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## **GREEN FINANCE MARKET DEMAND OF SMALL AND MEDIUM TEXTILE ENTERPRISES IN MONGOLIA**

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*GREEN FINANCE MARKET DEMAND STUDY OF SMALL AND MEDIUM TEXTILE ENTERPRISES IN MONGOLIA*

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*Agronomes et Vétérinaires Sans Frontières (AVSF) is the lead project implementing organisation and coordinator working in collaboration with other project partners including Mongolian Sustainable Finance Association (MSFA), Mongolian Bankers Association (MBA), Mongolian Wool and Cashmere Association (MWCA), National Association of Pasture User Groups (NAPUG), Environment and Security Centre of Mongolia (ESCM) and Collaborating Centre on Sustainable Consumption and Production GGMBH (CSCP, Federal Republic of Germany).*

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*GEREGE PARTNERS LLC.*

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<sup>1</sup> Gerege Partners LLC and our researchers do not have any conflict of interest in conducting current study.

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## CHAPTER 1. EXECUTIVE SUMMARY

Green Finance Market Demand Study of Textile Sector SME's in Mongolia is one of several component studies conducted by the Sustainable Textile Production and Eco Labelling (Step EcoLab) project funded by the European Commission under SWITCH Asia II Programme. The project is implemented by AVSF in partnership with the Mongolian Wool and Cashmere Association (MWCA), Mongolian Sustainable Finance Association (MSFA) and other parties.

### 1.1 STUDY RATIONALE

#### WHY STUDY GREEN FINANCE?

Globally, economic growth has been at the core of development policies for at least the past 150 years which, over the years, resulted in severe pollution of nature and environment, irreversible degradation of wild habitat and ecosystems, depletion of natural resources, emission and climate change. Unplanned, uncontrolled resource depleting manufacturing practices, overproduction and oversupply of products and resulting price wars encouraged mass consumerism, single use, throw away culture and wasteful habits. Besides, social inequality is growing rapidly due to uneven distribution of wealth throughout the world. Therefore, green development model, which advocates prioritization of environmental and social issues alongside economic development/growth has been gaining momentum as most optimal development model in foreseeable future. Countries across the globe are compelled to drastically change their economies, production

sectors as well as individual's behaviours and lifestyles towards greener practices.

One of the crucial pillars of green development is sustainable production and consumption. However, businesses and enterprises are reluctant to adopt green practices in their everyday operation because they think the shift to greener production comes at *additional cost*. Green finance is an effective tool to change this attitude in supporting consumers and producers to perceive this shift as an opportunity rather than expense.

For instance, the UK government introduced a Climate Change Levy for businesses with the aim to increase energy efficiency under the 2008 Climate Change Act. At the inception, it was perceived as extra tax so the businesses were strongly against it. Thus, the UK government created the Carbon Trust with a mission to accelerate the shift to a lower-carbon, more sustainable future. Essentially, it was a soft loan for energy efficiency measures, a successful green financing scheme.<sup>1</sup>

The Green Development Policy of Mongolia, adopted in 2014, refers to Green Finance/Investment as “the financing of and investing in projects and activities which use technology that reduces energy, water and raw material consumption, while keeping the value of ecosystem services”.

Deterioration of environment and climate change have posed risks and uncertainties to financial sector too which in turn creates a need for green finance. Thus, many countries are making efforts to develop green finance, and some of them have achieved notable results. For example, green loan in China grew by 4.3% in the first quarter of 2019, contributing to about 10% of total loans. Globally, at least \$30.7 trillion of funds is held in sustainable or green investments, up 34% from 2016, according to a report by the

<sup>1</sup> Asian Development Bank, "Energy efficiency finance programs: best practices to leverage private green finance" 2018

Global Sustainable Investment Alliance.<sup>2</sup> Overall, these money flows account for one-third of the tracked assets under management, and in some places have reached more than half. Global Green Finance Index measures the penetration and quality of green finance according to which the leading green financial centres are Amsterdam, Luxemburg, Copenhagen, London, Paris, Hamburg and Zurich. In a nutshell, there is an intense shift towards green finance in the global financial market.<sup>3</sup>

Mongolian banking and financial sector leads and guides all other sectors towards sustainability and is acting as the initiator and facilitator in developing and implementing sustainable finance principles nationwide. All retail banks in Mongolia have embraced the sustainable finance codes (all have joined the Mongolian Sustainable Finance Association) and are now offering various green finance and green loan products. For example, the XacBank has established an Eco-bank department and also became an accredited entity of the Green Climate Fund. It introduced a green loan product with the purpose to reduce greenhouse gas emissions thus facilitating the implementation of green finance. In addition, Two-Step Loan project by JICA and Mongolian Sustainable Energy Financing Facility by EBRD are prime examples of green finance projects funded by international organizations that are issuing green loan products for business enterprises through commercial banks in Mongolia.

### WHY STUDY GREEN FINANCE DEMAND OF TEXTILES SMES?

Main factors behind green finance market demand study of textile sector SMEs are outlined next.

<sup>2</sup> Bloomberg, <https://www.bloomberg.com/graphics/2019-green-finance/>

<sup>3</sup> This index is calculated jointly by "Finance Watch" and "Long Finance" with financing from MAVA foundation in 2019 for the 3rd time. [https://www.finance-watch.org/wp-content/uploads/2019/03/GCFI\\_3\\_Full\\_Report.pdf](https://www.finance-watch.org/wp-content/uploads/2019/03/GCFI_3_Full_Report.pdf)

**Renewable, strategic raw material** | Agriculture, especially the livestock sector, is integral to Mongolian economy and society. With livestock outnumbering people over twenty-to-one, pastoralism is one of key economic activities and livestock industry accounts for nearly 90% of agricultural output and employs a third of Mongolians, providing more jobs than any other sector. Export of agricultural products constitutes 10.6% of Mongolia's annual gross domestic product (GDP) and 8.4% of total revenue of export in 2017. The growth of the manufacturing and service sectors are dependent on the production of livestock sector since it provides the main input for the manufacturing industry.

Wool and cashmere are safe, reusable, organic, protein fibres with a unique, "smart" ability to absorb carbon dioxide. These natural fibres are fully biodegradable which means they do not accumulate in the environment but breakdown naturally to harmless compounds. The average life of a wool garment is 2-10 years depending on use, compared to 2-3 years for a typical cotton or synthetic garment. Surveys show that consumers use woollen products longer between washes due to wool's natural ability to keep itself clean or be refreshed by airing, which reduces the energy and water impacts of woollen garments. This inherent resilience along with durability and high quality make wool a valuable, irreplaceable raw material.<sup>4</sup>

Nevertheless, production of ready-made garments from raw wool and cashmere requires use of water, energy, chemicals, manpower and a variety of machinery and equipment; hence the manufacturing, processing, transportation, and sales activities all result in greenhouse gas emissions with high carbon footprint. In addition, issues related to pasture

<sup>4</sup> <https://www.iwto.org/re-use-and-recycling>

overgrazing, soil degradation and desertification related to the preparation of raw fibre also needs addressing.

**National policy to support integrated, value added processing** | Mongolia produces, depending on the data source, anything between 37%<sup>5</sup> to 50%<sup>6</sup> of raw cashmere fibre in the world, second only to China. Most of it, almost 90%, undergoes only primary processing in Mongolia and exported elsewhere while the amount of cashmere fibre processed into final products at national textile factories remains low at around 10%. The textile sector constitutes 2-3% of the manufacturing industry, 11-17% of the processing sector and over 50% of the light industry while the export of textile products accounted for 6-6.5% of total exports between 2014-2018. In particular, export of low value added, scoured cashmere constituted 4% of exports on average in the last five years.

The Mongolian wool and cashmere industry is comprised of around 300 large, medium and small registered enterprises and employs around 10,000 workers of which 85% are women and 60% are young people.

National development policies and strategies such as Mongolian Sustainable Development Vision 2030, Government Action Plan 2016-2020, State Industrial Policy and State Policy on Food and Agriculture emphasize that by supporting the processing industry based on agricultural raw materials, especially the competitiveness and the quality of wool and cashmere manufacturing sector will result in improved export of value added ready-made textile products and have a positive impact on the economy and sustainable economic growth. Accordingly, national programs titled Cashmere (2018-2021) and Industrialization 21:100 (2018-2021) have been approved by the Parliament and are being implemented since 2018. If the textiles sector can be sustainably developed by increasing the level of

integrated, value added processing, potentially, it could have a significant impact on the Mongolian economy.

Sector production output and exports have notably increased and 1570 new jobs have been created since the national program Cashmere was launched in early 2018. Within a year, textiles export increased by 22% and constituted around 6% of total exports. It appears that the textile sector is set to expand within coming years due to Cashmere national program which is planned to run until 2021. One distinctive factor of the textiles sector is that the proportion of SMEs is always high with high economic and social implications.

**Textiles industry is a polluter with high carbon footprint** | The global apparel and textiles industry produces a significant amount of greenhouse gas emissions (GHGs) thereby contributing to global warming. The latest analyses estimate textile sector contribution to be anywhere between 2% and 10% of global GHG emissions. Under business-as-usual scenario, textiles industry could be responsible for 26% of the global carbon budget by 2050. In other words, textile industry's negative impact on the climate will continue to increase substantially. (*Sustainable Fashion Academy, The Swedish Textile Initiative for Climate Action*).

Globally, a shift towards more eco-conscious processing is taking place. It includes such measures as choosing environmentally friendly solutions at each stage of processing and supply chain, implementing progressive technologies with regard to water and energy efficiency, switching to non-hazardous chemical's use and focusing on capacity building, health and safety and social issues of workers.

<sup>5</sup> <https://www.sachsaidar.com/2018/03/01/annual-cashmere-market-report/>

<sup>6</sup> <https://www.mongoltextile.mn/?p=512>

Recent baseline assessment report on Environmental and social impact of the Mongolian cashmere and wool processing sector determined that textile manufacturers have taken considerable measures towards energy efficiency, while water efficiency, use of chemicals and wastewater treatment actions were not sufficient. Hypothetical projections demonstrate that if the percentage of value-added final products increased from 10% (present value) to 50% or 90% in the future, the water demand will increase to 1.7-4.8 million tons per year, electricity demand will increase from 26.7 million kWh to 160-250 million kWh, and increased wastewater volumes would cause significant pressure on the Central wastewater treatment plant. However, it was also projected that if national producers implemented water and energy saving measures and effluent treatment systems at the expansion stage, above consumption values could be reduced by around 20-30% which would reduce negative impact on the environment.

**Consumers choose and demand sustainable products** | As consumers are becoming more eco-aware, market driven demand for sustainable goods is increasing. Eighty five percent of retailers in the EU market reported increased sales of sustainable products over the past five years while 92% of retailers expect sales in sustainable products to increase in the next five years.<sup>7</sup>

Sales of sustainable items in the US market of some products grew faster than total sales<sup>8</sup>, and 47 percent of US consumers are willing to pay more for a sustainable product.<sup>9</sup>

<sup>7</sup>[http://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/EU%20Market%20for%20Sustainable%20Products\\_Report\\_final\\_low\\_res.pdf](http://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/EU%20Market%20for%20Sustainable%20Products_Report_final_low_res.pdf)

<sup>8</sup> <https://www.nielsen.com/wp-content/uploads/sites/3/2019/04/whats-sustainability-got-to-do-with-it.pdf>

**Shortage of finance, especially green finance, not accessible for SMEs** | Textile companies are willing to shift to environmentally friendly, sustainable, progressive processing practices and manufacture high quality, competitive products for export. However, they encounter multiple barriers in finding and securing sufficient, tailored financing and investment. In the past five years the processing sector was issued a sum loan of 4.5 trillion MNT and around 60% of the total were short term loans with 1-5 years duration while only up to 5% of credit was longer term financing with over 5 years duration. Also, over 30% of issued loans were loans implemented by various projects. Over the years, past-due loans of the manufacturing sector have been increasing and, at the end of 2018, composed 28% of outstanding loans within past-due loans owed by the processing industry. In other words, currently market available loan products with 13-20% annual interest rates and 1-5 years duration are too costly for average textile SMEs, cannot satisfy their financing needs and demands and expose them to high risks.

In conclusion, we are witnessing a critical period in the development of the Mongolian textiles sector in its drive towards sustainability. On one hand, national policies and strategies are focused towards sector expansion and conducive in supporting integrated, value added processing which, on the other hand, coincides with market driven, consumer demand for more and more sustainable products. Thus, this is the best timing for national companies to adopt and embrace environmentally friendly, progressive, sustainable practices and principles in their operation and processing. As such, the rationale for this study was to determine the demand for green

<sup>9</sup> <https://www.globenewswire.com/news-release/2019/01/10/1686144/0/en/CGS-Survey-Reveals-Sustainability-Is-Driving-Demand-and-Customer-Loyalty.html>



finance among textile sector SMEs as well as the potential supply of such green finance available on the market at the moment.

The main objective of Sustainable Textile Production and Eco Labelling (STeP EcoLab) project, to be implemented between 2018 and 2022, is to provide support towards implementation of sustainable production and consumption practices in the Mongolian textile sector and carry out related research, analysis and activities.

## 1.2 PURPOSE AND OBJECTIVES OF THE STUDY

The purpose of this study is to determine the demand for green loan by SMEs of textile sector in Mongolia. Objectives of the study include:

- Determine the current demand/supply of green finance, market size and investment potential;
  - Through discussions with stakeholders such as international organizations, commercial banks, non-banking financial institutions, Central Bank of Mongolia (BoM), Development Bank of Mongolia (DBM) and textile companies, develop green finance stakeholders mapping and identify business linkage opportunities in the textile sector;
  - Determine what is the priority need of green finance for textile companies;
  - Assessment of green financial products for textile SMEs and analyse potential financial solutions for them;
  - Determine main requirements of green loans of banks, types of eligibility the banks require from factories, the common barriers to issue green loan for factories and types of risk of textile companies the banks see;
- Determine what textile companies consider as “green loan” and what is their expectation of interest rate, amount and duration of green loans;
  - Determine the previous experience of green loan application of textile companies, the amount of green loan they currently hold and future plans to apply for green loan.



### 1.3 RESEARCH FINDINGS

#### GREEN FINANCE MARKET DEMAND OF TEXTILE SMEs IN MONGOLIA

The goal was to objectively forecast the demand for green finance of textile sector SMEs based on the quantitative and qualitative data and actual demand estimates provided by participant companies.

It was determined that, as of October 2019, **actual green finance demand of 17 participant companies equals MNT 24.5 billion**. Specifically, MNT 10.7 billion (44%) is required for solutions to reduce heat loss of industrial buildings and factories, MNT 4.41 billion (18%) towards electricity efficient solutions, MNT 4.1 billion (17%) for the construction of wastewater treatment facilities and the remaining 21% for other needs required to implement sustainable, green production and service practices. Green finance needs of wool and cashmere processing companies can be broken down to 42 types of intended uses as described later.

Total market demand forecasting | The overall demand for green finance in the textile sector was estimated based on total production output values, using two different forecasts, market share-based and target-based. First, for market share-based forecasting, we used the actual green finance demand values provided by 17 participant companies and based on their combined production outputs have estimated total demand for the whole sector. Second, for target-based forecasting, we used targets set by national Cashmere program, to calculate how much green finance would be required for the whole industry to achieve the level of production growth of value-added products in near future. Accordingly, **the textile sector market demand for green finance was estimated at MNT 250 billion MNT using market share-based forecasting, and MNT 576 billion using target-based forecasting.**

The main methodology used for total market demand forecasting was first, to use data related to total amount of fibre processed and the level of processing; secondly, use total production output values; and third, reflect target production capacities envisioned in sector development policies and programs.

The production output of the 17 companies surveyed was about 20% of the total industry production, while depending on the production line, they accounted for 8.6 - 37.2% of the respective markets. It must be noted that the largest cashmere producer, Gobi (merged with Goyo in 2019) company, was not included in the survey because the aim of the study was to determine the demand for green finance of *small and medium textile enterprises*. Gobi is undoubtedly one of the largest cashmere manufacturers not only nationally but also globally.

