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Fostering Green Finance for Sustainable Development: A Focus on Textile and Leather Small Medium Enterprises in Pakistan

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Abstract: The green financing landscape in Pakistan is evolving, which signifies the need for a comprehensive gap analysis that examines the present status and constraints in supporting green finance in the country. Textile and leather industries are key sectors in Pakistan's economy and rely heavily on small and medium enterprises (SMEs). Excessive resource use and inadequate environmental management methods pose a significant danger to the sectors' long-term viability and account for an extreme relevance to the embracement of the circular economy paradigm. Green finance aims to ensure that economic process, safeguarding the environment, and maintaining environmental integrity all grow together. This research used a literature review and interview-based methodology (in which we interviewed more than 20 people representing SME operators, government officials, and banking staff) to examine SME finance, green banking, and demand and supply side constraints to cleaner/sustainable manufacturing in Pakistan's leather and textile sectors. The research findings show that policy uncertainty and financial short-termism are economic impediments and obstacles that constitute a path-dependent, lock-in, non-linear mechanism. This study found a lack of tailored business advisory and financing for SMEs to learn about and invest in sustainable consumption and production (SCP). Furthermore, many banks in Pakistan also show a strong commitment to the expansion of the State Bank of Pakistan's Green Banking Guidelines (GBGs). The results also highlight the high value of government assistance for businesses participating in green initiatives and incentives for banking institutions and private limited companies to support and invest in green practices.

Keywords: green finance; circular economy; financing constraints; textile and leather; SME

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1. Introduction

More than a century of industrial production across the globe led to environmental degradation and change in climate [1]. Modern manufacturing results in production of waste, such as water, air, and solid waste pollution [2]. Market forces often make it difficult to shift production practices toward those that are less ecologically damaging [3,4]. In the year 2015, at the United Nations Climate Change Conference (UNCCC), 195 countries endorsed the Paris agreement to work jointly to keep the temperature well below 2 °C over pre-industrial stages [5,6]. To accomplish such long-term environmental goals, countries started work to advance green production, green shift [7,8], and the circular economy option [9]. Despite the fact that people had a negative influence on the climate, human perspectives and opinions evolved; people now want to live in peace with the

environment and use environmental sustainability [10,11]. Moreover, financial interests strongly impacted financial organizations in recent years, especially with economic benefits overshadowing assistance to the poor [12,13]. This issue, known as mission drift, alarmed researchers and policymakers alike because it contradicts FIs' underlying social character and mission of long-term economic growth [14,15].

To address the environmental challenges, professionals are shifting their attention to green technology [16] with environmentally friendly and eco-friendly techniques [17], one of which is green finance [18]. In this context, green banking and green finance are described as including "all models of financing or lending that reflect the environmental impact and improve environmental sustainability" [19,20]. Green finance is a method to expand the financial sector's role in protecting the environment by granting money to companies willing to do good things for the environment, called "green growth." Since the first green bank was set up in the US city of Mt. Dora, Florida in 2009, the banking industry is developing green banking strategies to help improve green finance and green growth in the long run [4]. Green finance and banking for developing countries developed as a market-based response to environmental deterioration over time [21,22]. Green banking strategies are utilized in countries including Pakistan, India, Bangladesh, China, Germany, Romania, Poland, and Vietnam to promote a green economy growth [22–24]. Researchers found that financial development is a key factor in determining how far a country's industrial sector will be advanced [25,26].

The approval of the Paris Climate Agreement and the United Nations Sustainable Development goals (UNSDGs) is a significant accomplishment by international organizations and national legislatures, reflecting a renewed dedication to environmental sustainability. In regard to green finance, the Asian Development Bank's (ADB) engagement throughout several programs to promote eco-sustainable development in Asia and the Pacific cannot be disregarded. Among these initiatives is climate change finance, a collaborative effort of the ADB and the Global Environment Facility (GEF). One of the parts is climate protection financing, which is a financing procedure that provides funding for environmental protection in the sector [11]. Setting Asian markets toward an environmentally friendly growth pathway requires a remarkable transformation in investment from greenhouse gas, natural resource-intensive, and fossil fuel activities [27] to more comprehensive resource-saving innovations and business models [28]. Many Asian countries' governments made it a priority in recent years to invest in green product innovation and sustainable financing in order to reduce their reliance on fossil fuels and other environmentally damaging forms of economic growth. The majority of Asia's developing economies have a higher environmental impact than their developed counterparts [11]. One task is to assess the extent of green finance progress in an area from a national viewpoint. Parvadavardini et al. [29] verified the ideas of viability in Indian industry to offset the environmental degradation caused by carbon dioxide absorption. They found that financial institutions may economically use an array of possibilities in the field of environmentally sustainable financing [29]. According to Zheng et al. [30] and Fatema et al. [31], Bangladesh made great developments in recent years in terms of infrastructure projects, green economy, and green financing decisions; but it is still below developed countries. The significant problems limiting growth and the substantial transaction costs associated with green projects in Bangladesh are the key barriers to spreading green financing [30,31]. Japan is very involved in green finance. The Green Finance Network of Japan was established in 2018 as a green available fund group with the objectives of presenting together Japanese green finance actors from the government and private sectors, linking knowledge on various green finance institution initiatives, coordinating meetings and workshops, and linking Japanese and worldwide partners [32]. A combination of the make-up of China's current green financial products, an evaluation of green finance along five criteria, and the use of both expert rating and capital volume across financial sectors were utilized to calculate the index's relative importance [33]. The resilience of eco-friendly economic literacy was assessed from the three perspectives of green financing, green business, and eco-friendly culture. The detailed

level of the resource-efficient promotion of sustainable finance in China was assessed and measured by constructing a detailed assessment method of green finance sustainability [33].

The small and medium enterprises (SMEs) sector is an integral component of each economy [34]. SMEs business greatly improved humans' economic and cultural quality both globally and, more significantly, in emerging and developing markets and countries. SMEs have a large role in employment creation and are the main contributor to a country's gross domestic production, growth, and exports [35]. Indeed, SMEs are active in developing entrepreneurial potential and maintaining grass-roots sustainable industrial growth, strengthening the country's viable and sustainable development [36]. Pakistan is home to 3.3 million SMEs, which together make up more than 90% of the country's total business sector [37,38]. The participation of SMEs in Pakistan's economy and the requirement to promote the growth and fullness of SMEs is broadly acknowledged, incorporating the financial sector. The small and medium enterprises (SMEs) sector is the major source of innovation and entrepreneurial activities; it creates new jobs, contributes to economic development, and serves as the fundamental business basis for large firms. Many countries' financial institutions are taking initiative to help SMEs achieve their full potential by developing green SME-specific goods, improving their risk and financial reporting standards, and developing unique lending practices [39]. Therefore, Pakistan connects significant importance to the development of green finance. In 2017, State Banks of Pakistan (SBP) announced Green Banking Guidelines (GBGs) as the starting step in a series of initiatives for beginning a sustainable banking sector environment [4,39]. The guidelines enable banking institutions to support policy ideas in transitioning to a climate-resilient and low-carbon economy. The core challenges facing investment in energy efficiency and environmental management by SMEs within Pakistan's textile, paper, pulp, cement, steel, agriculture, and leather sectors are common to other socio-political and economic contexts and sectors globally [1,4,40]. The challenge faced by industrial stakeholders and financial institutions shall be addressed in the development of a targeted green finance mechanism that includes lack of financial sector awareness and tools for environmental-based credit risk assessment within financing procedures, as well as shortage of budget ready and bankable strategies in the area for improved resource efficiency and environmental management. Together, these factors constrain SMEs' capacity to gain entry to green financial services. They are magnified by a lack of aimed policy recommendations to incentivize and regulate green banking [4,22]. Considering these developing trends and obstacles, the goal of this research is to (a) perform a gap analysis and (b) create an overview of feasible paths and related instructions to manage the engagement of various stakeholders in assisting green finance for textile and leather SMEs, primarily by financial institutions.

