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Women Development & sustainability: Theoretical Lens from Green Microfinance Institutions

Prof. Dr. Iram Rani Shaikh
Shah Abdul Latif University, Khairpur, Sindh, Pakistan
Email: iram.shaikh@salu.edu.pk

Dr. Hira Rani Shaikh
Shah Abdul Latif University, Khairpur, Sindh Pakistan
Email: hira.shaikh@salu.edu.pk

Prof. Dr. Minhoon Khan Laghari
Shah Abdul Latif University, Khairpur, Sindh, Pakistan
Email: minhoon.laghari@salu.edu.pk

Dr. Muhammad Ali Brohi (Corresponding author)
The Shaikh Ayaz University, Shikarpur, Sindh, Pakistan
Email: brohi.mali@saus.edu.pk

Abstract:

Microfinance stands for raising the living standard of those who are deprived complying with the necessities with the condition that their all efforts to maintain their livelihood will not create any harm to society. However, observation and literature explain that borrowers are utilizing their loans, but the ecological footprint maintenance is highly ignored. This study employs a mixed method approach and uses different tools to thoroughly investigate the process and reasons that create discomfort in maintaining sustainability and promoting the ecological footprints in the environment. Employees and customers from eight regions East Karachi, West Karachi, Mirpur Khas, Hyderabad, Naushero Feroz, Larkana & Sukkur of Khushhali Microfinance Bank in Sindh were selected as samples using the Stratified Random Sampling technique to investigate the given scenario. The results of the study provided ample recommendations to Microfinance Institutions that to promote sustainable growth, there is a dire need for strategies to be followed, and awareness programs regarding efficient use of loans must be given to customers.

Keywords: Sustainability, green microfinance, Khushhali banks, micro-finance institutions, Microfinance Environmental Performance Index

INTRODUCTION

History defines women's empowerment as a global issue and its concept was introduced in an international conference in Nairobi in 1985 with the concept that with this, women will be able to fully realize and play their influential role in all aspects of life but modern times transformed the idea and provided the extended definition of women empowerment that it will help women moving from their unsaved states of life and allow them to hold the guaranteed autonomy for making their choices and contribute in society (Mahapatra, Dutta & Sengupta, 2023). This women empowerment need was not only realized at the national level but rather promoted at international boundaries of recent times (Zulfiqar & Tabasum, 2023). This empowerment creates a direction for women's self-employment that not only empowers them but also brings economic and promotes gender equality and these characteristics are crucial to fostering sustainable development (Duflo, 2012). This research focuses on

Microfinance Institutions (MFIs) because these MFIs support women entrepreneurs by providing training and financial resources.

Previous studies (Johnson 2014; Bateman, 2010) suggest that this brings a positive influence on family well-being, living standards, and decision-making power within their household premises. Microfinance institutions have committed to empowering women with the idea of entrepreneurship through their financial services that will not only improve their mobility and self-esteem in the household rather makes a greater visibility of women publicly (Noor et al., 2021; Trivedi & Petkova, 2021; Sultana et al., 2017 and Mersland and Strøm, 2012). Apart from its significant contribution, the role of microfinance in empowering women is still controversial (Trivedi & Petkova, 2021) because literature describes microfinance as a tool to alleviate poverty and bring development in society, but observations and literature provide evidence that this tool improves the living standard but ecological footprints to maintain sustainable society is still questionable. Therefore, the present study embarks on green microfinance, which is the extended form of microfinancing for the poor that will not only include financial services but also sustainable environmental practices towards society. Environmental sustainability resides at the heart of the green microfinance approach.

As far as green microfinancing towards environmental sustainability is concerned, women have been taken by the literature of microfinance institutions as an integral part of their service. The working procedure is commented on too much in positive paradigms. They frequently indulge in those economic activities that are safe for the environment like renewable energy enterprises, sustainable agriculture, and so on and these will also result in lower energy consumption and reduced emissions. Researchers emphasize the role of green microfinance institutions by arguing that they increase the marginal earnings of the poor, enhance their life quality, and protect their environment because they involve eco-friendly and environmentally friendly sustainable practices (Julia & Kassim, 2021). Therefore, the basic purpose of this research was to validate that green microfinance is in its real practice and quantify its contribution to women's economic, and social sustainable livelihood as a strategic interest of investors and stakeholders.