#### GREEN FINANCE SUPPLY, POTENTIAL FUNDING SOURCES

Potential green finance supply, accessible for Mongolian textile producers, was determined at MNT 75 billion. There are currently 3 loan products that fall into this specification. Furthermore, there are five green loan products which can be accessed by all enterprises (not specific to the textile sector) with a total available source of MNT 112 billion. To date, only one textile company has been issued a green loan (MNT 150 million issued for 1 enterprise) while in comparison, loans to support SMEs (not specific to green finance) are much more popular among textile sector enterprises (MNT 298.4 billion loans issued for 118 enterprises). This could be due to the fact that such, not specific to green finance, types of loan products are more abundant (this study covers 7 of them) while in addition, their potential funding sources are 5-6 times larger (MNT 402 billion). Green finance market demand and supply estimations are included in Chapter 4.2.

## 1.4 CONCLUSIONS

The textile sector market demand for green finance using market share-based forecast was estimated at MNT 250 billion, while target-based forecast was estimated at MNT 576 billion. On the other hand, it has been determined that the potential supply of green finance available for textiles SMEs is around MNT 75 billion. At first glance, it looks like there is insufficient green financing available for textile companies to shift towards sustainable, green production practices and the demand is 3.3-7.6 times higher than available funding supply.

Although, senior executives of surveyed companies have expressed a common desire to shift to more sustainable and green production and operation practices, the majority (80%) have not taken any initiative or action to implement such measures to date.

Small, medium and integrated large processing companies have very different needs when it comes to loan requirement, criteria, purpose, type, amount and expectations. Therefore, a universal, one for all green funding model would not be feasible for different types of textile producers.

Textile SMEs are not interested in taking loans with a sole purpose of switching to greener production; they are cautious about added financial pressure and risks; they are more interested in taking loans to increase current assets, to cover operating costs and expenses to ensure non-stop, continuous production.

In other words, in the absence of additional financial, regulatory or other tools and incentives, even if enough green funding with attractive loan conditions was available, in reality there could be little interest from industry producers to take green loans.

Currently, MNT 75 billion worth of green funding is available for textile industry SMEs while, according to our research, only one enterprise took a green loan of MNT 150 million.

In summary, it could be said that textile industry producers are not accessing green funding sources because they: try to avoid financial risks; do not have sufficient loan repayment capacity; cannot fulfil loan requirements and criteria; do not have sufficient manpower, capacity and experience to prepare loan documents; do not have sufficient knowledge and experience in sustainable, green production; do not carry out full evaluation of environmental and social impact assessment; overall lack of relevant knowledge and information related to all above points.

International best practices demonstrate that the first step towards resource efficient production and manufacturing is to start measuring and documenting uses of water, energy and chemicals. Implementing such measures are easy to adopt, do not require much funding while its benefits are far-reaching and impactful. Accordingly, all Mongolian textile producers should aim to measure and document all their utility uses which would be simple, cheap and effective first steps towards industry-wide shift towards sustainable production. Then, the decision should be made whether it is worthy to finance other efficiency measures and green activities.

We hope that the Green finance market demand study of small and medium textile enterprises in Mongolia was a timely, novel, the first of its kind for the industry and important work with far-reaching impact.

## CHAPTER 2. RESEARCH METHODOLOGY, SCOPE, REPORT USE AND LIMITATIONS

### 2.1 METHODOLOGY

Desk study, surveys and key informant interviews were conducted to gather necessary quantitative and qualitative data and information.

#### Desk study:

- We reviewed and analysed available information on green finance, green loan products and national and international projects, programs and initiatives supporting green finance and green development in Mongolia. For each loan product, we analysed general loan terms, requirements, criteria, sources and amounts of funding and its availability.

#### Sample surveys:

- In collaboration with one of the project partners, the Mongolian Wool and Cashmere Association (MWCA), our aim was to survey at least 40 large, medium and small textile companies that could represent the textile sector. The questionnaire covered three main themes namely general information about the company, production outputs and resource use, and finance and green loan information.
- In partnership with the Mongolian Sustainable Finance Association (ToC), we aimed to survey all Mongolian commercial banks to determine the state of green and other loans issued to textile sector producers.<sup>10</sup>

<sup>10</sup> In Mongolia, loan information is issued for 18 economic sub-sectors, including the manufacturing sector which encompasses the textile sector along with other processing

#### Key Informant Interview (KII):

- We aimed to conduct key informant interviews with senior executives and managers of selected 20 companies (7 fully and partially integrated companies, 7 primary processors and 6 knitting enterprises). In addition to the survey, interview topics covered more in-depth discussion about current and future green finance needs of each company, their understanding and expectations of green finance, main barriers and challenges that the companies face when applying for or taking green or other loans.
- Only a few companies had a capacity to accurately identify and estimate their green finance needs due to insufficient understanding, knowledge and approved methodology among textile producers. Therefore, in order to guide the companies in the right direction, researchers have compiled a list of most common finance needs and uses applicable to textile manufacturers that could be regarded as green financing. Following the interview, green finance guidance survey was sent out to all participants to gather relevant data.
- Also, key informant interviews were conducted with representatives from financial institutions, banks, international organizations and public sector organisations to collect additional data and information.

### 2.2 SCOPE OF THE STUDY

The scope of the study was determined in consultation with STeP EcoLab project, MWCA and MSFA. In order to accurately estimate the green finance demand of the textile industry in Mongolia first, we agreed to survey 40 to

industries. Currently, there is no published data or research available that shows the total amount of loans outstanding in the textile sector along

50 large, medium and small sized textiles enterprises (all members of the MWCA) using e-questionnaire; and secondly to conduct in-depth, interviews with top management representatives of 20 selected textile SMEs to determine their needs for green finance and then to apply this data to estimate the market demand for the whole sector.

There are around 300 registered textile producers in Mongolia including very small, family-run, micro enterprises. However, the number of functional companies with continuous operation is less, at around 120. Therefore, it was assumed that a survey of 40-50 operational factories would provide sufficient data to represent the textile industry.

On the other hand, to determine existing supply of green finance, potential funding sources and the overall market size, stakeholders agreed that a review of green and/or SME support loan products and projects provided through 13 commercial banks in Mongolia would be necessary. Thus, the study covered 5 green loan products for business enterprises, 5 green loan products for individuals and households, 2 green finance projects that are yet to start, 3 discontinued green loan products, 7 SME loans (not limited to green), and business loan products offered by biggest 4 non-banking financial institutions (NBFI).

### 2.3 CONTENT AND STRUCTURE OF THE REPORT

This report consists of 5 chapters and 7 annexes. The results chapter is further divided into 11 sub-chapters, each related to the objectives of the study, namely: 1) knowledge and perception of textile SMEs about green finance; 2) SME's green loan application history, their experiences and future trends; 3) bank loan access barriers and challenges; 4) bank loan access barriers and challenges faced by textile companies, main risks that

the banks associate with textile sector borrowers; 5) expectations of textile companies regarding the terms and requirements of green finance; 6) common terms and requirements of loan products offered by commercial banks; 7) priority needs for green finance for textile companies; 8) common purposes of bank loans taken by textile companies; 9) estimation of total green finance demand required by 20 companies that participated in the study; 10) estimation of total and accessible green finance supply; 11) the main summary.

During the interview, the manufacturers pointed out that they face difficulties in researching and choosing new, environmentally friendly, green technologies and equipment, and have requested the research team to conduct a basic market study. Consequently, a brief market research has been carried out covering available wastewater treatment facilities, water softeners and insulation materials, Annex 1.

In addition, a summary of all loan products included in the study; an overview of green development projects and textile sector support projects being implemented in Mongolia; and a review of international best practices of successful implementation of green finance in the textile industry are included in relevant annexes.

### 2.4 USE AND CONFIDENTIALITY

The report is intended solely for the internal use of Step EcoLab project, main project implementing organisation AVSF and project partners MWCA and MSFA. It is not intended, nor it is necessarily suitable, for any other purpose.

Our findings are based on data provided by surveyed textile companies and commercial banks. In terms of data privacy, Gerege Partners researchers

have signed mutual confidentiality agreements with both MWCA and MSFA. We have analysed the accuracy of collected data and whether there are internal conflicts, but have not performed any audit or independent verification. In our judgment, we have employed techniques and assumptions that are appropriate for the purpose of this assignment, and the conclusions presented in the report are reasonable, given the information currently available. Information and data sources used in this study are consistent with the research purpose and the results are valid within the scope of data used. Our aim was to use the latest possible available data throughout the study.

## 2.5 RELIANCES AND LIMITATIONS

In developing this report, Gerege Partners LLC has relied, without audit or independent verification, on data and other quantitative and qualitative information supplied by textile companies and banks. The accuracy of our results is dependent upon the accuracy and completeness of this underlying data; therefore, any material discrepancies discovered in this data should be reported to us and this report amended accordingly.

The following are limitations related to research methodology and study outcomes:

- According to the study plan, we intended to interview 20 SMEs and survey at least 40 to 50 textile companies, but the level of participation from sector companies was rather unsatisfactory. Therefore, market demand and supply forecasts were estimated based on the information provided by 22 companies that responded to our request for interview and/or survey (18 interviewed out of 20 and 4 surveyed out of target 40).
- One of the study objectives was to determine the barriers and challenges that wool and cashmere SMEs encounter when applying for a green loan. However, none of the participant companies had a history or experience of green loan. So, we aimed to identify common barriers in taking a business or project loan instead.
- Insufficient data on green loan products and projects was available. 10 commercial banks out of 13 responded to the green loan survey. However, report results are based on the information provided by 6 banks only, because 4 banks replied that they either do not offer green loan products or have no history of loans issued to textile sector businesses. Furthermore, the Bank of Mongolia, the Financial Regulatory Commission and other state agencies do not release credit information breakdown by the sector, so no data on total outstanding credit by the textile companies was available.
- Where green loan values were denominated in foreign currencies (USD, EUR), we had to perform currency adjustments. For example, initial or total funds of some projects were denominated in USD while loan issuance values were denominated in MNT. In such cases, we used the average exchange rate applicable to project duration to calculate current available funding. When initial funding and value of issued loans were both denominated in USD, we calculated current available funding in USD and then denominated the values in MNT using August 2019 exchange rate. If different currency adjustment method is used, the results of this study, denominated in MNT, will change.
- At the moment, there are no green loan products specific to textile sector enterprises. Therefore, green loan products covered by the study had no direct relevance to the textile sector or haven't been issued to textiles companies yet. In addition, textile companies mostly take loans with the purpose to increase their current assets or working capital, to expand production capacity and to produce more value-added goods and improve exports rather than to shift

to greener or more efficient production. In other words, green production is not a high priority for textiles businesses in terms of investment needs.

- Most senior executives expressed a need for investment and funding but lacked estimates or data on how much green or other funding they required. Furthermore, due to lack of knowledge among study participants about what could be covered under green finance or whether required financing needs could be classified as green finance, we faced delay in data and information collection, completeness and reliability.

## CHAPTER 3. OVERVIEW OF THE WOOL AND CASHMERE INDUSTRY, STATE OF FINANCING

### 3.1 OVERVIEW OF THE MONGOLIAN TEXTILE INDUSTRY

Around 300 textiles enterprises are officially registered across Mongolia including 15 fully and partially integrated companies, 23 primary processing factories, 59 knitting companies and 150-200 micro scale, household businesses. It is estimated that around 8 thousand people are employed in wool and cashmere processing industry, of which 80% are women and 60% are young people.

According to MWCA, Mongolia accounted for about 40% of the world's raw cashmere production, second after China (48%). In 2018, Mongolia produced 9,600 tons of raw cashmere, 1,300 tons of camel wool, 33,000 tons of sheep wool and 250 tons of yak down fibre. The installed production capacity by processing lines in the cashmere industry is 9,100 tons for scouring, 4,589 tons for dehairing, 1,810 tons for spinning, 2,000 thousand meters for woven material and 3,449 thousand pieces for knitted goods (MoFALI, 2018). However, it is estimated that the level of actual production (usage of machinery and equipment) stands only at 30-65% of installed capacities, except scouring.

**Table 3. 1 Economic impact of the textile sector**

Indicators	2014	2015	2016	2017	2018
<i>Gross domestic product (GDP), by sector (100%)</i>					
Share of processing industries (% of GDP)	10.6%	9.1%	8.8%	10.7%	10.9%
<i>Composition of gross industrial output (100%)</i>					
Processing industries	28.1%	35.9%	33.3%	32.3%	33.3%
Manufacture of textile	2.2%	2.1%	2.2%	1.6%	1.8%
<i>Sales of industrial production (100%)</i>					
Processing industries	22.8%	20.9%	21.0%	24.2%	24.9%
Manufacture of textile	2.7%	3.3%	3.6%	2.7%	3.0%
Manufacture of textile/Processing industries %	11.8%	15.6%	17.1%	11.3%	12.2%
<i>Total export</i>					
Total export, mill \$ (100%)	5,774.3	4,669.3	4,916.3	6,200.6	7,011.8
Textiles and textile articles	338.8 (5.9%)	302.7 (6.5%)	300.2 (6.1%)	335.5 (5.4%)	409.8 (5.8%)
Scoured cashmere	223.8 (3.9%)	197.2 (4.2%)	192.5 (3.9%)	205.6 (3.3%)	252.0 (3.6%)
Export of dehaired cashmere	61.9 (1.1%)	40.7 (0.9%)	33.2 (0.7%)	38.5 (0.6%)	54.9 (0.8%)
Export growth of Textiles and textile articles YoY	20%	-11%	-1%	12%	22%

Source: National Statistics Office and Mongolian Customs



Textile industry's sales revenue reached MNT 1.2 trillion in 2018, of which 86% came from export sales and remaining 14% from domestic sales. Scoured cashmere export alone accounted for 55% of total revenue while export of dehaired cashmere and finished products constituted 12% and 18% respectively. Scoured cashmere was exported mainly to China, dehaired cashmere to Italy and UK and finished goods mostly to USA, Germany, Korea, Japan, Belgium and France (MoFALI).

The Cashmere program, launched in early 2018, resulted in significant increase in production output already and export revenue of the textile sector and 1570 new jobs were created during this period. Export of textile products increased by 22% from previous year and constituted around 6% of total exports in 2018<sup>11</sup>. It is reasonable to expect that the cashmere processing industry will keep expanding in near future thanks to the Cashmere program to be implemented until 2021.

### 3.2 DEBT OVERVIEW OF THE PROCESSING INDUSTRY

Total outstanding balance of all commercial bank loans in Mongolia, as at the end of 2018, was MNT 1.4 trillion, of which MNT 1.4 trillion or 8% were accounted for the processing industry. The processing industry comprises 24 sectors, including the textile sector.

About 6% of all new loans in 2018 or MNT 1.3 billion were issued to private sector in the processing industry. Despite some stable statistics, non-performing loan ratio has continuously increased in the last 5 years (Figure 3.1). Loans with term of 1-5 years have been accounted for over 50% of all loans issued during the period. Loans with term of 5 and more years, where project loans comprise 70-80%, have been accounted for around 10% in the last 3 years.

<sup>11</sup> Monitoring and evaluation [report](#) of Cashmere program, 2018

Figure 3. 1 Loan structure by loan terms and NPL (%)

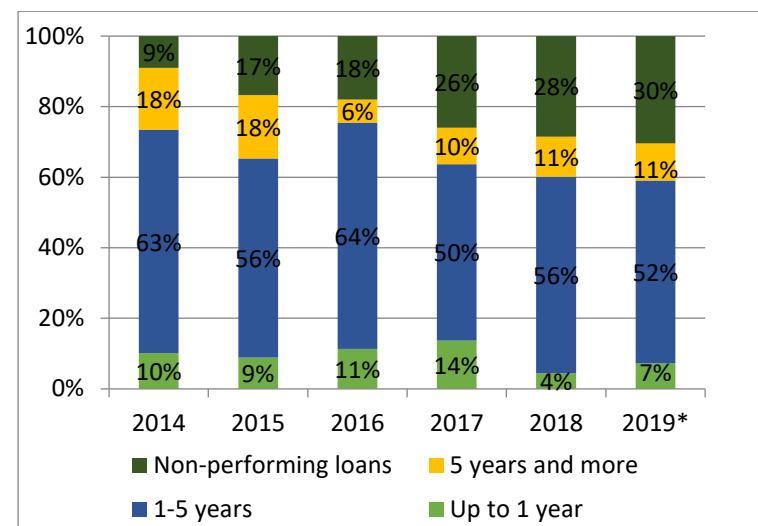


Table 3. 2 Project loans (MNT million)

Loan details	2017	2018	2019*
Project loan, amount	522,804	472,467	438,348
Project loan, as % of total loan	38%	33%	31%
Of which: Performing			
Up to 1 year	16,516	3,147	10,487
1-5 years	269,834	209,441	160,134
5 years and more	121,883	137,451	111,856
Non-performing loan	114,571	122,429	155,871

Source: Consolidation loan report of banking system, Mongolbank, Note: 2019\* as of July

In comparison with other sectors, processing industry is one of the top receivers of project loans<sup>12</sup>, it is accounted for around 35% (MNT 472-522 billion) of all project loans issued in Mongolia in the last 2 years. Similar to other commercial loans, non-performing loan amount among the project loans has also been increasing in the recent years, as combined loan amounts classified as overdue, substandard, doubtful and loss loans have reached over MNT 100 billion.