Most of the literature on green finance in developing countries, such as Pakistan, provided broad summaries of the potential benefits or case studies on how Pakistan's industry players handle green finance aspects [4,24,41]. Yin et al. (2019), Joseph et al. (2020) and Dargo et al. (2022) identified that policies and regulations effectively enhance environmental sustainability [42–44]. However, some researchers focused on how the depth of green finance progress changed between provinces of Pakistan, particularly since businesses have the same effect on all provinces [4,22,45]. As far as the author's knowledge, no research was conducted on the variables influencing the sustainability in SMEs, banks, and green finance policy effectiveness. Moreover, Pakistan is not as far along in the green finance development as compared to other countries, such as China, Turkey, Bangladesh, Europe, or North America. More information describing Pakistan's present status of green finance development, focused on particular industries, can help to better understand the gaps, changes in products, and spatial patterns of its green finance policy development. How could green finance be better in coming years? What is preventing green finance from development in Pakistan? What is the direction of change? Why are the gaps and trends occurring? What are the barriers for SMEs to get green finance and the challenges of financial institutions in allocation of green finance for SMEs? To address such goals and to offer a strategic foundation for improving the growth of green financing, both a systematic

literature technique and interview-based method were employed, focusing particularly on SMEs in the textile and leather sectors. The results obtained can provide insights for defining mechanisms to promote financing for green investments by SMEs within Pakistan's textile and leather manufacturers and for other sectors as well. This study contrasts with the previous literature in at least three important ways. The perspectives of bankers and SMEs towards the various characteristics of green financing (social, financial, and environmental sustainability) were applied in this research. Second, the assessment also considered the opinions of bankers and SMEs regarding the most important green finance initiatives, such as renewable energy, waste to energy, industrial safety and security, clean energy, wastewater treatment, reuse, recycling, green brick production, and green tourism. Thirdly, this paper outlines the most significant barriers and opportunities associated with adopting green financing in Pakistan.

2. Methodology

The literature review and interview-based method, with particular attention to the flows of SMEs financing, status of green banking and demand, and supply side barriers to investment in cleaner/sustainable production in Pakistan's leather and textile sectors, were employed in this work. The combination of these methods were meant to structure a comprehensive gap analysis, which would serve as the main study output and examine the current scenario and challenges in facilitating green financing for SMEs in Pakistan's textile and leather industries. Literature review is a helpful tool for analyzing development in a research topic and determining the need for more investigations [46–48]. It was employed in several examples of prior research [49,50]. Some keywords were used for literature review (Section 2.1) to constrain the findings to ensure the search's accuracy; country names were added for this reason. Quantitative study approaches reflect the complexities of real-life events and activities, causal linkages and trade-offs, as well as sustainability qualities [51]. Figure 1 shows a methodology flow diagram for this study.

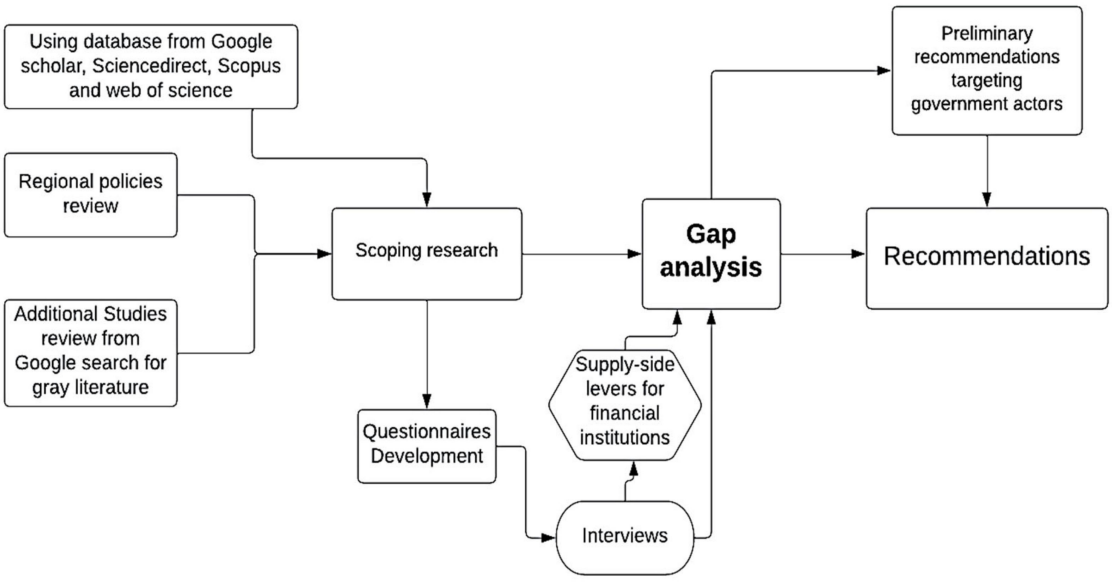

Figure 1. Methodology flow diagram.

2.1. Systematic Literature Search Strategy

First, a literature review of the available research papers, articles, policies, reports, and web-based material through sources (such as Science Direct, Google Scholar, banking websites, NGOs websites, the Environmental Protection Agency EPA website, and industrial associations websites) were conducted, employing the preferred reporting items for systematic reviews and meta-analysis (PRISMA) method [52]. A comprehensive review of literature was conducted following the research strategy in Figure 2 [53–55]. This literature

review was carried out with appropriate consideration to flows of SMEs financing, the situation of green banking, and demand and supply side barriers to SMEs investment in cleaner and sustainable production in Pakistan's leather and textile sectors. They keywords used for this research literature search were "Green finance", "Green banking", "Green baking in Pakistan", "Green banking guidelines", "Sustainable finance", "Green bonds", Green loans in Pakistan", "SMEs loan", "Financial institutions", "Banking sector", "Green credit", "Green climate fund", "Green finance barrier", "Green products" "Green policy", "green investment" "Sustainable production", "Environmental issue in textile industries", and "Environmental issue in textile and leather industries". This process of searching articles or relevant documents is known as identification in PRISMA. In the second and third step we screen (include or exclude) and check the eligibility (check whether it matches with the research question or objective). The outcome of these studies was 130 articles in academic data search and 45 in gray data search. The articles were filtered by relevance with the study question and the objectives [56–58].

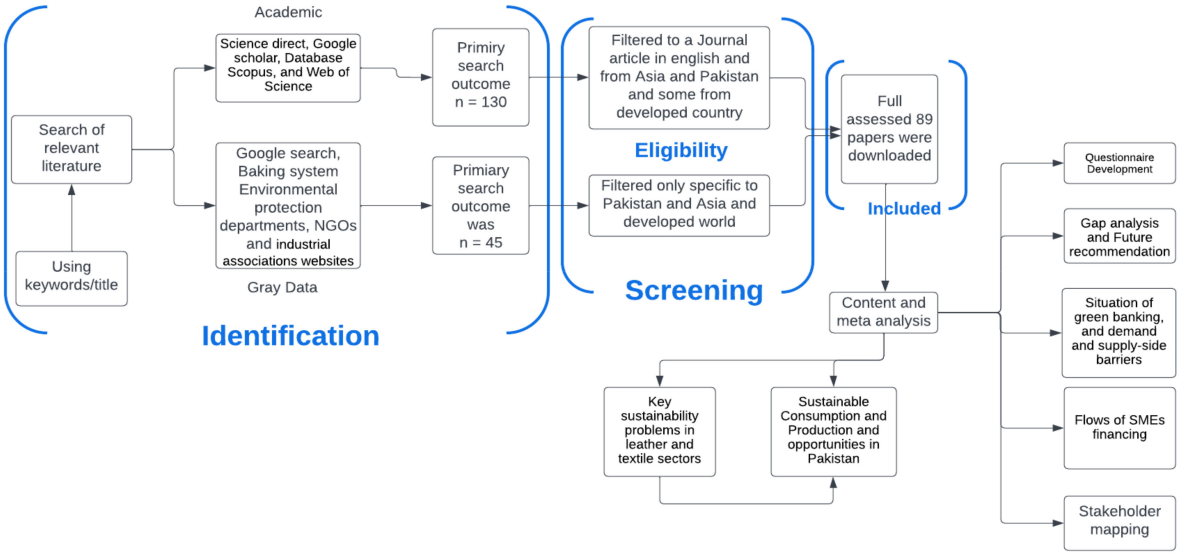

Figure 2. Flowchart illustrating the methodology followed for the literature review using the PRISMA method [54,55].