Research Objectives

To attain the purpose of the research, the objective was divided into three sections:

1. To judge green components (ecological footprint reduction, environmental risk assessment & environmental non-financial services availability) that might be linked up with sustainable development context.
2. To Examine and empirically analyze the influence of external factors (environmental, economic, social factors, and government factors) on microfinance sustainability factors.
3. To substantiate that green microfinance is in practice in an authentic sense for sustainable development.

Background of the Study

Microfinance, initially conceived as a tool for poverty alleviation and economic empowerment, has evolved to incorporate environmental sustainability as an integral component. Microfinance is a program that involves serving the most impoverished communities in any region or even country by providing them with soft loans to develop and maintain businesses (Ahmed & Khan, 2016; Roy & Mohanty, 2020). Green microfinance is the same type of program. The difference is that soft loans are provided to individuals or groups whose program supports eco-friendly green and social growth, develops green tasks and progressive eco-solutions to things that are destroying and polluting the world (Boubacar, 2020; Nair & Njolomole, 2020; Nugroho et al., 2017). Green microfinance represents a paradigm shift in financial services, aiming not only to provide access to credit but also to promote environmentally responsible practices within the communities it serves. The literature also explores the multifaceted dimensions of green microfinance, focusing on its pivotal role in ecological footprint reduction, environmental risk assessment, and the provision of environmental non-financial services. It acknowledges that financial inclusion alone is insufficient, and that the integration of ecological concerns is essential to fostering lasting and equitable development (Zulfiqar, 2017). Furthermore, it delves into the simultaneous accomplishment of the double bottom

line, illustrating how green microfinance institutions (MFIs) navigate the intricate landscape of achieving economic and social goals in the cycle.

Ecological Footprint Reduction and MFIs

Ecological footprint reduction involves minimizing the environmental impact of economic activities, which is particularly pertinent in the context of microfinance. Green microfinance institutions emphasize the importance of eco-friendly practices within their portfolios, such as funding sustainable agriculture, renewable energy initiatives, and environmentally responsible small enterprises (Dreher et al., 2018). By directing financial resources towards these initiatives, green MFIs contribute to lowering the ecological footprint of their clients and, by extension, entire communities. Ecological footprint reduction is at the heart of Green Microfinance's mission. Ecological Footprint' refers to all efforts undertaken to manage the direct impacts of the company. It entails minimizing the environmental impact of economic activities by investing in sustainable practices and enterprises. Green MFIs recognize that fostering sustainable livelihoods among women entrepreneurs is not only a means to achieve economic prosperity but also a pathway to environmental conservation. According to Smith et al., (2019) and Khan et al., (2020), Women, often disproportionately affected by poverty and environmental degradation, constitute a significant target group in green microfinance programs. Studies consistently highlight that involving women in green microfinance initiatives can lead to substantial reductions in the ecological footprint.

The Dual Bottom-Line Approach

Green microfinance institutions aspire to achieve a dual bottom line, encompassing economic and social goals. By integrating environmental sustainability into their policies and practices, they not only empower women economically but also contribute to the conservation of natural resources and the reduction of carbon emissions. This aligns with the United Nations Sustainable Development Goals, particularly Goal 1 (No Poverty), Goal 5 (Gender Equality), Goal 8 (Decent

Work and Economic Growth), Goal 13 (Climate Action), and Goal 15 (Life on Land).

Past literature highlights the interconnectedness of green microfinance, sustainable development, and women's self-employment. It emphasizes the importance of ecological footprint reduction, environmental risk assessment, and environmental non-financial services within the practices and policies of green microfinance institutions. Moreover, it underscores the significance of achieving a double bottom line, integrating economic and social goals, as a fundamental objective in promoting holistic and equitable development. Green microfinance stands at the intersection of environmental sustainability and economic empowerment, with a particular emphasis on women's self-employment. It embodies a vision where ecological responsibility and social progress are not mutually exclusive but rather mutually reinforcing. Through ecological footprint reduction, environmental risk assessment, and the provision of environmental non-financial services, green microfinance institutions are driving positive change in communities worldwide. Moreover, by pursuing the double bottom line—simultaneous economic and social goals—these institutions are crafting a sustainable future where women entrepreneurs are at the forefront of environmental conservation and socioeconomic progress.