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<sup>12</sup> *Project loan is a loan with lower interest and is intended for small and medium-sized enterprises (SME) with lack of collateral to expand their businesses and start new projects.*

## CHAPTER 4. RESULTS AND FINDINGS

### 4.1. GREEN FINANCE MARKET DEMAND OF TEXTILE SMEs IN MONGOLIA

#### 4.1.1 The market share of surveyed companies in the textile sector

The majority of textile companies that took part in our study were small and medium sized enterprises with an average of 10 to 90 workers depending on the producer type. Specifically, among 6 fully and partially integrated companies, only one company employed more than 700 people while the other 5 companies had an average of 90 employees. Among 5 primary processing factories, one company had a workforce of 250 people and the other 4 employed from 10 to 80 people. 6 knitting companies took part in the study of which one company employed 140 people while the remaining 5 businesses had 10 to 50 permanent workers.

Although we planned to survey at least 40 textile companies using e-questionnaire, only 6 companies took part with a response rate of 15%. 18 companies out of planned 20 took part in key informant interviews (90% response rate); while 17 provided quantitative data on green finance demand needs (85% response rate). Among 6<sup>13</sup> companies that responded to the e-questionnaire, 4 producers also took part in the interview. In addition, 2 more textile companies responded to a short green finance demand survey bringing the total number of participant companies to 22.

In summary, we estimate that our study covered around 20%<sup>14</sup> of functional wool and cashmere processing companies in Mongolia including 40% of

<sup>13</sup> 6 companies identified green investment need for MNT 18.5 billion through e-survey which is considerably higher than needs identified through interviews, possibly due to uncertainty

vertically (fully or partially) integrated manufacturers, 26% of primary processors and 17% of small and medium sized knitting enterprises. The total production output of surveyed companies and the market share by the type of processing outputs for 2017-2018 is shown in Table 4.1.

**Table 4. 1 Production output and market share of participant companies by final product type (2018)**

	Scoured fibre (tons)	Dehaired cashmere (tons)	Yarn (tons)	Woven material (thous.m)	Knitted goods (thous.pcs)
Total production output of the sector (2018) *	13,518.5	1,520.2	1,570.4	1,501.3	2,446.9
Production output of participant companies (2018)	1,637 (12%)	567 (37%)	230 (15%)	129 (9%)	754 (31%)
1. Fully and partially integrated companies	178	157	211	129	524
2. Primary processors	1,459	403	12		2
3. Knitting companies		6	7		229

Source: Author's estimates based on data from producers, MWCA, MOFALI, NSO.

\* Note. We used the latest production output data collected in Nov-Dec 2019 through sectoral attestation study commissioned by MOFALI and conducted by MWCA.

regarding green finance. Therefore, data provided by 17 interviewed companies were used as primary source for green finance demand calculation.

<sup>14</sup> Excluding 150-200 micro, household level textile businesses.

#### 4.1.2 Estimation of actual green finance demand and forecasts

17 participant companies provided actual estimates of green finance needed for them to shift towards environmentally friendly, sustainable production practices, a total of MNT 24.5 billion. Energy efficiency measures require the highest amount of green investment at MNT 15.3 billion (62%), in particular, MNT 10.7 billion (44%) is needed to reduce or prevent the heat loss of industrial buildings and factories. Demand for water efficiency and water pollution prevention measures is MNT 4.1 billion or 17% of total green finance demand identified by wool and cashmere producers (Table 4.2).

Green finance demand is highest for vertically integrated companies at MNT 14.3 billion (58.2%), while MNT 8.2 billion (33.3%) and MNT 2.1 billion (8.4%) of green finance is needed for primary processing factories and knitting companies, respectively.

Considerable difference is observed among green finance needs depending on the type of production and processing. For example, heat efficiency measures constitute 71% of total green finance demand for integrated producers, 19% for knitting companies, and only 3% for primary processors.

Furthermore, while primary processing plants intend to invest nearly 30% of required green financing into functioning wastewater treatment facilities, knitting companies on the other hand propose to invest almost 50% of required green finance in social care, eco packaging, solid waste management and expanding production output using progressive, green technologies.

We identified 42 types of green finance needs, or intended uses, in 7 sub-categories that the textile companies require in order to conduct or shift to resource efficient, sustainable production and operation, Table 4.2. Breakdown values of all 42 types of green finance needs are included in Annex 6 while the top priority needs are shown in flow chart, Figure 4.1.

When companies contributed to the study by participating both in e-survey and interviews, they have provided different estimates of green finance amounts. Estimation was always higher when companies responded through e-surveys compared to interview results. Due to the novelty of green finance concept within industry, the producers might have included irrelevant investment needs that do not fall under green finance specification when responding to e-surveys. Therefore, to determine the total market demand for green finance needed by Mongolian textile SME's, we decided it is best to use **actual green finance estimates provided by 17 companies that took part in KII research.**

Accordingly, as of 3<sup>rd</sup> quarter of 2019, we estimate that the textile industry's **total market demand for green finance equals MNT 250 billion using market share-based forecasting.**

**Table 4. 2 Actual green finance demand of 17 participant companies and their intended uses (7 sub-categories)**

Intended uses of green finance	Total finance required		Fully and partially integrated companies		Primary processing plant		Knitting companies	
	MNT million	Percent	MNT million	Percent	MNT million	Percent	MNT million	Percent
<b>TOTAL</b>	<b>24,486</b>	<b>100%</b>	<b>14,257</b>	<b>100%</b>	<b>8,161</b>	<b>100%</b>	<b>2,068</b>	<b>100%</b>
1. Energy efficiency measures	15,286	62%	10,602	74%	4,126	51%	558	27%
Electricity efficiency	4,374	18%	445	3%	3,769	46%	161	8%
Heat efficiency	10,685	44%	10,052	71%	237	3%	396	19%
Steam efficiency	227	1%	106	1%	121	1%	1	0%
2. Water efficiency measures	4,899	20%	2,124	15%	2,590	32%	185	9%
Inc. Wastewater treatment facility	4,140	17%	1,887	13%	2,254	28%	-	-
3. Solid waste management	284	1%	34	0.2%	38	0.5%	213	10%
4. Efficient use of chemicals, switch to greener chemicals	8	0.03%	-	-	-	-	8	0.4%
5. Improvement of social care	1,659	7%	634	4%	589	7%	436	21%
6. Procurement of equipment and machinery to expand production capacity	1,008	4%	130	1%	600	7%	278	13%
7. Other needs	1,342	5%	734	5%	218	3%	390	19%
Inc. Eco packaging	606	2%	289	2%	-	-	317	15%

At the same time, we tried to determine how much green finance would be required for the textiles sector in near future in line with Mongolia's development strategy and national policies and programs to support wool and cashmere industry. The Cashmere program, launched in February 2018, is expected to run until 2021. It includes specific targets on production outputs that the industry is set to achieve during the project implementation period such as "...to increase the proportion of fully

processed raw materials to 60%..." and "... to produce 2.200 thousand pieces of knitted products in 2021..." and more.

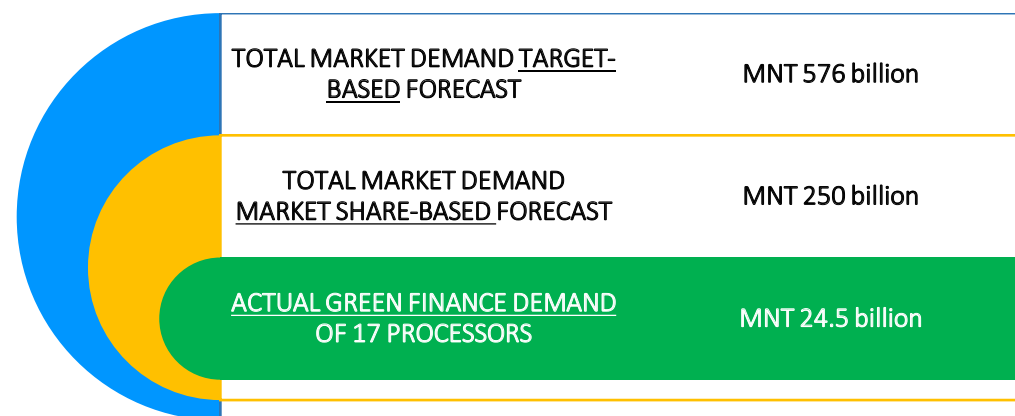
Current processing levels and production outputs of the textile industry were compared with 2021 target processing levels and production outputs specified in the Cashmere program. Using multiplier, we estimate that **the total market demand for green finance needed by the Mongolian textile industry will equal MNT 576 billion according to target-based forecasting.**

**Table 4. 3 Total market demand forecasts of green finance required by the textile industry**

Green finance demand	TOTAL MARKET DEMAND FORECASTS		IDENTIFIED ACTUAL DEMAND	
	Market share based	Target based	Total of 17 companies (interview)	Total of 4 companies (e-survey)
TOTAL MARKET DEMAND ESTIMATE	<b>250,038</b>	<b>575,977</b>		
Sub-total	247,266	573,205	24,486	
Integrated companies	159,263	485,201	14,257	
Primary processing plants	57,055	57,055	8,161	
Knitting companies	30,949	30,949	2,068	6,083

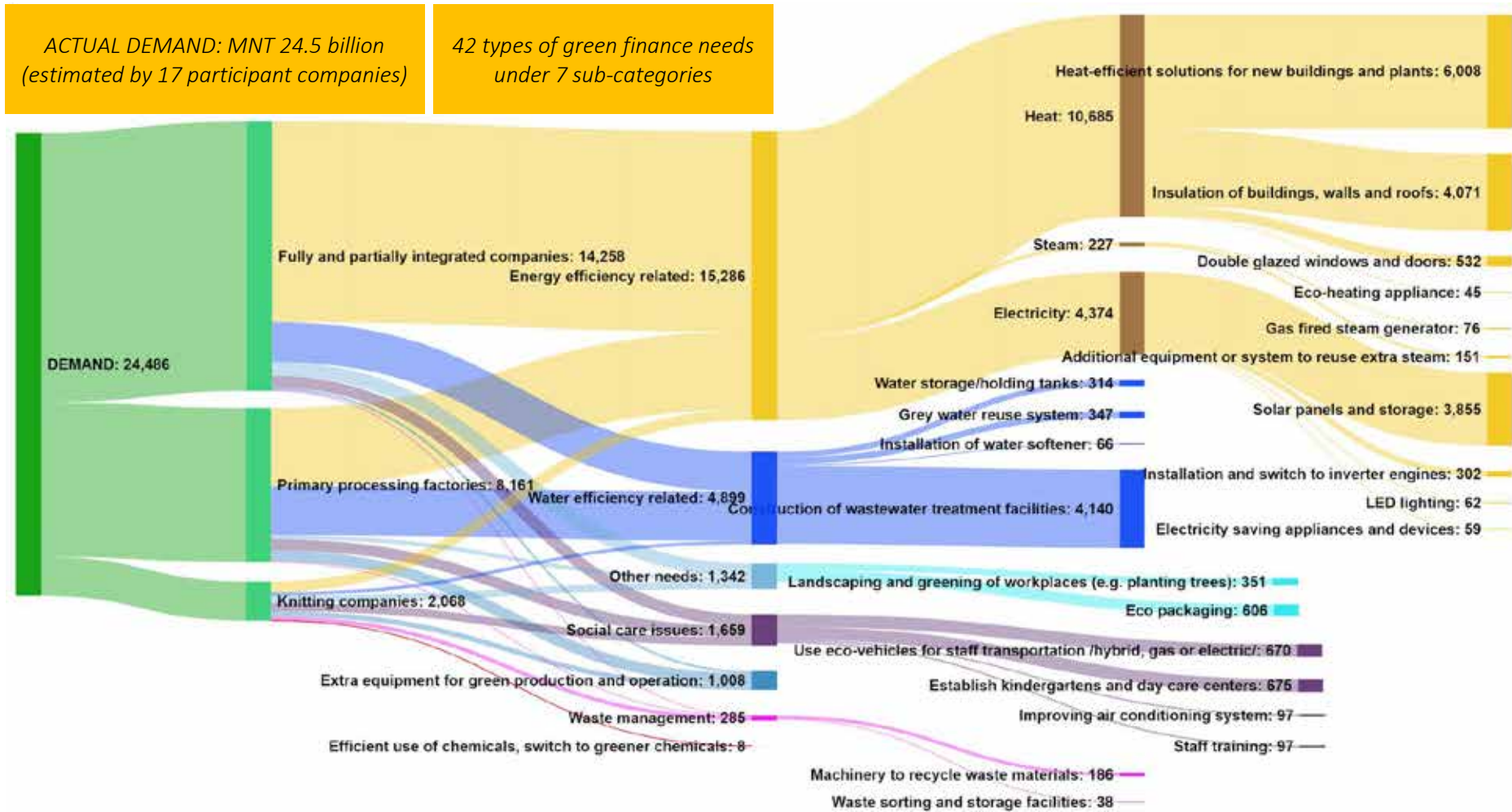
The calculation based on sector growth targets specified in the Cashmere program, 2018-2021 as follows

Target level of fully processed raw materials	60%	5.00 <sup>15</sup>
Production of knitted goods	2,200,000	1.0
Current level of fully processed raw materials, 2017	12%	



<sup>15</sup> It was assumed that the supply of raw material will remain relatively stable

Figure 4. 1 Actual green finance demand of 17 companies, types of green finance needs (MNT million)

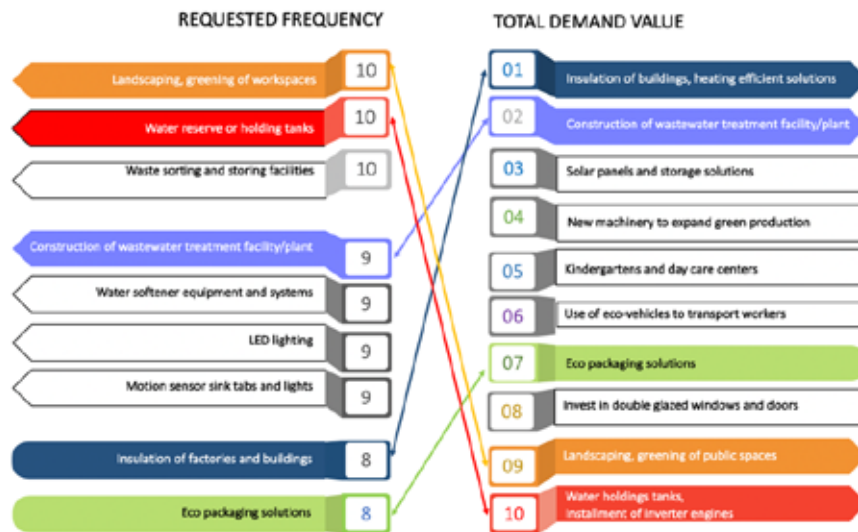




#### 4.1.3 What are the top priority needs for green finance

Here, we ranked all 42 types of green finance needs by their significance and priority. We used two factors deemed relevant for such ranking, first, frequency of requests for a specific green finance need from 17 participant companies and the total amount of green finance required to fulfil a specific type of need.

**Figure 4. 2 Priority ranking of green finance needs (by frequency and value)**



On Figure 4.2, the left column shows the types of green finance needs that were requested by at least 8 to 10 subject companies. On the right, green finance needs that require highest total investment are listed in order of magnitude.

Wool and cashmere producers consider that insulation of buildings and implementation of heat efficient solutions, construction of wastewater treatment facilities, landscaping and greening of workplaces, reserve water tanks and eco packaging are highest priority and significance needs for green finance. For example, at least 4 participant companies were interested to invest in wastewater treatment plants, they have already conducted preliminary research on market ready technologies and options but were not able to secure enough funding to start the construction.