Subsequently, the limitation was set to the language English, region, source, document types, and year (2005–2019). The identified datasets were used in recent scoping assessments of a similar nature [56,59]. The selected 89 documents (last step of PRISMA) were used for brief readings on the title, summary/abstract, background/introduction, methods, results, discussion, conclusion, and recommendation. Moreover, local, and global best practice models of green finance and green credit guideline development were referenced. The preparation of the interview protocol was an essential phase of the process of conducting a qualitative study [60–62], and the guide was made based on a review of the literature and national and international interview guide related to the green finance interview. The protocol was structured in three sections. File S1 provides an overview of all interview questions. Qualitative primary data were gathered, using in-depth semi-structured and structured interviews [63]. Furthermore, we did an analysis of documents downloaded using PRISMA. The content and meta-analysis data were used to extract the key sustainability problem and environmental issues in textile and leather industries (Figure 2). Additionally, documents were used to find the sustainable consumption and production (SCP) opportunities with respect to green finance.

2.2. Interview Protocol Development and Interview Results Analysis

To acquire research objective data, interviewees were selected from the financial sector, government, and intermediaries (File S2). The second technique was used in the selection of

stakeholders. A stakeholder is any person, organization, or institution that will be affected by an economic activity, or anybody who has a direct interest in what the firm does or produces and stands to gain or lose as a result of a change in circumstances [64]. Using this research, the article identifies the key stakeholders for a financial institution to incorporate sustainability issues into its operations, and in the last part, methods and methodologies for the involvement of these stakeholders are offered to expedite the green finance in Pakistan.

The first section of the interview protocol (named "Status of Investing in Sustainability in Leather and Textile Sectors (Green Finance)") was developed to gather the information from the banking representative with the objective of understanding the level of awareness/engagement with GBGs and gauging the degree of GBG implementation, especially in relation to the financing of sustainable production by leather/textile SMEs. The selection was made because of their substantial contribution to direct green financing in Pakistan [22,45]. The second section of interview protocol was divided into three parts (key players, available product offerings, and green financing challenges) with specific objectives. The first goal was to map the relationships between the key players engaged in funding environmentally sustainable production by textile and textile SMEs. This was done by developing initial stakeholder mapping activity, clarifying the number and types of financial institutions (private and public) that provide financial support to (a) SMEs in the textile and leather sectors and (b) for sustainable production (ideally both), and obtaining a better understanding of the types of products offered to the leather/textile SMEs in general and specifically. Additionally, this study pinpoints the primary challenge interviewees face when financing sustainable production by leather and textile SMEs. Sustainable production investments by the leather/textile sectors can broadly include purchasing and storage (resource efficient processes and technologies, replacement/moderation of carbon-intensive processes) [65], process operation (load management, investment in human capital/trainings, and control of process deviations through modernization of facilities) [66], maintenance (tools/technologies for problem diagnosis and acquisition of more reliable equipment) [67], process optimization and control (introduction of automation and control) [68], and equipment and infrastructure (investment in cleaner equipment and resource-efficient systems) [68,69]. These factors can be influenced by key players and intermediaries.

The third and last section of interview protocol was developed to collect information from interviewees on the support and knowledge sharing they require to build processes and products to finance sustainable production by leather/textile SMEs to better align the selection of global/regional best practice examples. After development of the interview guide, we sent letters to key stakeholders. Initially, we contacted all 56 key stakeholders using official letters and emails. We received responses from thirteen financial sectors, five government agencies, and fourteen intermediaries. The interview was conducted with all respondents on Zoom, and it was two hours per interview for each participant. Prior to the interview, the participant was again contacted through letter and time period was allocated. The personal Zoom link was shared to each participant. We used a questionnaire to collect the information (which appears as File S1).

2.3. Stakeholder Mapping

The stakeholder mapping was performed using the stakeholder influence/interest analysis to assist in providing key information and literature review [70]. It can further help to choose the proper communication strategy for every stakeholder group [71]. This method was also recognized as stakeholder power/share pattern, stakeholder influence/interest network, power interest grid, and the influence/interest matrix [72,73]. Key stakeholders were consulted through stakeholder discussions in order to understand the current state of GBGs implementation, the degree to which the financial sector's SME lending portfolios align with green finance key targets, and the future concerns of stakeholders regarding opportunities to facilitate green finance for SMEs in Pakistan. File S2 provides the list and information of key stakeholders. The literature review was used for stakeholder

mapping [70]. Stakeholders were divided into groups of banks, governments, financial institutions, public sector, academia, NGOs and industry and trade associations. Each stakeholder was requested for the interview through email and letter. Some of them agreed to contribute to this study. We used the interview guide to collect information. These discussions were conducted using zoom meetings because of COVID-19 pandemic restrictions throughout the companies and countries.

2.4. Gaps Analysis

Analyzing the difference between an entity's ultimate goal and the total of its projections [74] and planned initiatives is called a gap analysis [75]. After the interview is finished, the procedure is drafted, and the facts are recorded, the study must analyze the data using the proper research framework [76]. The outcomes of interviews and literature review were interpreted into a comprehensive gap analysis as the core study output. The gap analysis was mapped on a dimension of three ecosystems, such as financial institution, government, and SMEs looking at the current status and challenges of facilitating green financing [4,22,77] for SMEs in the textile and leather sectors in Pakistan. The lack of study in this field of emerging technologies and trends is shown by the gaps analysis in required fields [74]. Finally, a repository of preliminary recommendations targeting government actors, intermediaries, and financers is compiled based on the gap analysis with reference to best practices [26,78], using examples in green financing from the region and globally.

3. Results

In this section, the results from the literature review and interview-based method are reported. The literature review enabled us to acquire the background information [79] of green finance, sustainability issues and opportunities, current situation [80], barriers, opportunities in green finance, sustainability, and green innovation in SMEs. In addition, it helped in the analysis of the context and in the design of the interview protocol (Section 3.1). The interview-based method is a qualitative research employed to gather additional information from practitioners [80] (results are shown in Section 3.2). The interviews were conducted to confirm [81] the post green finance reconstruction of gaps in green finance and transportation to market found by the literature and then to obtain respondents' thoughts regarding all selected barriers utilizing an interview guide. Furthermore, on the basis of these methods, first, key sustainability problems in leather and the textile sector of Pakistan are confirmed, and then the SCP and opportunities in Pakistan are highlighted. Then, the ecosystem map of green financing for leather/textile SMEs in Pakistan are explored. Furthermore, Section 3.3 briefly reports the results of the gap analysis concerning green finance for SMEs in textile and leather sectors.