Research Design and Methodology

This study followed a sequential explanatory mixed method approach as this approach not only gives the researcher the right direction for data collection and analysis but also provides you with a mixture of qualitative and quantitative approaches in different phases of the research process (Marakkath, 2013). The sequential mixed method approach comprises three phases:

- a) In the first phases, focus was only given to objective 1 where researchers measured the environmental performance of microfinance sectors by collecting quantitative data using **Microfinance Environmental Performance Index (MEPI)** Questions. This is a tool used to assess the performance of the microfinance environment and it comprises five dimensions such as environmental policy, ecological footprint, environmental risk assessment, green microcredit, and environment non-financial services. This tool better helps to determine the Communication process in microfinance banks, watch progress, and assess the

overall plan for environmental strategy. This phase was pursued with a detailed descriptive analysis and pie chart assessment of the frequencies on the given options that were highlighted by respondents/staff of microfinance banks on different questions comprising all five dimensions.

- b) In the second phase, objective 2 was given importance where the researcher empirically analyzed the influence of different external factors such as environmental, social, ecological, and governance factors on Microfinance sustainability factors. This phase was pursued with the help of updated reliable quantitative software (SmartPLS) with a two-step analysis approach. In the first step, the measurement model was assessed where the validity and reliability of all the factors were identified and accepted on the required threshold, and in the second step, the structural model was assessed where direct and indirect path relationships were identified.
- c) In the third phase, we focused on achieving objective 3 to observe the real existence of different microfinance activities that were promoting the actual sense of sustainable development in society. This phase was pursued by conducting qualitative analysis using observations of settings that whether this microfinancing was promoting sustainable development in society or not and focus groups of the actors involved in financing. People/citizens were interviewed, and they talked about different perspectives highlighting the advantages as well as hindrances of microfinance and ended with the focused group of 7 persons where three were from banks who were in charge of assigning loans and four from market/society who were utilizing that loan.