Some types of green finance needs, such as waste sorting and storage facilities, water softener installation and LED lighting, were requested by more than 50% of producers but do not require much investment compared to other needs in monetary terms.

Besides, primary processors are willing to use higher quality, durable, eco cotton bags or sacks for packaging and storage of raw materials during and between processing stages. Vertically integrated producers and knitting companies would like to reduce usage of plastic bags and switch to more sustainable paper or cotton bags.

The highest priority financial need for small and medium textile processors is usually to have enough current assets and working capital to procure sufficient raw materials during short, annual fibre harvesting season. Preparation and procurement of raw cashmere is expensive, highly competitive and labour consuming activity. It is worth mentioning that many manufacturers enquired whether green finance can be used for above purposes.

#### 4.1.4 How textile companies perceive or understand green finance

Generally, the understanding about green finance and green loans is limited among senior executives interviewed for the study, possibly due to lack of relevant information.

- Wool and cashmere processors associate environmentally friendly, sustainable production with the efficient use of water, energy (electricity, heating and steam) and chemicals, reducing respective costs, conducting resource efficient operation, minimizing waste generation, minimizing negative impact of waste on environment and human health, and achieving a higher productivity at lower costs.
- Textile manufacturers believe that green production, compared to traditional, not specifically green production, is costlier and requires higher initial investment in the short term.
- Senior executives have adequate understanding about green production, but are uncertain about Green finance and what types of needs or investments could be financed by green loans.
- The primary expectation of textile manufacturers is that green finance can be used towards the procurement of water and energy efficient machinery and equipment, installation of solar and wind renewable energy sources, insulation of factory buildings and workshops to prevent heat loss and construction of wastewater treatment facilities and plants.

#### 4.1.5 Attitude towards environmental and sustainable development issues

- All participants in the study expressed full support, interest and ambition to shift to environmentally friendly, sustainable production practices and operation. However, the majority (80%)

have not taken any measures, initiatives or actions towards implementing green production norms.

- In spite of good intentions, two reasons could be behind manufacturers lack of real action. First, they lack step-by-step guidance or information on what sort of actions or measures should be taken in order to achieve sustainable production and operation. And second, small enterprises with 10 to 30 employees have limited capacity or interest to invest in any other activity, including green production, unless extra financing leads to lower production costs or higher profits. In other words, small companies are anxious about getting high-interest rate, inaccessible loans which also take time, effort and paperwork, to solely invest in sustainable production; instead, they prefer to invest own funds (if available) over longer term to improve their sustainability.
- Textile manufacturers are not generally aware that investments related to social issues, one of the pillars of sustainable development, are covered under green finance. It includes such measures as improving workplace health and safety, provision of day care centres for employee's children and more.

#### 4.1.6 Green loan application history, future perspectives

- None of the companies that took part in our study had a history of approaching banks, financial or international organisations with a request for green finance or green loans. Overall, it can be summarized that wool and cashmere processors have not taken considerable effort or attempts to obtain green finance in the past.
- 8 out of 17 companies (47%) have outstanding loans from commercial bank, of which 4 are project loans. According to our

best knowledge, 5 processors have recently submitted loan requests for a total of MNT 7 billion, of which 4 are loan requests to Agriculture and Rural Development project funded by ADB, and the remaining one to the SME Development Fund. The purpose of these loans is to increase current assets and working capital, to expand factory premises and to invest in new machinery and equipment to expand the production capacity.

- Senior management representatives from all participant companies stated that there is a need for green finance and green loans to invest in shift towards sustainable production and operation.

#### 4.1.7 Barriers faced by textile companies to access bank loans

- Processors responded that most significant barriers in accessing a bank's loan (project and other) are high interest rates and short duration of the loan.
- 4 out of 17 surveyed companies (23.5%) stated that collateral was the main barrier to getting a loan. They all conducted production and operations in rented premises. Besides, it is challenging to take loans from multiple lenders when manufacturers have only one collateral.
- Raw cashmere fibre is harvested once a year and there is strong competition amongst processing companies, middlemen and Chinese buyers to procure best cashmere which usually drives the prices high. If a producer was not able to gather sufficient finances in time to procure raw cashmere, there is a risk that the factory will be in short supply and face raw material deficit.
- The following challenges are not common but noteworthy:

- Project loan application requires a lot of paperwork, have unrealistic criteria for small enterprises and the process is complicated and bureaucratic thus discouraging applicants;
- Wool and cashmere processing companies have a unique pattern of revenue and expense, with seasonal variations. Raw cashmere is harvested in spring when companies must bear high expenses to reserve a stock of expensive fibre. In summer, most processing and production takes place which means no revenue but more expenses. Ready-made products are shipped to respective markets in autumn and the sales are carried out in late autumn, early winter to coincide with cold season and demand. Subsequently, it almost takes a full year for sale's proceeds to reach the producer. Banks require that loan repayments should be continuous and stable, so such seasonal fluctuations considered high risk and volatile;
- Textile companies with a foreign investor, co-owner or shareholder have no interest in getting any types of loans from Mongolian commercial banks due to high interest rates and high risks.

#### 4.1.8 Expectations of textile producers about Green loan terms

- It was suggested that the following factors should be included in the terms and requirements of Green loans:
  - The loan repayment schedule should take into consideration seasonal, cyclical nature of revenue and expenses associated with raw cashmere preparation, production, export and sales;

- Green production and operation, compared to traditional, not specifically green production, requires higher initial investment in the short to medium term.
- The majority of workforce in the light industry are women, therefore social care issues associated with female employees should be covered by green finance (e.g. building on-site kindergartens and day-care centres, supporting health checks).
- The construction cost of a green wastewater treatment plant is 30-50% higher compared to traditional one, while the construction costs of water and energy efficient green buildings without heat loss are on average 20% costlier according to the information provided by two primary processing companies.<sup>16</sup>
- Green loans to support sustainable manufacturing should have longer payback period and lower interest rates because such investment results in increase of expenses in the short to medium term and decrease of profits. However, processors are aware that in the long term, green production is more efficient, cost-effective and beneficial.
- Over 80% of interviewed companies had in the past applied for and/or taken some kind of a project loan. In their opinion, project loans with 12-13% annual interest rates are high for manufacturers because it increases financial pressure. In comparison, 8% interest rate loans provided by Agriculture and Rural Development project funded by ADB are considered to be reasonable.
- The expectations of at least 90% of participant companies regarding green loan terms and conditions are as follows: the annual interest rate between 3- 8% with loan duration of at least 5 years and more.

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<sup>16</sup> One of the interviewees estimated that the payback period for 20% extra expense to have a green building is 15 years based on energy saving calculations.

## 4.2 GREEN FINANCE SUPPLY, POTENTIAL FUNDING SOURCES

### 4.2.1 Sources and scope of information

Three main sources of information were used in green finance supply analysis, namely:

- 1) Green loan survey of commercial banks,
- 2) Information provided by organizations implementing green finance projects,
- 3) Information gathered through the desktop study.

Ten commercial banks out of thirteen have responded to the green loan survey. However, study results are based on the information provided by 6 banks, because 4 banks had no relevant information to provide or hadn't issued any loans for textile sector companies. The survey questionnaire can be found in annexes.

In addition to commercial banks, we collected relevant information from the following institutions with loan projects in Mongolia, namely:

- Two-step loan project office
- Ministry of Finance
- MonSEFF project office
- ARDP project office
- Loan Department of Development Bank of Mongolia
- Organic Mongolia project office
- Credit Guarantee Fund of Mongolia
- Loan Management Department of SMEDF

This study covers 26 loan products, classified into following 5 groups:

#### 1. Green loans for business enterprises:

- 1) Mongolian Sustainable Energy Financing Facility (MonSEFF) project loan
- 2) Second phase of JICA's Two-Step Loan (TSL) project: protecting environment
- 3) Organic Mongol project loan
- 4) Xacbank's Business loan to reduce GHG emissions
- 5) Ministry of Environment and Tourism (MET) – Green loan for tourist camps

#### 2. Green loans for individuals and households (consumers):

- 6) Ministry of Environment and Tourism (MET) – Green loan for citizens
- 7) Khan bank: Green loan for consumers
- 8) State bank: Green loan
- 9) Arig bank: Eco car loan
- 10) TDBM: Eco car loan
- 11) Capitron bank: Electric scooter loan
- 12) Transcapital NBFi: Green loan

#### 3. SME loans (not necessarily green):

- 13) Cashmere Program loan
- 14) Additional financing of Agriculture and Rural Development Project
- 15) SME support loan of KfW bank of Germany
- 16) Employment support loan of ADB
- 17) SME Development Fund's loan
- 18) Small loan of Employment Support Fund
- 19) Supporting Credit Guarantee System for Economic Diversification and Employment project loan

- 20) Business loans of NBFIs
- 21) Second phase of JICA's Two-Step Loan project: supporting SMEs

#### 4. Currently suspended green loans:

- 22) Green Loan Guarantee Fund
- 23) XacBank Mortgage to reduce GHG emissions
- 24) XacBank Eco car loan

#### 5. Green loans yet to start:

- 25) Ulaanbaatar Green Affordable Housing and Resilient Urban Renewal Sector Project
- 26) Switch-Off Air Pollution ("Warm solutions") project

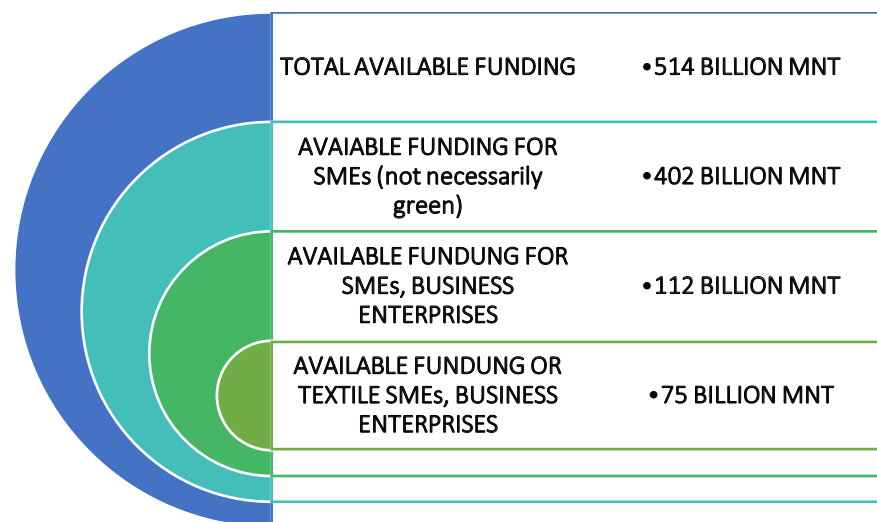
#### 4.2.2 Green finance supply estimation

From five groups of loan products considered in this study, the following two groups, accessible by textile producers, were included in the estimation of green finance supply: 1) Green loans for business enterprises and 2) SME loans (not necessarily green). This is because Suspended green loans, Green loans yet to start and Green loans for individuals and households are not suitable to be considered as green loan supply for textile sector in terms of purpose and context.

Accordingly, total available green finance supply is estimated at MNT 514 billion which is the sum of currently available funding of above mentioned 2 groups of loans.<sup>17</sup>

<sup>17</sup> Current available funding is calculated as total funding minus total issuance of the loan – i.e., the amount which hasn't been issued yet.

**Figure 4. 3 Supply of available funding of green finance for textile sector**



Of which, supply of available green funding accessible by textile SMEs and business enterprises is estimated as MNT 75 billion which consist of following 3 loan products belonging to the green loans for business enterprises:

- JICA's Two-Step Loan project
- MONSEFF project loan
- XacBank business loan for GHG reduction

Among all loan products included in this study, only these 3 products can be defined as a "green" loan "accessible by textile factories". However, none of these loans except JICA's TSL have a history of being issued to textile

companies. To date, only one textile enterprise has borrowed MNT 150 million from JICA's TSL.

In addition to these 3 loan products, there are 2 green loan products for business enterprises, namely Organic Mongolia project loan and Green loan for tourist camps initiated by the Ministry of Environment and Tourism, with combined total available funding of MNT 37 billion. However, these loans are not intended or suitable for textile industry companies.

Funding available for SMEs (not limited by green specification) equals MNT 402 billion. Textile industry companies have a substantial history of SME loans, MNT 298.4 billion worth of loans taken by 118 business enterprises.<sup>18</sup>

#### 4.2.3 Review of loan products by group

**1. Green loans for business enterprises** | The total initial funding of 5 loan products belonging of this group was MNT 238 billion of which MNT 112 billion is currently available. Funding sources are both domestic and external. For example, MonSEFF project loan is financed by the European Bank for Reconstruction and Development while TSL project loan is financed by JICA. On the other hand, Organic Mongolia project loan is financed by domestic companies such as Max Group and Petrovis. Green loan for tourist camps is initiated by the MET and financed by commercial banks' while XacBank business loan to reduce GHG emissions is financed by Green Climate Fund and other external sources. Loan products of this group are offered by 5 commercial banks, namely XAAH bank, XacBank, Golomt bank, TDBM and UBCB. The first phase of TSL project started in 2006 while Organic

Mongolia project and the second phase of TSL project started in 2009 and 2011, respectively. These projects were followed by XacBank green loan for GHG reduction and MonSEFF project starting in 2013 and 2014 respectively. The latest green loan of this group is the green loan for tourist camps which launched in August 2019.

**2. Green loans for individuals and households** | This group includes green loans offered by 5 commercial banks and 1 NBFI and a green loan for individuals by the MET. Total issuance of these loans is MNT 15 billion. Khan bank started issuing its green loan products in 2017 while TDBM launched its eco car loan in 2018. Other loan products have been launched quite recently. Purposes of such loans include of eco vehicles, eco housing and consumer goods, insulation of buildings and construction of eco toilets.

**3. SME loans (not necessarily green)** | This group includes 9 loan products which are accessible by textile enterprises. The total initial funding of these loans was MNT 963.4 billion of which MNT 402 billion is currently available. These loans have funding from external and domestic resources. For example, 3 loan products are funded by ADB while one loan product is financed by KFW bank of Germany and JICA. In total, 5 loan products are financed from external financing sources. The remaining 3 loans have domestic funding sources including the Development Bank of Mongolia, SMEDF and ESF. These loan products are offered through the DBM and 11 commercial banks. ESF's small loan project launched in 2002 while the first phase of TSL project started in 2006 followed by the SMEDF's loan in 2009. The second phase of TSL project started in 2011. The additional financing of

<sup>18</sup> The amount of SME loan issued for textile companies is the sum of following three loans: "Cashmere program", "ARDP loan", "SCGSEDEP loan".



ARDP and SCGSEDE projects started in 2016. Most recently, the Cashmere program was launched in 2018.

**4. Currently suspended green loans** | Green Loan Guarantee Fund, XacBank Mortgage fund to reduce GHG emissions and XacBank Eco car loans belong to this group. In total, MNT 12.6 billion of loan was issued. For example, the Green Loan Guarantee Fund, which was established in 2006, was active during 2007-2009 and provided green loan guarantee of MNT 385 million.

**5. Green loans that are yet to start** | This group includes 2 products under Ulaanbaatar Green Affordable Housing and Resilient Urban Renewal Sector (AHURB) Project and Switch-Off Air Pollution project. Although these projects have formally been launched, the green financing activities and products are still in the stage of development. Financing of AHURP project comes from such sources as Green Climate Fund, High-level Technology Fund and Asian Development Fund, and approved budget for green loan is MNT 202 billion.

A detailed review of all loan products can be found in Appendix 2.

#### **4.2.4 Environmental, social and sustainable development issues addressed by the loan products and their impact**

Most loan products covered in this study address environmental and social issues to a certain extent. Generally, green loan products tackle environmental issues such as GHG reduction, air and soil pollution, energy efficiency, with clearly set target objectives. On the other hand, loans not specific to green classification, address pressing social issues such as unemployment and poverty. The Cashmere Program and SMEDF cover environmental, social and sectoral development issues. Two green loan

projects that haven't started yet include social related targets and objectives such as to improve living conditions, support vulnerable groups, improve public health and ensure gender equality in addition to the main environmental targets. Some projects and loan products address environmental and social issues by excluding the funding of harmful or polluting activities.