3.1. The Current State of Smes, Environmental Challenges, and Green Finance

3.1.1. Textile and Leather SME Landscape in Pakistan

The creation of clothing accounts for ten percent of human carbon dioxide (CO_2) pollution contaminates streams and rivers and depletes freshwater resources. As the fashion industry flourishes, an increasing number of environmental consequences are becoming apparent [82]. In Pakistan, textile and leather enterprises are the largest sources of export production, employment generation, and international trade [38,83]. Pakistan is one of the major cotton producers globally, and textiles account for the majority of Pakistan's exports, especially in the form of cotton fiber along with clothing and sporting items with added value. There are more than 1500 textile companies and 850 leather processing companies in Punjab and Sindh alone, accounting for an estimated 80% of enterprises in Pakistan's textile and leather sectors [84]. Exports from the textile and leather industries reached USD 7,657,042 in 2019, up 3.7% from the past year. In the period from July 2018 to January 2020, the textile industry accounted for around 57.4% of all export revenue. [85].

3.1.2. Key Sustainability Problems in Leather and Textile Sectors

Industries in Asia are considered the backbone of the countries' economy. Environmental degradation due to various production activities by industrial sectors is one of the important issues facing developing countries [65]. Moreover, the textile and leather sectors are among the oldest manufacturing sectors in different parts of Asia, such as India, Pakistan, China, and Bangladesh [86–88]. The textile and leather sectors are among the most complex supply chains, but are also the most limited addressed supply chains [65]. Broad stock category, product standardization low profit margin, periodic market inconsistency, short product life period, and environmental matters make the complex textile and leather supply chain system. The textile product supply chain is one of the largest supply chains, as compared to other industrial sectors [88]. Supply chain includes essential value-added capability at each processing step, from cultivation of cotton to ginning, yarn spinning, textile generation, dyeing, finishing, and garment production. However, it uses high levels of energy, water, and chemicals in its process, which results in environmental pollution in several aspects of the material production, material finishing, construction, and distribution stages [89–91].

The leather business of Pakistan is also substantial, performing a pivotal role in financial growth and employment creation, contributing more than 500,000 jobs [92]. The supply chain of the leather industry, beginning from skins/hides to tannery processing, is used for the manufacture of footwear and leather goods, and there is a possibility of backward solid linkages with mainly regionally obtained raw supplies, trainable labor, and its profitable location. This sector uses more chemicals, water, and energy than textile production; production results in environmental pollution in several aspects of the material (animal) production, leather production and finishing, product finishing, and distribution stages [89,93]. Textile and leather processing operations consume high water and water, and they contribute considerably to noise pollution, water pollution, air pollution, carbon emissions, and industrial waste that end up in the environment [65,67]. Furthermore, the processing of these sectors includes the input of different harmful chemicals, causing significant waste and liquid industrial effluent that clogs streams, contaminates soils, and harms human and wildlife safety and health [94].

The research on fashion and environmental stewardship resulted in a variety of ways to solve different social and environmental problems. These include the use of organic materials, modular design, and business strategies that are centered on solutions that enable people to wear their clothes more often [95]. The goal of circular services in the fashion industry is to allow consumers to fulfill their requirements while following the rules of the circular economy. Circular business practices are described in the literature as things such as product service systems (PSSs), collaborative economy, and sharing economy [96,97]. Therefore, large fashion manufacturers have the possibility of establishing and strengthening environmental responsibilities by expediting and implementing systemic changes, such as decreasing seasonal clothes in support of a circular economic model. To confront this sort of shift, businesses will be required to restructure their approach by first recognizing and then seizing the advantages of having systematic approaches and policies that can generate better adaptability at their disposal. This way, companies can introduce the circular premium, which is a singular confined supply chain that can be redesigned as a multi-loop network where reused and recyclable substances are reintroduced as innovative products and services [17,98]. Moreover, provincial compliance with environmental laws, regulations, and standards remains low (though challenging to measure) in Pakistan. [99]. The core ecological impacts over sectors are compiled below in Table 1.

Table 1. Review of environmental impacts.

	Leather Sector	Textile Sector
Water	High use of water by leather industries, contamination/degradation of surface/groundwater resources, and biodiversity from effluents, particularly throughout tanning with high total dissolved solids (TDS) and heavy metals.	High water uses and chemical in the textile industry result in the pollution of water resources, including high total dissolved solids, VOCs, heavy metals, and chemicals.
Land	Damage to the soil from dumpsites, inappropriate disposal/discharge of waste and wastewater plus chemicals applied during pre-treatment, tanning and finishing, and tannery wastewater treatment sludge.	Mishandling of non-hazardous solid waste (e.g., process leftovers from cutting and packaging within ready-made garment units) and hazardous sludge from wastewater treatment with high levels of chemical contamination.
Air	Emissions from energy consumption, particularly boilers (generally gas or wood fired engines, operating through power breaks) plus noxious emissions that are particularly harmful to human health.	Emissions from energy consumption coupled with air pollution from manufacturing processes, e.g., from ovens and boilers, thermic fluid heaters, singeing, stenters, use of solvents, and spillage/wastewater treatment.

Source: [65,100–104].

3.1.3. Sustainable Consumption and Production and opportunities in Pakistan

Sustainable consumption and production (SCP), and circular economy are key needs for sustainable growth [105] and are described by the United Nations as "doing more and better with less" [106]. The economic and environmental sustainability of textile and leather SME is based upon the use of eco-friendly supply sourcing and resource-efficient production. Investing in SCP designs would ensure the financial and environmental sustainability of Pakistan's leather and textile industries. Table 2 offers a comprehensive review of possible SCP investments associated with water stewardship, energy savings, treatment of wastewater, and reduction in use of chemicals in the textile and leather sectors [65].

Table 2. Sustainable consumption and production (SCP) improvements for textile and leather SMEs in Pakistan.

Category	SCP Methods
Purchasing and Storage	• Promote renewable and cheaper sources of energy, water, and materials • Play predictive analysis of the resources price • Limit utilization of emergency sources • Procure less harmful process chemicals
Process Operation	• Identification and adjustment of consuming processes (water, chemicals, energy) • Training of workers at floor level • Load management to limit consumption peaks • Control process deviations • Set-up corrective action plans
Maintenance	• Effectively diagnose the problems • Improve reliability of equipment through reliability-centered maintenance • Set-up preventative action plans
Process Optimization and Process Control	• Introduce environmentally benign processes • Introduce automation and control • Introduce reuse, recycle, and recover (including waste heat recovery) • Introduce pinch technology (cascading heat exchange)
Equipment and Infrastructure	• Invest in cleaner equipment • Invest to improve efficiency of processes, including resource distribution systems

Source: (adapted from the Cleaner Production Institute and National Productivity Organization); [38,83,107,108].

3.2. Interviewees

3.2.1. Overview of Key Players and Activities

The participation of different private and public stakeholders (these relevant stakeholder groups and activities are identified in Figure 3) is necessary to facilitate green finance for SMEs in Pakistan's textile and leather sectors by removing the access to the financial challenges mentioned in previous sections. Therefore, public and private sector actors in Pakistan need to make commitments in order to:

1. Develop policies and implementation instruments for SME growth and finance, as well as sector specific legislation, to create an environment where SMEs may easily obtain the necessary assistance and resources;
2. Build the capacity of SMEs to receive available financing through (finance-focused) business development assistance, SCP technical support, and certifications;
3. Deliver tailored financing to SMEs for investment in SCP and management.

