheet/214/just-transition-fund

61. According to Investopedia information https://www.investopedia.com/articles/bonds/08/bond-market-basics.asp#:~:text=A%20bond%20is%20simply%20a,percentage%20of%20the%20face%20value.

62. According to Investopedia terms definition https://www.investopedia.com/terms/g/green-bond.asp

63. According to the International Capital Market Association information on green bond https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/green-bond-principles-gbp/

64. According to Investopedia terms definition https://www.investopedia.com/terms/o/offtake-agreement.asp#:~:text=An%20offtake%20agreement%20is%20an%20agreement%20to%20buy%20or%20sell,for%20producers%20to%20obtain%20financing.

65. According to NYU Stern data pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html