LOAN PRODUCTS	HOW THE PRODUCT ADDRESSES ENVIRONMENTAL, SOCIAL AND SDG ISSUES	IMPACT ON ENVIRONMENT AND SOCIETY
SECOND PHASE OF JICA'S TWO-STEP LOAN (TSL) PROJECT	Mining activities, production of alcohol and tobacco, entertainment, military and anti-environment activities cannot be financed	36.8 million KwT/h of energy saved, 55.5 thousand tons of coal consumption avoided, 134 thousand tons of CO2 emissions avoided annually 3577 new jobs created, MNT 34.3 billion of annual income generated, livelihood of 14308 people supported
MONGOLIAN SUSTAINABLE ENERGY FINANCING FACILITY (MONSEFF) PROJECT LOAN	Energy-saving and reducing GHG emissions are supported	107.5 million KwT/h of energy saved, 28.5 thousand tons of CO2 emissions avoided annually
ORGANIC MONGOL PROJECT LOAN	The project aims to provide financing for citizens and enterprises whose activities are environment-friendly: using natural resources efficiently, supporting ecosystem services, reducing GHG emissions and waste, preventing environmental pollution	Is "Organic Mongolia" project affecting you and society positively? 66.5% responded "yes" to above question.
MINISTRY OF ENVIRONMENT AND TOURISM (MET) – GREEN LOAN FOR TOURIST CAMPS	Addressed	Environmental pollution will be reduced
XACBANK'S BUSINESS LOAN TO REDUCE GHG EMISSIONS	Addressed	Supports energy efficiency and GHG reduction; Offers lower interest rates for women-led businesses
MINISTRY OF ENVIRONMENT AND TOURISM (MET) – GREEN LOAN FOR CITIZENS	Addressed	Air and soil pollution will decrease; Living conditions of citizens will be improved
XACBANK'S MORTGAGE FOR REDUCING GHG EMISSIONS	Addressed	GHG emissions will decrease
XACBANK'S ECO CAR LOAN	Addressed	Air pollution will decrease
KHAN BANK: GREEN LOAN FOR CONSUMERS	Addressed	Air and soil pollution will decrease; Eco consumption will be supported
STATE BANK: GREEN LOAN	Addressed	Air pollution and traffic jam will decrease
ARIG BANK: ECO CAR LOAN	Addressed	Air pollution will decrease
TDBM: ECO CAR LOAN	Addressed	Air pollution will decrease
CAPITRON BANK: ELECTRIC SCOOTER LOAN	Addressed	Air pollution and traffic jam will decrease
TRANSCAPITAL NBF: GREEN LOAN	Addressed	Environment-friendly, energy-saving, and air and soil pollution reducing activities are supported
ULAANBAATAR GREEN AFFORDABLE HOUSING AND RESILIENT URBAN RENEWAL SECTOR PROJECT	The project aims to improve living conditions and make UB city safe, healthy and green city which is climate resilient. The project also includes social measures for women, the	8,500 green mortgage loans are produced to which at least 40% of the beneficiary are women 40% of the overall jobs created within the perimeter of the eco-district go to local communities of which at least 40% for

	<p>poor and other vulnerable groups: Give access to all women-headed and poor households in the eco district to improved housing and utility services; support women-run businesses, provide employment for local women etc.</p> <p>Measures to address the risk of spread of HIV/AIDS</p> <p>Provide employment for local community, avoid child labour and forced labour.</p>	<p>women and 15% for vulnerable people.</p> <p>200,000 person-months of employment opportunities created during project construction.</p> <p>Provide at least 20 trainings for at least 80 start-up businesses with at least 160 participants, including at least 50% women</p> <p>At least 40% of businesses located in the commercial facilities in the eco-districts are led by women</p>
SWITCH-OFF AIR POLLUTION (“WARM SOLUTIONS”) PROJECT	<p>Health of population in Mongolia is improved through the promotion of energy sustainable consumption patterns and behaviours in the individual housing sector;</p> <p>Energy consumption and emissions of CO2 and particle matters are reduced in UB’s ger area</p> <p>Training and technological support to SMEs</p>	<p>1000 houses will be retrofitted, heat loss will decrease by 20%, 1600 million tons of coal will be saved, and 6000 tons of GHG will be avoided.</p>
CASHMERE PROJECT LOAN	Addressed	<p>The project aims to increase production and exports of environment-friendly final products.</p> <p>Requires loan applicants to conduct environmental impact assessment or their projects</p>
ADDITIONAL FINANCING OF AGRICULTURE AND RURAL DEVELOPMENT PROJECT	Addressed	<p>The project aims to support rural development and contribute to poverty alleviation.</p>
“SUPPORTING CREDIT GUARANTEE SYSTEM FOR ECONOMIC DIVERSIFICATION AND EMPLOYMENT” PROJECT LOAN	Addressed	<p>The project aims to increase employment;</p> <p>The following sectors are ineligible for guarantee: Production of tobacco and alcohol, lottery, mining activities.</p>
SME SUPPORTING LOAN OF KFW BANK OF GERMANY	Not addressed	<p>Doesn’t require environmental impact assessment</p>
EMPLOYMENT INCREASING LOAN OF ADB	Addressed	<p>The project aims to support self-employed people and increase employment.</p>
SME DEVELOPMENT FUND’S LOAN	Addressed	<p>1.4.7 of the project selection rules: Projects which have used technologies or materials that are harmful for environment and human health and caused ecological damages are ineligible for loan.</p>
SMALL LOAN OF EMPLOYMENT SUPPORT FUND	Addressed	<p>Small loans are issued with consideration of the number of newly created jobs and the number of unemployed or vulnerable people hired by the project.</p>

#### 4.2.5 Terms and common requirements of loans offered by commercial banks

Common requirements and eligibility criteria of loan products included in this study are determined and summarized below based on the results of green loan survey of commercial banks and information provided by relevant organizations.

- Requirements of green loan products for business enterprises (MONSEFF project loan, JICA's two-step loan project, Organic Mongolia project loan, XacBank business loan to reduce GHG emissions) include environmental targets such as energy savings rate and reduction of GHG emission, and minimum level of investment return (10-13%).
- Requirements of green loan products for individuals and households (consumers) are the same as those of other (non-green) consumer loan products. For example, such requirements as to be able to demonstrate regular income, to have no overdue loans, selected the goods to be purchased, to have a permanent residence address are common. However, unlike ordinary consumer loan products, green loans require that the goods purchased by the loan applicant must essentially be green products.

*Table 4. 4 Additional requirements of green loans for consumers*

GREEN LOAN PRODUCT FOR CONSUMERS	REQUIREMENTS
<i>Ministry of Environment and Tourism (MET) – Green loan for citizens</i>	<i>Have chosen environment-friendly technology</i>
<i>XacBank: Green mortgage for GHG reduction</i>	<i>Ger district residents must be buying an apartment; Owners of apartments which has been used before 1997 must be buying an energy efficient apartment or an apartment which hasn't been used before 1997;</i>
<i>XacBank: Eco car loan</i>	<i>Must be buying a car which meets the following conditions:</i> <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>manufactured after 2008</i></li> <li><input type="checkbox"/> <i>hasn't used in Mongolia</i></li> </ul> <i>hybrid or electric car which would reduce GHG emissions by at least 20%</i>
<i>Khan bank: Green loan for consumers</i>	<i>Must be buying an eco-product from a supplier which has an agreement with Khan bank</i>
<i>State bank: Green loan</i>	<i>Must be buying a 100% electric car, a bicycle or an electric scooter</i>
<i>Arig bank: Eco car loan</i>	<i>Must be buying a car which meets the following conditions:</i> <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>electric or hybrid</i></li> <li><input type="checkbox"/> <i>manufactured within the last 10 years</i></li> <li><input type="checkbox"/> <i>imported before less than 1 year</i></li> </ul> <i>usable without any additional maintenance services</i>
<i>TDBM: Eco car loan</i>	<i>Must be buying an electric, hybrid or LPG car</i>
<i>Capitron bank: Electric scooter loan</i>	<i>Must be buying an electric scooter</i>

<i>Transcapital NBFIs: Green loan</i>	<i>Must be buying an eco-apartment, car or consumer goods</i>
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- SME loans which are not necessarily green but accessible by textile companies require the loan applicants to be based in Mongolia and operating in accordance with laws of Mongolia, to have prepared a project proposal, to be creating new jobs and to be a small or medium sized enterprise.
- Most loan products generally require that the loan applicant should have no overdue loans, have a collateral, have adequate work/operation experience, have stable operation, and be able to demonstrate regular income.

Terms of loan products included in this study are summarized by types of loans in Table 4.5. There are four loan products which are consistent with the expectation of textile factories in terms of interest rate (no more than 8%), namely SMEDF's loan, ESF's small loan, ARDP loan, TSL of JICA, while other loan products have interest rates of 10% and higher. In addition, 7 loan products are consistent with the expectation of textile factories in terms of loan duration (more than 5 years) while remaining 5 loan products have a duration of less than 5 years.<sup>19</sup>

<sup>19</sup> Green loans for consumers and business loans by NBFIs are not included.

**Table 4. 5 Terms of loan products, by types**

<i>Type of loan</i>	<i>Interest rate %</i>	<i>Loan amount MNT mln</i>	<i>Loan duration months</i>
<i>Green loan products for enterprises</i>	<i>8.0-16.8</i>	<i>20-5645</i>	<i>36-120</i>
<i>Green loan products for consumers</i>	<i>9.0-21.6</i>	<i>10-150</i>	<i>30-240</i>
<i>SME loans (non-green)</i>	<i>3.0-18.0</i>	<i>20-6774</i>	<i>24-120</i>
<i>NBFI business loan</i>	<i>25.5-58.8</i>	<i>100-2000</i>	<i>36-60</i>

#### **4.2.6 Barriers faced by textile companies to access green finance and risks associated with their operation – from bank's point of view**

Common barriers for textile factories to access green loan and common risks for banks to issue loan for those factories are determined and summarized below based on the results of green loan survey of commercial banks and data collected from relevant organizations.

- The most difficult requirements for textile factories include the collateral requirement, stability of sales revenue and debt-income ratio. This is due to volatile and seasonal nature of sales revenue of textile companies.
- Commercial banks have identified the main risks associated with issuing loans for textile industry companies as follows: limited financial capacity to repay loans, instability of revenue, and limited capacity of human resource and technology.

- Both banks and loan applicants encounter difficulties when trying to measure energy-savings and GHG reduction values due to lack of baseline data. It limits the possibility of measuring the real effect of a project. In addition, disagreement is common whether the bank and the loan applicant must pay for the energy audit costs.
- There is no agreed definition or criteria of what is green and what is not green in the financial sector which imposes difficulty on the process of green loan issuance.

#### **4.2.7 Common loan purposes for textile companies – from bank's point of view**

Based on the results of green loan survey of commercial banks, common purposes for which the textile enterprises apply for 2 main loan products are determined as below.

- *For JICA's Two-Step Loan project: to purchase new machinery or equipment and to expand production premises or buildings,*
- *For ARDP loan: to purchase new machinery or equipment, to increase current assets and to increase the sales.*

## CHAPTER 5. CONCLUSIONS AND RECOMMENDATIONS

Earth's climate had fluctuated wildly over millions of years of its history but human activity in the past 260 year of industrialisation caused extreme spikes in greenhouse gas emissions leading to climate change and global warming. Consumption and dependence on fossil fuel is increasing at an alarming rate while overpopulation across the world increases the demand for food and agricultural products. Activities such as deforestation (to clear land for plantations), intensive livestock farming and use of high nitrogen fertilizers lead to emission of carbon dioxide, methane and nitrogen gas that creates a greenhouse effect. Consequently, for example, the Mongolian climate warmed by 2 degrees Celsius over the past 70 years only. Cutting greenhouse gas emissions at all levels, across all sectors and in every country of the world, ceasing the most damaging human activities, and reducing the environmental degradation is not a matter of choice anymore, it is a critical issue about humanity's survival.

Since the 1970's, active civil movements for the responsible use of natural resources and for the protection of nature and environment commenced in developed countries. Over the last 20 years, the fashion, apparel and textile industries increasingly focus on issues related to animal cruelty, resource efficiency, waste minimization, non-polluting and non-hazardous manufacturing.

In this regard, we hope that the Green finance market demand study of small and medium textile enterprises in Mongolia was a timely, novel, the first of its kind for the industry and important work with far-reaching impact. Despite challenges, such as different definitions and understandings about green finance, scope of research, methodology, data availability and more, we believe that the results of the study are fairly accurate because frequent consultations, information exchange and discussions with relevant project

stakeholders were conducted throughout. Based on study results, conclusions and recommendations can be summarized as follows:

- Interviews revealed that sustainable production, green finance and green loans are novel concepts for Mongolian SMEs. Therefore, it was necessary to assist/guide the study participants by providing information about these concepts.
- The green finance market demand for textile SMEs is estimated at MNT 250 billion using market share-based forecast and MNT 576 billion using target-based forecast. On the other hand, it has been determined that available supply of green finance for textile SMEs is MNT 75 billion. Therefore, demand for green finance required by the textile SMEs to shift to more sustainable, green production and operation is 3.3-7.6 times higher than market available supply at the moment.
- Although, senior executives of surveyed companies have expressed a common desire to shift to more sustainable and green production and operation practices, the majority (80%) stated that they have not taken any initiative or action to implement such measures. It reveals that textiles companies recognise the importance and necessity for sustainable production but do not have means or knowledge about step-by step activities to achieve it, lack relevant information and knowledge, and/or green production might not be a priority issue to resolve for a particular company/processor.
- Small companies with 10-50 workers, medium companies with 50-200 workers, and large enterprises with over 200 employees have very different requirements when it comes to investment needs, purpose, volume, intended uses and so on. Thus, a single financing model could not be applied to satisfy green finance needs of very different types of producers.



- Wool and cashmere processors, especially small and medium producers, are not interested in getting loans or extra finance with a sole purpose of making their production sustainable because they are anxious of financial burden, obligations and risks. Top priority financing/loan needs for SMEs are raw cashmere procurement, current assets/working capital to purchase machinery and equipment, staff wages, operation expenses, and finance required to ensure continuous operation of the company as highlighted by senior executives. For small and medium-sized enterprises, there is a high risk of losing skilled workers and qualified staff if they stop operations for just a few months.
- In other word, even if enough green funds with attractive terms and conditions were available, there could be low interest from manufacturers, its sales might be low or lengthy. In such cases, incentives or regulatory measures will be necessary.
- To substantiate above point, currently, MNT 75 billion worth of green funding is available for textile industry SMEs while, according to our research, only one enterprise took a green loan of MNT 150 million.
- It can summarized that textile producers are not accessing green funding sources because they: try to avoid financial risks; do not have sufficient loan repayment capacity; cannot fulfil loan requirements and criteria; do not have sufficient manpower, capacity and experience to prepare loan documents; do not have sufficient knowledge and experience in sustainable, green production; do not carry out full evaluation of environmental and social impact assessment; overall lack of relevant knowledge and information related to all above points.
- Preparation of loan application materials requires considerable resources for a small company in terms of skill, labour and time.

Therefore it would be very beneficial for textile SMEs if banks and financial organisations carried out short, frequent trainings on a regular basis covering such topics as how to prepare complete loan applications, how to ensure successful outcome of loan application and more.

- International best practices, for instance, Partnership for Cleaner Textile (PaCT) project implemented in Bangladesh by IFC, demonstrate that the first step towards resource efficient production and manufacturing is to start measuring and documenting uses of water, energy and chemicals. Implementing such measures are easy to adopt, do not require much funding while its benefits are far-reaching and impactful. Accordingly, all Mongolian textile producers should aim to measure and document all their utility uses which would be simple, cheap and effective first steps towards industry-wide shift towards sustainable production. Then, the decision should be made whether it is worthy to finance other efficiency measures and green activities.

## ANNEXES

### ANNEX 1. WASTEWATER TREATMENT PLANT, WATER SOFTENER AND BUILDING INSULATION

A basic market research has been carried out to assist textile producers with the selection of green technologies, equipment and suppliers, based on request from interviewed companies.

#### 1. Wastewater treatment plant/facilities

Most factories have no water treatment and reuse systems and wastewater of factories is discharged into the main central sewage system. Some of the factories expressed interest in constructing their own wastewater treatment plant. Therefore, we aimed to prepare wastewater treatment plant information about initial investment, technological solution and so on.

We contacted 4-5 major companies constructing and/or selling a household and industrial wastewater treatment system. There are rarely available standard prices for wastewater treatment plants because a plant is constructed with different capacities and modes depending on the features of the factories such as daily usage of water, level of workload, usage of chemical products and level of toxicity of wastewater.