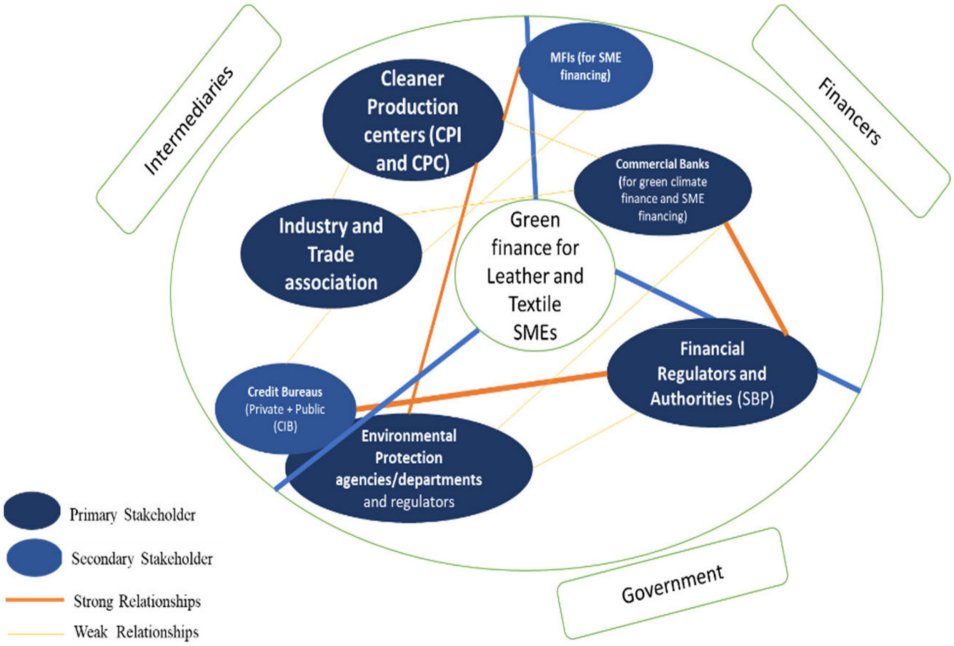

Figure 3. Ecosystem map of green financing for leather/textile SMEs in Pakistan.

3.2.2. Government

Financial Authorities and Regulators

The SBP plays a central role in regulating all Pakistan's registered banks and development finance institutions (DFIs). The SBP was responsible for publishing the GBGs in 2017, which all banks in Pakistan were anticipated to execute by the SBP in early 2018. Assuming the non-mandatory status of the GBGs, the principal role of the SBP in green financing needs management of green banking improvement in Pakistan and the supply of continuous help to banks in green banking activities. The SBP endorses the idea of banks undertaking green banking activities that match their portfolio and core competencies, such as focusing on the expansion of renewable energy financing strongly supported by the government of Pakistan through the provision of subsidies and financing schemes and/or national impact on the environment reduction, depending on what is most likely to be implemented immediately. The SBP is now monitoring the implementation of GBGs by banks in Pakistan, having enquired about the progress of green banking initiatives with banks. According to the SBP, the lack of a defined concept of "green" investments or financing is partially responsible for the fact that SBP is yet to begin consolidating data on the scope of green project financing across banks.

In terms of SME financing, government schemes driven by the state-owned SBP helped SMEs develop credit reports and collateral; formulated a demonstration effect for other financial institutions while also paying for technical assistance for selected financial institutions to expand SME lending and build a proof of profitability and competition in the sector; and started a definition for SMEs and standard reporting requirements on finance. The Securities and Exchange Commission of Pakistan (SECP), which is part of the Pakistan Ministry of Finance, is the federal agency in charge of regulating financial markets. The SECP is in charge of making Pakistan's voluntary corporate social responsibility (CSR) guidelines, which is taken up by different commercial banks. However, they do not report to banks' green business facilitation.

Environmental Protection Regulators

The Environmental Protection Agency (EPA) of Pakistan is involved in environmental control, such as the enforcement of industry-specific standards for environmental assessments and adherence to environmental regulations. After the 18th amendment [109] to Pakistan's constitution, the Provincial Environmental Protection Act and Strategies assigned provincial EPAs/EPDs the responsibility of establishing and enforcing environmental policy within their respective domains. In terms of provincial governments, the government of Punjab, for instance, announced its plan to motivate the private sector to invest in sustainable development with the assistance of a World Bank loan for the Green Punjab Development Programme, which encompasses multiple sectors and provides matching grants to SMEs. Banks are required to conduct due diligence to verify that their clients comply with environmental policies and completed any required environmental impact assessments (EIAs) for their proposed projects, even though the responsibility for environmental compliance rests with the borrowers and not with the financiers [110].

The Ministry of Climate Change is a federal entity in charge of managing policies, laws, and legislation related to Pakistan's climate action initiatives, in accordance with the country's nationally determined contributions (NDCs) stemming from Paris Agreement commitments. JS Bank is the first and only commercial bank in Pakistan with GCF access accreditation. These are key government controllers for market, enterprises, and the banking industry. These are directly linked with all other ecosystem players. Government agencies in Pakistan also worked on some of the key policy and regulatory framework initiatives influencing the textile/leather sectors and green financing in Pakistan (attached in File S2).

3.2.3. Financers

Commercial Banks

Currently, most banks are in the early stages of the implementation of GBG, as indicated in interviews by key stakeholders. The areas where the most progress is made include forming internal sustainability measures, such as implementing energy efficiency and renewable energy ventures, and reducing paper usage at all national bank branches. In discussions with the SBP, we found that the large majority of publicly regulated scheduled banks established environmental risk management procedures, initiated environmental due diligence, and are synchronizing lending policies. Numerous financial institutions' green finance strategies are in the final stages of approval by their board of directors. Additionally, most financial institutions now offer "green banking" branches. A senior officer was designated as the Green Banking Manager, and another specialist with an understanding of green banking were recruited from outside the sector. The government of Pakistan is a strong supporter of green business facilitation, and SMEs have a great need for it due to their poor power generating capacity and increasing energy constraints during the past fifteen years.

The SBP provided assistance (training) to some of the banks studied, including Faysal Bank and JS Bank, so that they could conduct the GBGs. The requirements of banks for support in establishing environmental risk mitigation and environmentally friendly business

facilitation were largely ignored in favor of focusing on building rules and frameworks for green financing. NBP said that they are collaborating with industry groups, nonprofit organizations, EPDs, and EPAs at the national level to develop green financing. Since no other commercial bank in Pakistan is granted GCF accreditation, JS Bank receives additional help from the GCF department and the Ministry of Climate Change (as GCF NDA) to further its climate-related projects. In addition, the NBP established an inclusive development group at the beginning of 2020 to examine particular risk areas, such as water conservation and climate change, and determine how the bank can better align its procedures with lending solutions to tackle these difficulties, particularly in the SME sector.

In Pakistan, most SME loans come from private banks, especially private commercial banks [111]. According to a World Bank study from 2009, the major SME lenders included:

1. NBP accounted for 8% of total SME financing in the banking sector.
2. Big five banks Habib Bank Limited, Allied Bank Limited, Muslim Commercial Bank (MCB) Limited and United Bank Limited constituted the second-largest share of SME financing.
3. Public sector banks particularly the Bank of Punjab, Bank of Khyber, and First Women's Bank Limited possessed the third largest share.
4. Growing lending by Islamic banks, including Meezan Bank, Dubai Islamic, and Dawood Islamic Bank (incorporated within Al Baraka Bank as Burj Bank in 2011) were the next largest pool of SME lenders.
5. Specialized banks accounted for a relatively low share (2.19%), with SME Bank (supported by Government of Pakistan) as the largest within this.

Interviews with stakeholders reveal that some banks, such as JS Bank, which is the 13th largest bank in Pakistan, found their niches in (a) SME financing and (b) green financing, and are building their roles in those areas. Among the SMEs surveyed, textile SMEs and, to a lesser extent, leather SMEs are at the center of Pakistani banks' SME lending portfolios. Commercial banks have a lot of textile and leather SMEs in their portfolios because these are the largest industries in Pakistan.