The following table is prepared to provide some data of wastewater treatment plant cost.

*Table A1.1 Approximate investment cost, sellers and other info for wastewater treatment plant*

	<i>Approximate cost</i>	<i>Technology, capacity of plant, etc.</i>
<b>BAUHAUS company</b>	(They said that it is not possible to give one price information because plants are customized to particular factory)	An independent sewage system is manufactured in Germany. Wastewater treatment septic system with bacterial multiplication has a technological solution that cleaned water in multiple stages and put back cleaned water into nature.

	Example: Treatment plant cost is 2-2.5 billion MNT (capacity of 200-300 households per day)	Wastewater are purified with 90-99% and then absorbed into soil. Operating cost is low and depending on wastewater volume produced by the factory, the septic system size varies. Example: The company constructed the wastewater treatment plant of the "Infrastructure Center" in the ger area of Chingeltei district, 7th khoroo. This treatment plant has the capacity to treat wastewater produced by 200 to 300 households.
<b>Ultrasonic LLC</b>	Approximate cost of equipment depending on the usage of water per day: 50 m3 – 350 mill ₮ 100 m3 – 600 mill ₮ 200 m3 – 900 mill ₮	There are two household wastewater treatment systems working different German technologies which are membrane bioreactor (MBR) method and WSB (floating rotary body bioreactor) method. WSB technology's capacity is more suitable for usage of 5-5000 population. Wastewater is purified with 90-99%, microbiology method destroys pathogenic bacteria, fully automatic, able to adapt in Mongolian harsh climate and treated water can be directly absorbed into soil.
<b>Atmor XXX</b>	(They said that it is not possible to give one price information because plants are customized to particular factory)	According to the company's info, their wastewater treatment facility has a septic system, does not use air diffusers at the purifying system so operating cost of it is low.

<b>Altai Ecolos LLC</b>	(They said that it is not possible to give one price information because plants are customized to particular factory) Example (household wastewater treatment facility): 32 m <sup>3</sup> – 160 mill ₮ (Тонаэро-32 Пр) 60 m <sup>3</sup> – 260 mill ₮ (Астра-300)	Altai Ecolos is an official distributor company of Russian “ЮНИЛОС” and “ТОПОЛ-ЭКО” companies which are related to wastewater treatment facilities. Wastewater is purified to 98% of purification and treated water meets the requirement of the MNS 4943:2011 standard. The company provides a loan service to those who want to buy wastewater treatment facilities.
<b>Khovd tul LLC Mongolian engineers (D.Balsandorj)</b>	<ul style="list-style-type: none"> <li>□ Over 200 million MNT of the wastewater treatment plant was built at the factory building of Gobi cashmere.</li> <li>□ They estimated that constructing the treatment plant would have cost around 200-300 million MNT at the Khanbogd factory.</li> </ul>	

## 2. Insulation materials

When you use high-quality insulation materials in the buildings it allows you to save energy consumption with an efficient heat system and so reduce a negative impact on environment. Nowadays, there are many insulation kinds of materials used. But, in our research, we covered common materials that are being used today such as polystyrene board, fibre glass-wool and other materials, that are more expensive, qualitative, eco-friendly, safe and fire-resistant materials such as rock wool, mineral wool and sheep wool. These insulation materials are used for outside wall, adjustment wall, insulation between different levels of the building, soundproofing, roof insulation and foundation insulation (polystyrene board is not used for insulation wall). One of the main characteristics of insulation materials is thermal conductivity coefficient, and the less amount of coefficient is the better it is.

Table A1.2 Key characteristics, comparisons of insulation materials

Name of insulation material	Thermal conductivity coefficient	Density kg/m <sup>3</sup>	Steam penetration mg/(м.ч.Па)
<b>Polystyrene EPS board</b>	0.036 – 0.050	25 – 50	0.02 – 0.05
<b>XPS board</b>	0.029 – 0.031	30 – 50	0.02
<b>Woolen insulation</b>	0.039 – 0.042	30 – 40	0.35
<b>Rock wool/Mineral wool/</b>	0.035 – 0.045	40 – 125	0.38 – 0.60
<b>Glass-wool</b>	0.038 – 0.045	15 - 100	0.53

Source: Choice of insulation materials, barilgachin.mn

Table A1.3 Types, prices, and sellers of building insulation materials

	Depth	Mark/density	Price, mnt	Company
<b>Polystyrene EPS board</b>		14-15 kg/m <sup>3</sup>	94,600 (1m <sup>3</sup> )	Barilgachin. mn
		20-22 kg/m <sup>3</sup>	132,600 (1m <sup>3</sup> )	
		31-33 kg/m <sup>3</sup>	197,600 (1m <sup>3</sup> )	
<b>EPS Polystyrene board (Mongolia)</b>		20-22 kg/m <sup>3</sup>	132,600 (1m <sup>3</sup> )	Piramid industry LLC
		23-24 kg/m <sup>3</sup>	145,600 (1m <sup>3</sup> )	
<b>Grey polystyrene NEOPOR (Mongolia)</b>		20-22 kg/m <sup>3</sup>	147,000 (1m <sup>3</sup> )	
<b>Penoplex XPS board (Russia)</b>	5 cm		285,000 (1m <sup>3</sup> ) 14,000 (1m <sup>3</sup> )	Rostorg LLC
<b>Sheep wool insulation (Mongolia)</b>	10 cm		20,900 (1m <sup>3</sup> ) /1 package 9.135 m <sup>2</sup> /	Eco wool LLC
<b>Rock wool (Mongolia)</b>		100 kg/m <sup>3</sup>	215,000 (1m <sup>3</sup> )	Basaltwool LC (without VAT)
		120 kg/m <sup>3</sup>	275,000 (1m <sup>3</sup> )	
	10 cm	100 kg/m <sup>3</sup>	21,500 (1m <sup>3</sup> )	
	5 cm	60 kg/m <sup>3</sup>	7,250 (1m <sup>3</sup> )	

Mineral wool board (Russia - Тепло KNAUF)	10 cm	12 kg density	46,084 (6 m <sup>2</sup> )	Rostorg LLC
		16 kg density	60,060 (6 m <sup>2</sup> )	
Fibre glass-wool (Russia - Ursa)	5 cm		47,025 (16.8 m <sup>2</sup> )	Rostorg LLC

Source: Official websites of the companies, Barilgachin.mn. Prices as of September 2019

Note: Above companies were chosen based on the "Insulation campaign report 2017-2018".

Insulation materials of polystyrene board, fibre glass-wool, rock wool, mineral wool, and sheep wool are all own advantages and disadvantages, therefore, you have to

choose based on own special requirements. For example, fiber glass-wool and polystyrene boards are cheap and weak fire-resistant, while sheep wool is organic, good fire-resistant, ability to absorb toxic chemicals but relatively expensive and ability to attract insects in.

In Mongolia, there is companies, teams and ad hoc private people that are specialized in construction insulation materials used exterior façade, ceiling and walls. The charge of work is based on 1 m<sup>2</sup> of construction plain and fee varies depending on what kind of insulation materials would be used. In most cases, client would provide insulation materials and teams would charge labor fee based on 1 m<sup>2</sup> of construction plain. 1 m<sup>2</sup> of exterior façade, insulation fee is between 15,000-40,000 tugrug, and for example, the cheapest one of 15,000 is used a polystyrene board. If rock wool, mineral wool or fibre glass-wool would be used, the fee gets much higher than above.

### 3. Water softener

Table A1.4 Water softener

	Price, mnt	Model, capacity, volume, etc.
Argil suvd LLC	6,500,000	HWS – 1044, 1.0 m <sup>3</sup> /hour, 559x334x658 mm
Tot com service LLC	242 – 119,730 USD	Prices of industrial water softeners are different depending on the capacity and speed of water flow. For example, if the flowing water limit is between a minimum of 2.5 liter and a maximum of 7.5 liter, the price of a water softener is 242 dollars at the cheapest price. The highest price is 119,730 dollars with the limit between a minimum of 2964 liter and a maximum of 8892 liter.
Aqua electronics	7,500,000	Pure Pro-1500G. A water pump with a capability of 3 bar pressure 4m <sup>3</sup> /hour is used at the installation. A nominal flow rate is 4m <sup>3</sup> /hour and maximum pressure is 10 bar.
	1,500,000	Multi Housing 7 model is made in Korea. Maximum pressure is 0.6Mpa (6 bar), and this model is suitable for factories using 5-10 tons of water per day.
Monvecom LLC (Ecowater Shop)	6,700,000	RO-600 model, capacity 3-4 tn/d, filter volume 0.0001 microns and filtered up to 1-10 pollution.
	13,000,000	A softener has paper and mechanic filters and these need to be updated a certain time. [Micro filter has a capacity of 10 tn/h and its filter volume is 05 microns. It is needed to a replaced new one after a certain time depending on the quality of water and volume of water]

Source: Official websites of the companies. Prices as of September 2019

## ANNEX 2. REVIEW OF ALL LOAN PRODUCTS INCLUDED IN THE STUDY

### Section A.1. Green loan products currently issued in Mongolia

#### Section A.1.1 Green loan products for enterprises

Total available funding – MNT 112 billion

Loan product 1. Mongolian Sustainable Energy Financing Facility (MonSEFF) project loan – MNT 21.4 billion (USD 8 million)

This project is financed by European Bank for Reconstruction and Development and Green Climate Fund, and Khan bank and Xac bank have been offering green loan for enterprises who aim to reduce their energy consumption since 2014 (Table A2.1). The initial funding of the project was USD 25 million of which USD 17 million has been issued. Green loan is issued for two purposes: A) Energy efficiency of a company B) Investment in renewable energy. Main sectors involved in this project are manufacturing, construction, agriculture, transportation and renewable energy.

Below results are required from proposed projects to fulfill the loan requirement:

- Fuel consumption and energy cost have decreased steadily.
- Renewable energy investments must displace in part or in full the energy demand of the site.
- If new buildings are to be constructed, the technology to be used must be above or equal to the market average or the country's building standard.

A) Below technologies are considered eligible for the energy efficiency loan:

- |   |   |
|---|---|
| <input type="checkbox"/> Efficient lighting                           | <input type="checkbox"/> Boilers  |
| <input type="checkbox"/> Efficient heating and cooling systems (HVAC) | <input type="checkbox"/> Variable-speed drive controls                    |
| <input type="checkbox"/> Efficient refrigeration systems              | <input type="checkbox"/> Heat recovery systems                            |
| <input type="checkbox"/> Efficient electric motors                    | <input type="checkbox"/> Solar cooling systems                            |
| <input type="checkbox"/> Efficient electric transformers              | <input type="checkbox"/> Solar PV panels                                  |
| <input type="checkbox"/> Compressed air systems                       | <input type="checkbox"/> Solar water-heating systems                      |
| <input type="checkbox"/> Efficient electricity systems                | <input type="checkbox"/> Hydro-electric generators                        |
| <input type="checkbox"/> Thermal insulation                           | <input type="checkbox"/> Micro Combined Heat and Power generation systems |

Technical requirements for projects:

- Investments should result in energy savings of at least 15%
- Investments should result in an IRR of at least 10%
- All equipment purchased should be new (although the EBRD may allow exceptions in some cases)
- Investments should not involve trade in, or production of, ozone-depleting or asbestos-containing products
- Equipment being replaced must be disposed of and not placed on the resale market

B) Renewable energy investments include hydroelectricity, wind power, biomass/biogas and solar energy. Funding is available only for renewable energy investments designed for own use.

Renewable energy loans are available for applications such as:

- 1) Photovoltaic (PV) equipments
- 2) Wind turbines
- 3) Mini hydro or biomass converting
- 4) Projects to generate biogas from animal, vegetable or other waste

Technical requirements:

1. All loans must achieve a positive > 0% IRR of 0%
2. All renewable energy investments must displace in part or in full the energy demand of the site

Table A2. 1 Banks offering MonSEFF loan and terms of their loan

<i>Bank</i>	<i>Khan</i>	<i>Xac<sup>20</sup></i>
<b>Interest rate</b>	13.8-16.8%	14.4-15%
<b>Amount of loan</b>	MNT 500 mln – USD 2.5 mln	Flexible
<b>Duration</b>	5 years	5 years
<b>Purpose of the loan</b>	Saving energy, supporting renewable energy use, upgrade equipments and production line	Supporting production and consumption of energy-efficient or GHG-reducing products

*Textile sector:* This green loan hasn't been issued for any textile company. To date, 8-9 enterprises have applied for the loan to upgrade their equipments. However, none of the applications was successful because their financial capacity was considered unreliable – i.e., the companies had other loans to repay. Moreover, this green loan product is not available to most SMEs because the lower limit of the loan amount is MNT 500 million which is too high for those SMEs.

Loan product 2. Second phase of JICA's Two-Step Loan (TSL) project for supporting SMEs and protecting environment – Total initial funding was USD 55 million (of which USD 10 million was allocated to protecting environment while remaining USD 45 million was allocated to supporting SME). However, the initial funding has been fully exploited, and loans are currently issued from the revolving fund.

This project is financed by the concessional loan provided by the Japanese government and aims to support SMEs and protect environment. The first phase of the project was implemented between 2006 and 2011 while the second phase of the project has been implemented since 2011, and the project loan has two main

purpose: Support SMEs and protect environment. Currently, 5 commercial banks in Mongolia are offering this loan (Table A2.2).

General requirement:

- Must be owned by Mongolian citizens (at least 51%)
- Must have number of employees less than 299
- Must be able to finance at least 20% of total project cost on their own
- Investment return must be higher than 13%
- Must have conducted the project's environmental impact assessment

Green loans are issued for below purposes:

- Replacing old steamboilers with more efficient boilers or produce new boilers
- Improve fuel quality by processing raw coal and producing patent fuel
- Other projects to reduce coal consumption, generate renewable energy and reduce pollution

Table A2. 2 TSL төслийн хүрээнд зээл олгож буй банкууд, зээлийн нөхцөл

Bank	Purpose	Amount of loan	Interest rate	Duration
<b>Khan</b>	Increase current assets, purchase new equipment and machinery, build and expand buildings	MNT 800 mln	8%	10 years
<b>Xac</b>	Only fixed asset investments	USD 400,000 or equivalent MNT	8%	10 years
<b>Golomt</b>	Increase current assets, purchase new equipment and machinery, build and expand buildings	USD 400,000 or equivalent MNT	8%	10 years
<b>TDBM</b>	Expand operation, build, buy or refurbish building for a new project, purchase equipment, furniture, tools, machinery or vehicle	USD 400,000 or equivalent MNT	8%	10 years
<b>UBCB</b>	For SMEs to expand current operation or start a new operation	USD 600,000 or equivalent MNT	8%	10 years

Loan product 3. Organic Mongol project loan – MNT 4 billion

This project has been implemented jointly by Mongolian National Chamber of Commerce and Industry, Petrovis LLC, Max Group, Energy Resource LLC, NTV television and Xac bank since 2009 and aims to support environment-friendly micro businesses and production of eco products. Formerly, the project targeted at agriculture, handcrafting, fruits, dairy products, poultry, bee-farming and other

environment-friendly sectors. However, the loan is currently only available for agriculture. Xac bank is offering the loan with below terms:

- Interest rate: 12%
- Loan amount: Enterprises MNT 60 million, Citizens MNT 20 million
- Duration: up to 3 years

As the financing source of loans, MNT 550 million is placed in commercial banks (MNT 350 mln in Xac bank, MNT 200 mln in Capital bank) each year. Since the project started, over 700 projects have received about MNT 2 billion. Thus, the current available funding source (MNT 4 billion) is calculated as total approved funding source between 2009 and 2019 (MNT 6 billion) minus total issued loan (MNT 2 billion).

Loan product 4. XacBank business loan for reducing GHG emissions – MNT 53.7 billion (USD 20.1 million)

Xac bank has offered this product since 2013. The purpose of this loan is to support production and consumption of products which are energy-efficient or reduce GHG emissions, and the terms of this loan are as follows:

- Interest rate: 14.4-15%
- Duration: 5 years
- Grace period: 12 months

Loan applicants are required to have reduced GHG emissions or saved energy by at least 20% and prove these achievements. Production and consumption of the following products can be supported:

- Refurbishment of buildings
- Energy-efficient dwellings
- Heating and cooling systems
- Upgradation of equipment and machinery
- Renewable energy
- Clean/improved fuel
- Other

This loan product has a number of funding sources such as Green Climate Fund and MonSEFF. The initial funding source was USD 39.5 million excluding the source from MonSEFF, and total issued loan to date is USD 19.4 million. Thus, the current available funding source is USD 20.1 million.

Loan product 5. MET – Green loan for tourist camps – MNT 33 billion

This loan product is initiated by the MET in August 2019 and dedicated for tourist camps which are able to host at least 100 guests per night. Khan bank and Xac bank will issue the loan with their own resources while the MET will subsidize the interest

rate from 18% to 9%. Thus, the interest rate will be 9% for borrowers, and the loan amount will be up to MNT 200 million. In addition, purposes of the loan will include:

- Install electric heater
- Build small-size wastewater treatment
- Build eco toilets
- Build “ger camps” with toilets
- Install equipments which fulfill the health standards

This loan will be issued from the same sources as the green loan for citizens which is also initiated by the MET. The MET has calculated that the maximum amount of issuance of these two loans will be about MNT 33 billion, and we considered this amount as the available funding source of these loan products.

#### Section A.1.2 Green loans for consumers

Loan product 1. MET – Green loan for citizens – MNT 33 billion

The MET initiated a green loan for citizens in August 2019. Banks will issue the loan with their own resources while the MET will subsidize the interest rate from 18% to 9%. Total available funding of the loan is calculated to be MNT 33 billion as the MET’s estimation of potential issuance. Purposes of the loan include electric heater, insulation of ger and houses and eco toilets. Khan bank, Xac bank and State bank will offer this loan on the following terms.

Table A2. 3 Banks offering MET’s green loan for citizens and terms of their loan

Bank	Amount of loan	Interest rate	Duration
<b>Khan</b>	MNT 5-15 million	8%	30 months
<b>Xac</b>	Uncertain	Uncertain	Uncertain
<b>State bank</b>	MNT 10-15 million	9%	30 months

Loan product 2. Other green loans for consumers



To date, Khan bank, State bank, TDBM, Capitron bank and Arig bank have introduced a green loan product for consumers which they finance from their own resources. In addition, Transcapital NBF, among the biggest NBFs, has introduced

a green loan product for consumers. However, the interest rate is higher than those of bank loans.

Table A2. 4 Green loan products for consumers and their terms

Loan product	Interest rate	Duration	Amount of loan	Purpose
<b>Khan bank: Green loan for citizens</b>	16.8%-18.6%	30 months	MNT 15 mln	Consumption of eco products (for reducing air and soil pollution)
<b>State bank: Green loan</b>	18-19.2%	12-30 months	MNT 30 mln	Bicycle, electronic scooter, 100% electronic car
<b>Arig bank: Eco car loan</b>	19.2-21.6%	30 months	MNT 50 mln	Eco car
<b>TDBM: Eco car loan</b>	19.2%	Citizens: 30 months Enterprises: 48 months	MNT 40 mln	Eco car (electronic, LPG, hybrid)
<b>Capitron bank: Electronic scooter loan</b>	20.4%	30 months	MNT 1.4 mln	Electronic scooter
<b>Transcapital NBF: Green loan</b>	28.8-36%	2-5 years	MNT 50 mln (no upper limit for mortgage)	Eco consumption of citizens (apartment, car, consumer goods)

Section A.2. Green loans which are currently not issued and projects planning to issue green loans

Total green financing which is planned to be issued = MNT 202 billion

1. Ulaanbaatar Green Affordable Housing and Resilient Urban Renewal Sector Project – MNT 202 billion (USD 75.7 million)

This project is being implemented by the MET of Mongolia and ADB and financed by Green Climate Fund, High Level Technology Fund and Asian Development Fund. Total financing of the project will be USD 228 million of which USD 53 million will be in the form of grant while USD 175 million will be in the form of soft loan. Approved in 2018, the project is planned to be implemented until 2024. The project aims to transform a 100 hectare of ger district into an eco district. To achieve this, 10000 green housing unit will be built, and green loan will be issued for developers of those housing units. 55% of green housing units will be available for subsidized

mortgage, 15% will be rented while 30% will be available for bank mortgage at market rate. Up to USD 75.7 million from the GCF will be accumulated in the Eco-District and Affordable Housing Fund for issuing these loans. Xac bank, Khan bank, Golomt bank and TDBM are expected to cooperate with the project to issue loans. However, green loans haven't started to be issued. It's expected that the interest

rate for housing unit developers will be about 15% while the interest rate for citizens will be 8-10%.<sup>21</sup>

2. Switch-Off Air Pollution (“Warm solutions”) project – funding for green loan is unknown

This project is being implemented within the Switch Asia program of EU, and the project implementers are planning to develop a green loan product in cooperation with Xac bank. The project aims to promote sustainability in the housing sector of Mongolia through energy efficiency advisory and financial intermediation. One objective of the project is to provide green financing for the target group – low and middle income households in ger area who intend to improve the energy efficiency of their dwellings. In addition, SMEs in construction sector can receive energy efficiency advisory, solutions and financial intermediation services from the project. However, green loans haven’t started to be issued.<sup>22</sup>

Green financing which is currently suspended

3. Green Loan Guarantee Fund

This fund was established jointly by Mongolian National Chamber of Commerce and Industry and the Government of Netherlands in 2006. The fund was cooperating with Golomt bank to provide guarantee for clean production and energy efficient projects. Although the fund is now out of operation, it provided guarantee of MNT 385 million for 8 enterprises between 2007 and 2009 for the following purposes:

- Recycling solid waste and reducing consumption of hazardous chemicals

Table A2. 5 Suspended green loan products

Loan product	Interest rate	Duration	Loan amount	Purpose
<b>XacBank: Mortgage for reduction of GHG emissions</b>	18%	20 years	N/A	Purchase of energy-efficient apartment
<b>XacBank: Eco car loan</b>	16.8%	60 months	MNT 150 mln	Purchase of eco car

<sup>21</sup> Source: ADB, “Ulaanbaatar Green Affordable Housing and Resilient Urban Renewal Sector Project: Project Administration Manual”, August 2018, <https://www.adb.org/sites/default/files/project-documents/49169/49169-002-pam-en.pdf>

- Rehabilitation of forests
- Increasing energy efficiency
- Production of ecological food

Main requirements for projects applying for guarantee:

- Must be an energy efficiency project or a clean investment project in terms of technology
- Must have reduced waste or increased energy efficiency

The following technical and financial criteria apply as well:

- Must have at least 2 technical experts who have at least 6 years of experience.
- Must have experience of implementing an energy efficiency project.
- Must have an understanding of investment projects.
- Must not have liabilities of any kind.
- Loan-asset ratio of the proposed project must be lower than 50%.
- Must have made profits for at least 1 year.

4. XacBank Green mortgage for reducing GHG emissions

This loan hasn’t been issued since 2013 and is now suspended. Terms of this loan are shown in Table A2.5. USD 891,700 was issued for 30 borrowers in the past.

5. XacBank Eco Car loan

Issuance of this loan is suspended now. Terms of this loan is shown in Table A2.5. USD 3.7 million was issued for 804 borrowers in the past.

<sup>22</sup> Source: GERES (Group for Environment, Renewable Energies and Solidarity) Mongolia country office

### Section 3. SME loan products (non-green) tailored for textile sector and accessible by textile factories

Total available funding – MNT 402 billion

Loan product 1. Cashmere Program loan – MNT 260.5 billion

This project is being implemented by the MoFA in 2018-2021 with the aim to “Increase the full-processing level of Mongolian cashmere to 60%, increase production and exports of environment-friendly final products and improve international competitiveness of cashmere products”. Financing sources of this project include state and local budgets, international and domestic investment, foreign loans and aids, government’s international and domestic bonds. Total funding for this project is MNT 973.3 billion of which MNT 500 billion is financed by DBM’s concessional loan.

As of 2018, MNT 188.2 billion has been issued for 20 enterprises (DBM issued MNT 96.6 billion for 6 borrowers while Golomt bank, Khan bank, TDBM, Xac bank and Capitron bank jointly issued MNT 91.6 billion for 14 borrowers).<sup>23</sup> Currently, this loan is financing only current asset investments, and no loan has been issued to finance equipment and machinery investment. As of June 2019, DBM had received loan applications of MNT 245 billion from 8 companies. However, 4 applications which failed to fulfill the requirements of DBM were rejected while 3 companies withdrew their requests themselves. In addition, commercial banks received on-lending loan applications of MNT 152.3 billion of which MNT 51.3 billion has been approved for 14 end-borrowers.<sup>24</sup>

Total loan funding for 2019 was approved as MNT 150 billion. In addition, a minimum limit of direct loans from DBM was set as MNT 20 billion in June 2019.

The current available funding source of this loan is calculated as MNT 260.5 billion which is the difference between initial funding of MNT 500 billion and total issuance of MNT 239.5 billion.

This loan is offered by DBM and commercial banks with the following terms:

- Interest rate: 12%
- Loan amount: up to 85% of total project financing

<sup>23</sup> Source: MoFA, *Monitoring-analysis and assessment report of implementation of “Cashmere program” in 2018, March 20, 2019*, <http://mofa.gov.mn/exp/ckfinder/userfiles/files/nooluur2018.pdf>

- Duration: up to 2 years

Loan applications must meet the following requirements:

- Had stable operation for the last 3 years
- Able to finance at least 15% of the total project financing
- The processing line must include at least dehairing
- Have conducted the feasibility study and environmental impact assessment of the project
- Other requirements are available at <http://dbm.mn/activity/project-program/requirement>.

Loan product 2. Additional financing of Agriculture and Rural Development Project – MNT 22.4 billion

This project is being implemented in 2016-2020 with the concessional loan by ADB and aims to support agriculture and rural development and contribute to reducing poverty by investing in developing the value-added chains of agrobusinesses. Target sectors of the project include light industries such as hides, cashmere and textile, and agricultural sectors such as meat, dairy products, fruits, bee-farming, green-house and animal husbandry. Six commercial banks are issuing loans within this project (Table A2.6).

The initial funding of this project was USD 41.3 million which is equal to MNT 100.5 billion if one uses the average exchange rate of 2016-2019. Subtracting the total issuance of MNT 78.1 billion, the current available funding is calculated as MNT 22.4 billion.

General criteria for loan applications:

- At least 50% of the project must be owned by Mongolian nationals
- Have operated for at least 2 years
- Net profit level must be more than 2.5% according to the financial statements of last 3 years
- Must have collateral
- Must be able to finance at least 15% of total project financing

<sup>24</sup> Source: Loan department of DBM

- Internal return of the investment must exceed the weighted average cost of the investment
- Internal return of the investment must be more than 12%;

Table A2. 6 Banks offering ARDP loan and terms of their loan

Bank	Purpose	Loan amount	Interest rate	Duration
<b>Khan bank</b>	To invest in value-added chain and increasing current assets of those who produce value-added products using agricultural raw materials.	USD 150,000-3,000,000 or equivalent MNT	8%	7 years
<b>Xacbank</b>	To finance investments in fixed and current assets of producers in agriculture sector	USD 150,000-3,000,000 or equivalent MNT	8%	7 years
<b>Golomt bank</b>	Develop value-added chain of agrobusiness enterprises	USD 150,000-3,000,000 or equivalent MNT	8%	7 years
<b>TDBM</b>	To finance investment and current assets of producers to develop their value-added chain.	USD 150,000-3,000,000 or equivalent MNT	8%	7 years
<b>NIB</b>	Develop value-added chain of agrobusiness enterprises	USD 150,000-3,000,000 or equivalent MNT	8%	7 years
<b>UBCB</b>	Develop value-added chain of agrobusiness enterprises	USD 150,000-3,000,000 or equivalent MNT	8%	7 years

Additional requirements for textile sector:

- Must be a yarn or textile producing project;
- The proposed value-added chain investment must lead to exports for projects producing knitted products;
- Producers of washed and combed wool or cashmere are eligible for loan if (a) they have exported for the last 3 years to develop a brand by cooperating with an internationally renowned brand (b) they would increase their exports by at least 20% within 3 years from the time of loan issuance;
- Must have a human resource unit responsible for quality monitoring of the whole production process;
- Must be cooperating with a local producer of the same sector or another sector.

Loan product 3. SME supporting loan of KfW bank of Germany – MNT 9.4 billion (as of the first half of 2019)

This loan is financed by the KfW bank of Germany. The Bank of Mongolia on-lends to commercial banks which eventually provide loans to end-borrowers. The purpose of this loan is to support SMEs in agriculture and manufacturing sectors. The initial funding source is a long term loan (40 years) of EUR 8.7 million within the agreement between the Government of Mongolia and the Government of Germany. The BoM received this loan and on-lends to TDBM, Golomt bank, UBCB, Capitron and Trans bank. Since the project started, 171 SMEs have received MNT 86.2 billion of loan. As of the first half of 2019, there is 48 SMEs holding MNT 7

billion of loan balance. In addition, loan amount per borrower is MNT 146 million. According to the BoM, the current available funding is MNT 9.4 billion.<sup>25</sup>

Table A2. 7 Terms of SME supporting loan of KFW bank of Germany

Bank	Loan amount	Interest rate	Duration
<b>Golomt bank</b>	MNT 500 mln	12%	60 months
<b>Other banks</b>	EUR 250 thousand	16-18%	60 months

Loan product 4. ADB's Employment increasing project loan – MNT 2.3 billion  
The financing source of this loan is a long term loan agreement (40 years) between the Government of Mongolia and ADB which is equal to 2154 Special Drawing Rights (SDR). The project aims to support self-employed people and increase employment. The BoM on-lends to Golomt bank, UBCB, Arig bank and Bogd bank which provide loans for end-borrowers. As of the first half of 2019, the balance of on-lending in the commercial banks is MNT 2.1 billion, and the current available funding of loan is MNT 2.3 billion. In addition, there are 88 end-borrowers with liability who would create 266 new vacancies.<sup>26</sup>

Table A2. 8 Terms of Employment increasing loan of ADB

Loan amount	Interest rate	Duration
<b>MNT 30 mln</b>	10%	24 months

Loan product 5. SME Development Fund loan – MNT 21 billion  
The SMEDF has been operating since 2009 with the aim to increase the role of SMEs in the economy and increase employment through accumulating financial resources for SMEs and supporting them with loans. Between 2009 and 2012, 5171 borrowers received the loan while 490 borrowers received MNT 59 billion, of which 28% was issued for light industry, in 2013. Between 2014 and 2015, MNT 150 billion was issued for 947 projects<sup>27</sup>. The number of borrowers had become 7173 while total issuance of loan had reached MNT 775.2 billion by 2016. As the first half of 2019, there are 7747 borrowers with the loan balance of MNT 215 billion. "Tsast Sogoot" and "Nano Wool", which produce textile and knitted products, can be named as representatives of SMEs which received the SMEDF loan. In 2019, 24

<sup>25</sup> Source: BoM, On-lending project loans report, 2nd quarter of 2019

<sup>26</sup> Source: BoM, On-lending project loans report, 2nd quarter of 2019

<sup>27</sup> Source: BoM, "Development and financing of SMEs", June 2015

wool and cashmere projects have received MNT 2.4 billion of loan.<sup>28</sup> In addition, the current available funding is calculated as MNT 21 billion which is the difference between the approved budget for 2019 (MNT 47 billion) and the total issuance of 2019 (MNT 26 billion). The loan is currently issued directly from the SMEDF as well as through commercial banks, and both require that the borrowers finance at least 30% of total project financing with their own resources. The terms of the loan is as follows.

Table A2. 9 Terms of the SMEDF loan

Lender	Loan amount	Interest rate	Duration
<b>SMEDF</b>	MNT 300 mln	3%	5 years
<b>Commercial banks</b>	MNT 1 bln	7%	5 years

Loan product 6. Employment Support Fund's small loan – MNT 14.4 billion  
The ESF has operated since 2011 according to the Employment Support Law. The "small loan" is one of the programs implemented by the fund and is issued for self-employed people, small enterprises, partnerships and cooperatives with the aim to create new jobs. Small loan has been issued through commercial banks since 2002, and Golomt bank, Khan bank and State bank had on-lending loan balance as of September 2018. Golomt bank issued MNT 20 billion for 1878 borrowers in 2017-2018, and its on-lending loan is due September 10, 2019. Khan bank and State bank had issued MNT 1.5 billion for 164 borrowers by September 2018 from their on-lending sources (MNT 9 billion and MNT 6.9 billion respectively) received in 2018.<sup>29</sup> Thus, the current available funding is calculated as MNT 14.4 billion by subtracting the total issuance (MNT 1.5 billion) from the total initial funding in Khan bank and State bank (MNT 15.9 billion). Currently, Khan bank and State bank are issuing the loan only in provinces (not in the capital city) with the following terms.