Microfinance Institutions

In terms of microfinance institutions [112], the GBGs direct all banks/DFIs within the State Bank of Pakistan's remit, but call on microfinance banks operating at a national level to implement requirements from Section 4 (green business facilitation) and Section 5 (operational realignments for own impact reduction in the GBGs) [113]. The stakeholders interviewed shared only slightingly on the question of the role of microfinance institutions (MFIs) in green financing for SMEs.

3.2.4. Intermediaries

Credit Bureaus

In Pakistan, there are two private credit bureaus and one public, namely the credit investment bureau (CIB). These credit bureaus endeavoured to help the establishment of SME credit histories with somewhat limited success. Credit bureaus cover only 20 to 30% of SME borrowers and a limited number of SMEs with loans for less than PKR 6 million. This is attributed in part to the low levels of general financing offered below the ticket size of PKR 6 million, as well as the fact that bureaus continue to rely on traditional financial data, viewing the usefulness of using alternative data that is more readily available to SMEs, such as telecom and utility company payments [111].

Cleaner Production Centers

Cleaner production (CP) activities in Pakistan were started in 1997. Historically, industries supported through international financing for CP activities. Two major cleaner production centers in Pakistan actively assist SMEs in the textile/leather sectors to improve the environmental impacts of their supply chain, the Cleaner Production Institute (CPI) based in Lahore and Karachi, and the National Cleaner Production Centre (CPC) (leather

only) based in Sialkot. CPI offers services for the environmental management system EMS (ISO14001 certification), environmental audits (EA), environmental action plans (EAP), and wastewater treatment plants (WWTP) to SMEs within the textile/leather sectors, including implementing partners for the WWF-Pakistan ILES project. Additional cleaner production actors across Pakistan are included in File S2. The activities of these actors involve energy and environmental audits to identify CP measures, technical assistance, and raising awareness of cleaner production.

Industry and Trade Associations

In Pakistan, several industry associations serve as significant aggregators of industrial units, especially SMEs. Participants of the All Pakistan Textile Manufacturers Association (APTMA) include around 400 textile factories. The Pakistan Tanners Association (PTA) includes two zonal offices: the PTA Southern Zone (located in the Korangi Industrial area of Karachi and responsible for Sindh and Baluchistan Provinces) and the PTA Northern Zone (in Lahore, representing Punjab Province, NWFP, AJK, and northern areas). The 213 active member tanneries of the PTA are fully engaged in leather production [65].

In Sindh, in addition to sector-specific organizations, there are several regional/industrial area associations. The Korangi Association of Trade and Industry (KATI) is a representing association for about 4500 commercial, industrial, and service units in the Korangi Industrial Area of Karachi, as well as a large network of textile/leather SMEs. In addition, the region is home to an effluent treatment plant utilized by various SMEs and funded UNIDO. WWF and IFC collaborate with KATI on CP in the textile sector. The industrial zone in Karachi is also a financial centre, with branches of small and larger banks and insurance institutions.

The Sialkot Tannery Zone (STZ) was established by the Sialkot Chamber of Commerce and Industry. The zone was developed as a public sector project in direct reaction to the environmental damage caused by tanneries and the necessity to achieve economies of scale to solve this problem. The location will house around 240 tanneries organized into 10 clusters; the land is already acquired. Within four to five years, the zone wants to provide tanneries with modern effluent collection and treatment plants and guarantee that they have access to the necessary raw materials. In addition, tanneries will be equipped with infrastructure that reduces their environmental effect, such as a fat extraction plant, a chrome recovery plant, and a shared facilities center. File S2 includes several other industry and trade groups from Pakistan. Many of these players are also significant aggregators of leather/textile SMEs, including the delivery of funding for SCP projects and access to services, such as the SCP capacity building.

3.3. Gap Analysis of Green Finance for SMEs in Textile and Leather Sectors

3.3.1. Barriers to Sustainable Consumption and Production by SMEs

Many factors allow production industries to achieve a competitive success based on service change [114]. Sustainability became an important factor for long-term industry success [115]. Currently, several producers are striving to advance value-added product service systems (PSS) due to rising competition and environmental stress. However, product service system (PSS) development exercises face many difficulties, such as a massive level of customization, confusing conditions in the product usage period, likely conflicts of design characteristics, and the interior complexity of setting methods [116]. Despite the business advantages and environmental imperative for green investments, the textile and leather industries remain dependent on inefficient supply production practices. Barriers to SMEs within the textile and leather sectors reaching SMP were divided into three categories:

- Some SMEs lack the knowledge and the technical competencies and have limited resources and time constraints to identify and implement SCP improvements.
- Some SMEs possess limited capacities to produce bankable feasibility reports and investment plans due to a lack of financial capacity building and skills among SMEs—

exacerbated by the seasonality of production and cash flow with peaks during the Eid festival time.

- Some SMEs have limited access to the finance required to support these SCP investments due to a variety of factors, including the dependency of textile/leather SMEs in Pakistan on personal/family capital and a lack of tailored financing (with appropriate collateral/security and other conditions) for SCP investments.

Consequently, these variables impede the capacity of SMEs in the textile and leather sectors to evaluate, adapt, examine, and assess their modes to control and mitigate their environmental impacts. The next portion of the study will explain more on the specificities of these intersecting problems facing SMEs, while also looking at barriers experienced by financial institutions in enabling green finance for SMEs in Pakistan.

3.3.2. Available Product Offerings of Green Finance for SMEs

According to bank representatives, the banking industry in Pakistan plays a key role in providing loans to SMEs in the textile and leather industries. SME lending only accounts for 16% of overall loan volume and 4% of clients, despite the significant importance of SMEs in these areas and more generally to Pakistan's economy. When contrasted to regional trends in South Asia, where 12.7% of SMEs on average receive loans for investment and 13.9% allocate loans to costs compared with 34.5% in the West, the percentage of SME loans used for investment purposes remains low at 3.6% [111]. According to a IFC study from 2016, only 7% of SMEs are recipients of bank lending in the country [38]. Following regional trends, SME lending in Pakistan is primarily centered on financing working capital (71% of SME lending), trade financing, and long-term/fixed investment [117]. In part, discussions with SME intermediaries (trade and industry associations and cleaner production centers) indicate that SMEs in Pakistan's textile and leather industries would not see loans as a good deal. Most of the investments in these SMEs come from private funds. Most businesses in these sectors are operated by families, so most capital is raised from members of the family first. Only a small number of enterprises go to banks. A Cleaner Production Institute (CPI) representative indicates that only half of SMEs in the textile and leather industries would be interested in loans from commercial banks. Even though some SMEs are reluctant to get loans, the market size of textile and leather SMEs acquiring SCP capacity building and intending to invest in sustainability practices is large and growing. The Cleaner Production Institute estimates that USD 1 to 1.5 billion is required to replace and maintain inefficient or environmentally unsustainable machinery and upgrade processes across the range of cleaner production, sustainable production, and energy efficiency measures in the textile and leather sectors of Pakistan. In view of evidence previously presented in projected payback periods for certain sustainable investments in the textile and leather sectors, there is a significant opportunity for banks to build their portfolios of green financing for SMEs profitably.

3.3.3. Green Finance

Environmental Risk Management

According to a survey of banks' adoption of the GBGs, most banks began implementing environmental risk management policies and procedures in accordance with the principles. Almost all big national commercial banks built environmental risk management systems and began undertaking environmental due diligence while maintaining appropriate lending policies. Furthermore, before the GBGs, several banks were already collecting data on their lending portfolios' compliance with Pakistan EPA requirements. One commercial bank, stated that 100% of their project-financing portfolio fulfills compliance with environmental and social risk ratings in accordance with IFC guidelines and risk classifications; similarly, the national bank's financed projects received EPA approval in their respective areas [85].

Despite this, there is a wide range of how carefully environmental hazard assessments are taken and how they relate to standard credit risk models used to determine how much to

charge for loans. A regulatory bank emphasized that borrowers are ultimately responsible for compliance with environmental standards, since "[banks] can only encourage their clients to ensure compliance with applicable environmental legislation". Many banks now use environmental risk scorecards or checklists as part of their project approval procedures. Stakeholders highlighted that the financial sector has a lack of coordination when it comes to risk profiling, with significant diversity between institutions' policies and procedures. By incorporating an environmental risk rating model (or portions thereof) into the credit risk rating scorecard used to determine loan rates, one of the commercial banks is expected to balance its core risk management with an awareness of environmental impacts. This pledge reveals that banks are serious about integrating environmental and financial risk management [85].

Green Business Facilitation

In order to support and help with the creation and transition to green technologies, the government of Pakistan recently developed a green technology initiative. The Paris Agreement and the UN's 2030 agenda are being implemented and adhered to through this investment plan. This initiative was created by the Ministries of Planning and Development and Science and Technology to help the country's economic transition to new technologies. Green financial institutions are in charge of directly investing in green technologies with the exclusive purpose of offering a green solution to clients making the shift to green products and providing help for this transition [16]. In terms of product development (part two of the GBGs' objectives), banks surveyed tend to show interest in and be moving towards developing products, particularly within their existing competency areas. Banks, including national and commercial banks in Pakistan, are active with financing for renewable energy and energy efficiency, mainly through government-supported refinancing schemes. Despite this, the degree of implementation of environmental risk assessments and the relation of these assessments to traditional credit risk models used to assess and price financing for borrowers varies. Still, the onus for compliance with environmental regulations lies with the borrower, where "banks can only encourage their clients to comply with environmental laws", according to a bank representative. There are examples of banks that developed environmental risk scorecards or environmental checklists within project approval processes. Stakeholders indicated, however, a general lack of coordination within the financial sector around risk profiling, with great variation among banks in practices and policies. One of the commercial banks indicated their objective to integrate an environmental risk rating model (or parts thereof) into their credit risk rating scorecard that is used to determine pricing for loans, thereby aligning the bank's core risk management with consideration of environmental impacts. This commitment is promising and indicates that momentum might be building to further align environmental and financial considerations within banks' risk management.

However, stakeholders noted a lack of monitoring and verification of energy-related project implementation within energy efficiency and renewable energy financing. This is partly attributed to the lack of precise and coordinated regulation and legal frameworks across levels of government. In addition, interviews indicated that banks are motivated to develop new products for textile/leather SMEs beyond renewable energy and energy efficiency financing but do not always have a clear sense of how to get started. For this reason, some banks are working with consultants to develop green financing solutions. Bank financing for SCP activities by SMEs is difficult to estimate due to the lack of clear definitions at the national level and within banks of "green" investments. Some banks indicated that they are already financing some investments within their current SME lending portfolios that could be considered "green." However, without a comprehensive analysis of the alignment of banks' lending portfolios with green objectives, the extent of the overlap of current product offerings with green financing is largely unknown.

Barriers in Facilitating Green Finance for (Textile and Leather) SMEs

Based on the SME financing interview results, we found eight barriers in facilitating SMEs with green finance. These barriers exist with both financial institutions (supply side barrier) and SMEs (demand-side barrier). The challenge and barrier that all stakeholders affirmed needs more immediate focus was human capital and skills. Banks without internal structures and grounds to finance cleaner production by leather/textile SMEs, and a lack of clear definitions and understanding of "green finance" and "green/sustainable finances." SMEs were struggling with poor financial knowledge and awareness of green finance/SCP opportunities and limited skills or expertise with accounting, budgeting, planning capacity, and poor entrepreneurial mindsets. A major bank representative stated that the big challenge we currently oversee with the provision of green finance for cleaner production is risk/return profiles. They conducted many internal discussions indicating that SMEs are at higher risk with lower returns for early stage enterprises due to internal and market constraints. Some of the banks experienced the SMEs' lack of willingness to pay back management for SCP improvements, with SCP investments seen as added costs rather than valuable investments. Bankers found the unwillingness of SMEs to approach banks for financing due to gaps in Islamic banking solutions and the desire to avoid increased liabilities. On the other end, some SMEs stated that their money through green finance has a higher interest rate. They emphasise that SBP should work on launching some soft rate financing to SMEs.

4. Discussion

Through the ecosystem model, we can see all the stakeholders are interlinked [6]. It shows the need for solid communication; it is the most successful means for disseminating information to all stakeholders in a transparent and accessible manner, and guiding the business in developing mutually respectful, productive, and long-term relationships with its stakeholders [118]. However, in the interviews and workshop, we found the communication and coordination gaps between regulatory authorities. No, any development happens before or after GBGs where all regulatory bodies meet to gather and make a strategy for helping SMEs with green financing schemes. WWF-Pakistan's representative says that they did some small group seminars where they can come to gather and discuss. SMEs in the leather and textile industries, as well as financial institutions, face significant barriers when trying to secure green financing in Pakistan (Table 3).

Table 3. Typology of green financing challenges for leather/textile SMEs in Pakistan.

For Financial Institutions | Supply-Side Barriers		For Leather/Textile SMEs | Demand-Side Barriers
Small ticket size of typical sustainable production financing tends to fall below preferred level for investment funds and lenders. High transaction costs for assessment and due diligence of smaller enterprises. Potential preference for SCP investments in clusters (e.g., for combined water treatment facility) but banks do not have demand from SMEs in clusters.	Ticket Size	Lack of tailored financial products to meet green investment needs of leather/textile SMEs. Lack of solutions to support investments by SME clusters, where SCP investments (e.g., water processing of effluent treatment facilities) not always suited to investment and installation by one SME.
Risk aversion of investors and financers with high return expectations to SMEs, including of foreign investors with lack of common approach to risk profiling. Lower rate of return for low carbon projects.	Risk/Return Profiles	Higher risks with lower returns for early-stage enterprises due to internal/market constraints. Lack of willingness to pay by SME decision makers/management for SCP improvements, with SCP investments seen as added costs rather than valuable investments. Unfavorable interest rates plus small industries must compete with larger ones under same conditions. Reluctance of SMEs to approach banks for financing due to gaps in Islamic banking solutions and desire to avoid increased liabilities.

Table 3. *Cont.*

For Financial Institutions | Supply-Side Barriers		For Leather/Textile SMEs | Demand-Side Barriers
Limited understanding of SCP in terms of technology involved monitoring models and feasibility assessment. Lack of monetary indicators for returns and expected payback periods for SCP/green investments by SMEs.	Green SCP Technologies	Lack of assessment frameworks for green SCP technology and investments, supported by mutually agreed monitoring and verification of streams to validate feasibility. Absence of an aggregation model for technology providers to de-risk financing for and offer SCP technologies to their clients, e.g., via end user financing for textile/leather SMEs.
Short-term orientation of lending and investment cycles hinders investment in systemic process improvements.	Time Horizon	Longer/unclear time horizon for green SP investments to capitalise.
Perception by banks as risky credit with difficult credit assessment and appraisal. Lack of financial documentation among SMEs makes the job of project manager within bank challenging in preforming credit risk assessments.	Security/Collateral	Tend to fail to meet collateral requirements or prove sufficient track record or credit history.
Low levels of green finance success stories and clear repayment trajectories among textile/leather SMEs.	Impact at Scale	Internal and market barriers to assessing and developing green investment plan or technical analysis.
Banks without internal structures and incentives to finance cleaner production by leather/textile SMES. Lack of clear definitions and knowledge of "green finance" and "green/sustainable investments".	Human Capital and Skills	Poor financial literacy and awareness of green finance/SCP opportunities. Limited financial, accounting, and planning expertise, as well as a lack of entrepreneurial concepts.
Lack of mandatory frameworks for green finance for leather/textile SMEs in Pakistan, with regulatory gaps/differences between federal and provincial levels of government (particularly with environmental law and standards). Limited oversight/feedback from regulators, including banks that responded to SBP's questionnaire on GBG implementation.	Regulatory and Legal Frameworks	Lack of market-based incentives/rebates for investment in cleaner production especially challenging for smaller scale SP projects (e.g., disincentive of continual government subsidies for fossil fuels or low effluent charges), complicated by variations in federal versus provincial regulations Immediacy of SCP investment (e.g., in wastewater treatment and management) not yet recognized by private sector. Low levels of compliance with international standards (e.g., leather working group) threatens export-relevance/value of SMEs.