Table A2. 10 Terms of ESF's small loan

Loan amount	Interest rate	Duration	Grace period
<b>Citizens: MNT 10 mln</b>	7.2%	24 cap	6 cap
<b>Enterprises: MNT 20 mln</b>			

<sup>28</sup> Source: Loan management department of SMEDF

<sup>29</sup> Source: Ministry of Finance, "Notes on the auditing of financial operation of ESF", 2018

Loan product 7. “Supporting Credit Guarantee System for Economic Diversification and Employment” (SCGSEDE) project loan – MNT 71.9 billion  
 Financed by ADB’s concessional loan, this project is being implemented in 2016-2021, and the loan is issued through Khan bank, TDBM, Capitron bank, Xac bank and State bank for SMEs lacking collateral in cooperation with the Credit Guarantee Fund of Mongolia. Since the project started, MNT 74 billion has been issued for 219 borrowers of which MNT 2.8 billion was issued for 7 borrowers from textile sector. As of the first half of 2019, total loan balance is MNT 70.5 billion of which MNT 2.5 billion is held by textile sector.<sup>30</sup> The current available funding is calculated as MNT 71.9 billion by subtracting the total issuance of MNT 74 billion from the initial funding source of MNT 146 billion which is equal to USD 60 million if one uses the average exchange rate of 2016-2019. The terms of the loan is as follows.

Table A2. 11 Terms of SCGSEDE project loan

Loan amount	Interest rate	Duration	Grace period	Guarantee share
MNT 1 bln	12-15%	120 months	24 months	30-60% /up to MNT 500 mln/

Requirements for loan applicants:

- Operating under laws of Mongolia
- Had no overdue loans for the last 6 months
- Having operated for more than 1 year and having regular income
- Having no collateral to apply for loan
- Having a proposed project (simple and clear)
- Being a SME (certificate)

Loan product 8. Business loans of NBFIs

Enterprises in textile sector hardly apply for loans of NBFIs. For example, no textile companies have loan balances in Invescore NBFi and Ard Credit NBFi. This is related to the higher interest rates of NBFIs’ loans compared to the project loans offered by banks. Moreover, only 2% of total loan issued by NBFIs was issued for manufacturing sectors (which include textile sector) in 2018. On the other hand, construction and trade sectors and consumers receive the majority of NBFi loans.<sup>31</sup> Among the biggest 4 NBFIs in Mongolia, Transcapital NBFi and Ard Credit NBFi have loan products for MSMEs. The terms of business loans offered by the biggest NBFIs are as follows.

Table A2. 12 Terms of business loans of NBFIs

Loan product	Invescore NBFi: Business loan	Netcapital NBFi: Business loan	Transcapital NBFi: Business loan	Ard Credit NBFi: Business loan
Interest rate	33.6-40.8%	38.4-58.8%	28.8-34.8%	25.2-27.6%
Duration	36 months	36 months	60 months	36 months
Loan amount	MNT 2 bln	MNT 500,000-100 mln	MNT 400 mln	MNT 2-200 mln

<sup>30</sup> Source: Credit Guarantee Fund of Mongolia

<sup>31</sup> Source: Financial Regulatory Commission, Department for NBFIs, “Integrated presentation of financial statements of NBFIs for the FY 2018”

### ANNEX 3. REVIEW OF INTERNATIONAL PROJECTS SUPPORTING GREEN DEVELOPMENT IN MONGOLIA

A list of international projects, which are currently implemented in Mongolia to support green development, is presented. Most of these projects are tailored to energy efficiency and environment protection and in the form of technical assistance and construction. However, none of them involves green finance.

ADB projects:

- Sermsang Khushig Khundii Solar Project
- Upscaling Renewable Energy Sector Project
- Green Urban Planning (TA)
- Energy Storage Option for Accelerating Renewable Energy Penetration (TA)
- Ulaanbaatar Air Quality Improvement Program
- Implementing Innovative Approaches for Improved Water Governance (TA)
- Promoting Low-Carbon Development in Central Asia Regional Economic Cooperation Program Cities
- Managing Soil Pollution in Ger Areas through Improved On-site Sanitation Project
- Darkhan Wastewater Management Project

JICA projects:

- The Project for capacity development to establish a national GHG inventory cycle of continuous improvement
- Verification Survey with the Private Sector for Disseminating Japanese Technologies for Emission Reduction of Particulate Matter (PM) from Diesel Buses by DPF Suitable for Ulaanbaatar Condition

World Bank projects:

- Second Energy Sector Project
- Ulaanbaatar Clean Air Project

EBRD projects:

- Desert Solar Power Project

- Ulaanbaatar District Heating Project
- Sainshand Wind Farm
- GrCF Ulaanbaatar Solid Waste Modernisation Project
- Green Cities Facility
- Tsetsii Wind Farm
- Salkhit Wind Farm
- Magnai Trade LLC's LPG supply project

UNDP projects:

- UN-REDD National Programme
- Land Degradation Offset And Mitigation In Western Mongol

SDA projects:

- Public Investment in Energy Efficiency Phase 2 (PIE2)
- Sustainably managed pastures and healthy animals: Mongolia's 'green gold'
- Sustainable Artisanal Mining

GIZ projects: "Energy efficient building refurbishment in Mongolia" project

EU projects:

- Supporting a greener and more energy efficient construction industry in Mongolia
- Turning Sheep Wool into Environmentally Friendly Building Material: Integrated Approach for Supply Chain Development
- Recycling building materials project
- Green Products Development and Labelling in Mongolia

GGGI projects:

- Mongolia Transition to Green Development
- Mongolian Green Credit Fund (MGCF)

#### ANNEX 4. REVIEW OF INTERNATIONAL PROJECTS SUPPORTING TEXTILE SECTOR IN MONGOLIA

##### Project 1. Uniterra Program

This project was implemented by the World University Service of Canada and the Center for International Studies and Cooperation with financing from the Government of Canada in 2015-2018. This project aimed at increasing value-added in construction and textile sectors and improving employment opportunities for youth and women. Main activities carried out by the project implementers in textile sector include:

- Trainings and seminars to improve human-resource capacity of textile sector
- Improve cooperation between textile producers and education institutions who prepare the future work force of the sector
- Initiated and established the “Collaborative council of wool and cashmere sector”
- “StartUp Weekends” program which aimed at increasing participation of youth and women in textile sector
- Promoting mini technologies of processing wool and cashmere



## APPENDIX 5. INTERNATIONAL SUCCESSFUL EXPERIENCE OF DEVELOPING GREEN FINANCE FOR TEXTILE SECTOR

This appendix presents 2 projects which we consider successful experience of developing green finance for textile sector.

Experience 1. “Improving energy-efficiency and environmental performance of Chinese SMEs and large companies facilitated by voluntary public-private partnerships” (VA3) project in China

This project was implemented in 2012-2015 with the aim to promote sustainable production and consumption through public-private partnership (PPP) in Chinese mega cities like Beijing, Nanjing, Jingzhou, Jinan, Hangzhou, Xian, Baoding and Tianjin. Total financing of the project was EUR 1.9 million of which 80% was financed by EU.

Target groups and stakeholders:

- SMEs of Chinese laundry and textile sectors (550 laundry SMEs, 150 textile SMEs)
- Large companies with high energy consumption
- NGOs and SME associations (with the role of including high number of SMEs in the project)
- National and municipal governments, local environment and trade organizations (with the role of signing voluntary agreements with SMEs)

Main components/activities of the project:

- Trainings for SMEs
- Develop cooperation of SMEs and local governments
- Provide financial incentive for SMEs

Strategy of the project:

- PPP was initially applied to large companies and then outspread to SMEs and other cities.
- Local governments (Environment Protection Bureau) promoted the voluntary PPPs by providing financial incentives for SMEs from their environment funds. SME associations played an important roles in this process. Because the main problem was that SMEs lacked environmental concerns and focused only on their short term monetary interests.
- Local commercial banks developed green loan products for SMEs and included activities related to this project in their strategies for supporting

green development in the second phase of the project – i.e., after the initial results of the project. In other words, banks learned from the green financial incentive by the PPP.

Project results:

- A train-the-trainer course for SMEs has been successfully completed. This course has largely contributed to bridge the knowledge valorisation gap on VA3 process and contents between EU and China. Thirty Chinese VA3 facilitators have been trained. The VA3 SME toolkit has been applied to pilot SMEs in Nanjing and Jingzhou.
- Trained SMEs completed their Energy-Efficiency and Emission Reduction Potential Scan (EE&ERPS) reports. The aggregated data in these confidential reports have been used for negotiating targets and signing PPPs. Consensus was built up on SCP challenges ahead for SMEs and China-specific SME needs and requirements through signing of PPPs including governmental incentives and established action teams in SME pilot companies.
- The website of the project was developed and used as a platform for internal and external communication. This VA3 action established a formal and informal action network of partners, associate partners (in particular local bank authorities), SME target groups, national and local governmental authorities as well as local mass media. The network started off crucial trust and discourse management by jointly discussing impressions of energy consumption and environmental performance of laundry and textile SME sectors in China.
- 960 PPP agreements were signed in 2012-2015. Environmental impacts of these include energy-saving of 503 Pj, GHG reduction of 17 mln tons and water-saving of 464 mln m<sup>3</sup>.
- The PPP was included in the 13th five-year plan.

Success factors of the project:

- Suitable cooperation
- Step-by-step measures
- Clear environmental targets
- Effective monitoring system
- Exchange of information (Stakeholders were able to learn from each other and exchange relevant information through the discourse management.)

- Trust (Discourse and trust management helped public and private bodies to make stronger commitments, improved up-down and down-up communication, and created more effective PPP.)
- Efforts by all stakeholders

Lessons to learn from this project: Engagement and financial incentives of local governments played a crucial role. In other words, the financial incentives helped to increase the commitment by textile SMEs.

#### Experience 2. Partnership for Cleaner Textile (PaCT) project in Bangladesh

This project was implemented by International Financial Corporation in Bangladesh in 2013-2016 with the aim to promote sustainable production in Bangladeshi textile sector and reduce environmental and social impacts of the sector.

Target groups and stakeholders:

- Buyers of textile products (clothing brands)
- Textile factories
- Government
- Private and public organizations and citizens in selected clusters
- Textile associations
- Financial institutions

Main components/activities of the project:

- Develop resource-efficient purchase requirements
- Increase capacity of factories
- Improve technical knowledge
- A national platform for discussions about sustainable water use of textile sector was developed (Textile Sustainability Platform)
- Textile association of Bangladesh collaborated with the project by establishing “Textile Technology Business Center” and sharing technical and financial knowledge.

- BRAC bank of Bangladesh developed and launched a green loan product tailored only for textile sector named “Planet Solutions” with the assistance of IFC in 2016. This was the first ever energy efficiency loan in Bangladesh. This loan is available for textile factories aiming to adopt energy efficient technology and technology companies offering energy efficient solutions.

Green finance strategy of the project:

- Textile factories aiming to access green loan were registered as a participating factory of the project, and technical and financial assessments of those factories were made by project experts. In other words, professional consultants made conclusions about the possibilities of improving resource efficiency in the factories and financing options for those possibilities. Then, participating banks conducted the cost-benefit analysis of the assessed factories, issued the green loan and linked those factories with potential technology suppliers.

Project results:

- Water saving of 21.6 billion litres
- Energy saving of 2.5 mln MWt.h
- GHG emission of 460,428 tons avoided
- Green investment of USD 39 mln facilitated

Lessons to learn from this project: There was higher probability of accessing green finance and shifting to green production successfully for textile companies as they received the assistance of professional consultants to determine the technical possibilities of green production and the need for green financing.

## ANNEX 6. DETAILED LISTS OF GREEN FINANCE DEMAND AND NEED OF 17 SURVEYED COMPANIES

IDENTIFIED GREEN FINANCE NEEDS	Mill ₹	%
	24,486	100.0%
Sub-category 1. Energy efficiency related	15,286	62.4%
Electricity	4,374	17.9%
1. Motion sensor lights	15	0.1%
2. LED lighting	62	0.3%
3. Solar panels and storage	3,855	15.7%
4. Installation and switch to inverter engines	302	1.2%
5. Electricity saving appliances and devices	59	0.2%
6. Installation of electricity meters	8	0.0%
7. Voltage stabilizer	23	0.1%
8. Connection to electricity sub-station	20	0.1%
9. Air humidifier for knitting workshops	18	0.1%
10. Hot water pump (will reduce electricity consumption by 75%)	12	0.0%
Heat	10,685	43.6%
11. Insulation of buildings, walls and roofs	4,071	16.6%
12. Heat-efficient solutions for new buildings and plants	6,008	24.5%
13. Double glazed windows and doors	532	2.2%
14. Installation of efficient hot water tank	45	0.2%
15. Eco-heating appliance	29	0.1%
Steam	227	0.9%
16. Additional equipment or system to reuse extra steam	151	0.6%
17. Gas fired steam generator	76	0.3%
Sub-category 2. Water efficiency related	4,899	20.0%
Clean water	97	0.4%
18. Smart sink faucet	28	0.1%
19. Installation of water softener	66	0.3%
20. Installation of water meters	1	0.0%
21. Filter	2	0.0%
Wastewater	4,801	19.6%
22. Construction of wastewater treatment facilities	4,140	16.9%

23. Grey water reuse system	347	1.4%
24. Installation of fine filters	0	0.0%
25. Water storage/holding tanks	314	1.3%
Sub-category 3. Waste management	284	1.2%
Equipment	246	1.0%
26. Machinery to recycle waste materials	186	0.8%
27. Food and organic waste treatment equipment	60	0.2%
28. Waste sorting and storage facilities	38	0.2%
Sub-category 4. Efficient use of chemicals, switch to greener chemicals	8	0.0%
29. Soap detergent/Softener	6	0.0%
30. Detergent/Liquid detergent	2	0.0%
Sub-category 5. Social care issues	1,659	6.8%
31. Staff recreation center	120	0.5%
32. Staff training	97	0.4%
33. Improving air conditioning system	97	0.4%
34. Use eco-vehicles for staff transportation /hybrid, gas or electric/	670	2.7%
35. Establish kindergartens and day care centers	675	2.8%
Sub-category 6. Extra equipment for green production and operation	1,008	4.1%
36. Washing machine	47	0.2%
37. Drier, hot press and ironing equipment	31	0.1%
38. Financing gap between green and non-green new equipment	930	3.8%
Sub-category 7. Other needs	1,342	8.3%
39. Eco packaging	606	2.5%
40. Equipment to manufacture eco packaging	68	0.3%
41. Landscaping and greening of workplaces (e.g. planting trees)	351	1.4%
42. Other	317	1.3%

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*LIST OF ABBREVIATED WORDS*

<i>ARDP</i>	<i>Agriculture and Rural Development Project</i>
<i>ADB</i>	<i>Asian Development Bank</i>
<i>SCGSEDE</i>	<i>Supporting Credit Guarantee System for Economic Diversification and Employment</i>
<i>JICA</i>	<i>Japan International Cooperation Agency</i>
<i>ESF</i>	<i>Employment Support Fund</i>
<i>SMEDF</i>	<i>Small Medium Enterprise Development Fund</i>
<i>SME</i>	<i>Small Medium Enterprise</i>
<i>MonSEFF</i>	<i>Mongolian Sustainable Energy Financing Facility</i>
<i>MWCA</i>	<i>Mongolian Wool and Cashmere Association</i>
<i>DBM</i>	<i>Development Bank of Mongolia</i>
<i>TDBM</i>	<i>Trade Development Bank of Mongolia</i>
<i>MET</i>	<i>Ministry of Environment and Tourism</i>
<i>MoFALI</i>	<i>Ministry of Food, Agriculture and Light Industry</i>
<i>NIB</i>	<i>National Investment Bank</i>
<i>UBCB</i>	<i>Ulaanbaatar City Bank</i>
<i>BoM</i>	<i>Bank of Mongolia</i>
<i>MSFA (ToC)</i>	<i>Mongolian Sustainable Finance Association</i>
<i>MBA</i>	<i>Mongolian Bankers Association</i>

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