However, private banks, on the other hand, indicated challenges in being first movers in the implementation of green banking activities, such as the commercial bank representative who stated, "[Green Banking] Guidelines are comprehensive but... as one of the only banks to implement these, it is not very simple to apply them." Furthermore, despite great progress made by financial institutions in creating the basis for green financing for (textile and leather) SMEs, intermediaries stated that SMEs did not observe improvements in the funding available to these firms since the GBGs were published in 2017. As a result, there are specific barriers that need to be overcome, as well as opportunities that must be established key players such as government actors, financial institutions, and intermediaries in order to make available and disburse capital for SCP investments in the textile and leather industries. In conclusion, some of the significant gaps in green finance for textile/leather SMEs in Pakistan are as follows:

- Conducive ecosystem: Gaps in coordination among ecosystem actors, particularly government, financial institutions, and intermediaries. Despite promising examples of support provided by regulators, consultants, and intermediaries working directly with banks and SMEs, further coordination among and capacity building support to actors is required to align their activities with the green financing activities, influenced by due diligence pressures throughout supply chains and desires for effective environmental compliance.
- Bankable green investments in the pipeline: SMEs have limited access to specialized business advising and funding for SCP education and investment. Access to specific

finance products and capacity-building assistance to evaluate and invest in SCP initiatives remains a significant barrier for SMEs in the textile/leather sectors.

- Green finance products for textile and leather enterprises: There is not much support for green businesses, and environmental risk management is not a big part of what banks do. Banks typically have a difficult time defining and aligning their internal processes for product development with their green investment goals. This is especially true when these goals have to do with environmental risk assessment and lending decisions that are specific to a sector.

Made-to-measure approaches, as well as the active participation of public and private sector players, are required to overcome these gaps and promote green financing by banking firms for textile/leather SMEs in Pakistan. To build on this momentum, the preliminary recommendations aim to engage actors in multi-stakeholder processes and initiatives to facilitate green financing, including for textile/leather SMEs to invest in SCP. Based on the gaps identified and concerning global and regional best practice examples, a summary of the proposed multi-stakeholder recommendations for government agencies and regulators, financers, and SME intermediaries identified in this study are the following:

- Streamline and strengthen regulatory regime for green financing and environmental compliance. Solutions are required that engage actors (including regulators, financers, and SME intermediaries) to address the key gaps.
- Expand technical assistance to banks for green financing. Despite encouraging examples of support offered by regulatory agencies, consultants, and intermediaries working directly with financial institutions and small and medium enterprises, additional coordination and capacity-building support to actors is needed to align their initiatives with green financing activities, which are influenced by due diligence pressures throughout supply chains and the willingness for efficient environmental compliance.
- Development of environmental risk management within the core business. The majority of banks have difficulty defining and aligning their internal production process with green financial goals, particularly as these objectives are related to industry-specific environmental risk assessment and lending choices.
- Design tailored financial products that enable green investments by SMEs. There is a lack of targeted capacity building and finance for SCP education and investment amongst SME's. Small and medium-sized enterprises (SMEs) in the textile and leather industries struggle to cope with and gain access to customized finance products and capacity-building resources in order to determine and participate in SCP activities.
- Share knowledge and regional best practices among stakeholders.
- As a result of the existing insufficient investment level in the green industry, particularly in the post-COVID-19 era, policy adjustments are needed. The globe after COVID-19 needs to embrace a green financial mechanism by implementing different financial policies and tools. We recommend policymakers to consider strategies that might boost the return rate on funding provided by the FIs.

Support training programs around green financing and SCP for SMEs and financers. Regulators and commercial banks should organize a series of training sessions, workshops, and symposia to raise employees' and customers' understanding of green finance, its sources, and its advantages. This will effectively familiarize them with green financing techniques.

5. Conclusions

To cooperate with societal problems (such as global warming, running out of resources, etc.) that require a transformation to sustainable development, both the national and global levels need to integrate a green agenda that includes GF. For this, each country must communicate openly and for a long time about the opportunities, problems, and preferences of GF for national action. In this context, the current article examined the constraints and opportunities impacting GF by evaluating how they may impede Pakistani SMEs' investment decisions. Green finance and banking gained momentum in recent years.

Our finding shows that the financial institutions in Pakistan show significant development in implementing green financing activities. Many banks in Pakistan show a strong commitment to the expansion of the State Bank of Pakistan's GBGs. Moreover, we also found the major barriers to the effectiveness of green financing in Pakistan. As per the findings, the association of high transaction costs connected with green initiatives and green technologies are the primary impediments to the expansion of green financing in Pakistan. Green initiatives take a different approach from traditional projects, offering uncommon, one-of-a-kind obstacles. SMEs are struggling to obtain finance because financial institutions will not offer loans to them unless they prove reliability. More particularly, experts feel that, easing the financing of green initiatives, GF offers a win-win option that ensures both protection of the environment and long-term benefit (in terms of enterprises' creative performance, greater employment prospects, social inclusion, etc.). Furthermore, our findings suggest that financial progress is connected with a decrease in CO_2 emissions per capita. We found that capital market and banking sector expansion, as well as higher levels of foreign direct investment, contribute to reduced CO_2 per capita emissions. In this regard, it is worth noting that the government may assist markets by developing a strong legislative framework that establishes long-term value for reductions in greenhouse gas emissions and regularly encourages the development of innovative technologies that lead to a less carbon-intensive economy.

Finally, the study was conducted with literature and interviews with employees of government banks, regulators, and private commercial banks, which restricts the findings' generalizability. Efforts should be made to increase the local level of green finance, encourage the development of green finance by a variety of financial institutions, SMEs, and boost the building of green finance facilities in order to produce the agglomeration effect. Therefore, in light of this, we make recommendations for a sustainable SME model for the industrial sector at the sustainable, cleaner production, and socio-technical system levels. It shares theoretical insights into the relationship between the green economy, technological progress, policy implication, and environmental sustainability. Consumer behavior and education integrated into value propositions and sustainable solutions show that the SME sector has to look beyond eco-design to shift to a green economy. Our research on the link between green finance and high-quality economic growth can help find a balance between economic growth and environmental protection. The policy recommendations of this paper will help solve climate change and other environmental challenges that are getting worse and help build a better future for everyone.

This study was limited to textile and leather SMEs. Therefore, the finding of this research could be improved in terms of generalization by examining and including all types of industrial sectors and evaluating other stakeholders. More investigation into the impact of the capital adequacy and environmental performance on the various GF and green funding sources may broaden the study's potential in the future. To assess actual green finance sustainability, it may be necessary to assess the length of time that the green financing operates. To increase study validity, a longitudinal study that considers the impact of seasonality (time series) and has a cross-sectional scope is highly recommended.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/su141911908/s1, File S1: Stakeholder Interview Guide; File S2: Stakeholder Mapping.

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