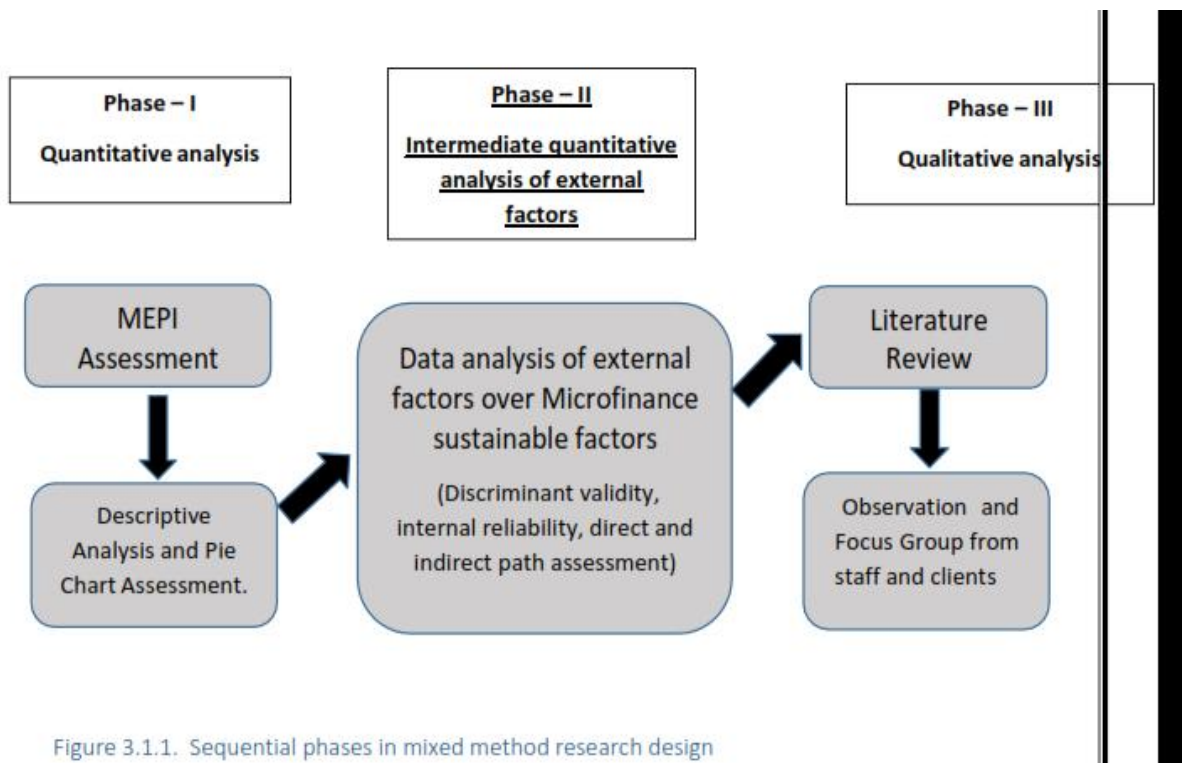


Figure 3.1.1. Sequential phases in mixed method research design

Sampling Strategy

Key stakeholders of Khushhali Microfinance Bank Limited (Customers and staff members) were the prime focus of this study. Khushhali Bank is one of the pioneers in microfinance business in Pakistan. The data was collected from the different branches of Khushhali Bank Sukkur and Larkana Region, which includes branches Larkana, Dadu,

Ranipur, Khairpur, Sukkur, Shikarpur, Ghotki and Pano Aqil. The stratified random sampling technique was used to collect the data. The choice of this technique is influenced by recent research by Shah & Awan (2020) while researching the effect of microcredit on the living standards of KPK. They said that for obtaining equal distribution especially when the sample is limited and known, stratified random technique is suitable. Adding to that, Rahi et al., (2019) also confirmed that stratified random sampling is the best option in cases where population frame is known to fingers. Following the selection pattern as earlier mentioned, there are 2 regions and ten branches comprising 179 employees that were finalized for being part of our research.

Scales Measurement

This study involves two instruments. The first part consists of the Microfinance Environmental Performance Index (MEPI) tool that is used as the measure of management Performance of Microfinance through environmentally friendly policies. It consists of five dimensions that are needed to measure microfinance's environmental performance. The dimensions include (1) environmental policy, (2) Ecological Footprint, (3) Environmental Risk Assessment, (4) Green Micro Credit and (5) environmental non-financial services.

The second part of the survey questionnaire was designed to collect data from active customers of Khushhali Microfinance Bank Limited. This survey questionnaire is divided into two parts. The first part is about the demographic profile of the customers and the second part of the questionnaire is about measuring the environmental performance index used by Khushhali Microfinance Bank Limited during service delivery to the valued customers. The intensity of responses is measured through a point Likert scale as 1= Very Low, 2=Low, 3=Medium, 4=High & 5=Very High. Five factors are being measured in this part of the survey questionnaire Social Factors, Governance Factors, Environmental Factors, and Economic Factors as independent variables, and Microfinance Sustainability Factors as dependent variables.

Data Collection Procedure

As this is sequential mixed research. Two surveys were employed to collect data from customers and staff. The MEPI (Microfinance Environmental Performance Index) questionnaire was deployed for the collection of data from the staff of Microfinance Bank. i.e., Khushhali Bank. The (MEPI) tool consists of 05 dimensions and four questions each with yes/ no and different responses, comprising a total of 20 total questions. The questionnaire also contains demographic information which consists of 4 questions, Gender, age, Educational Qualification, and Designation of the respondent. The MEPI questions were collected from 100 management respondents of the Khushhali Bank as the data was gathered through face-to-face and personal visits to all the branches.

Another part of the data collection was the data collected from the customers of Khushhali Bank.

These customers belong to the branches of Sukkur and Larkana region i.e., Khairpur, Ghotki, Sukkur, Shikarpur, Ranipur, Larkana, Dadu, Pano Aqil. The data was collected through a survey questionnaire. The survey was based on microfinance sustainability indicators as endogenous variables while economic, social, environmental, and governance factors as exogenous variables.

The Governance factors are used here as the mediator between Social and microfinance sustainability, environmental and Microfinance sustainability, and economic and microfinance sustainability indicators. All factors comprise a 30-item scale adopted from Allet & Hudon (2013). The data was then analyzed in the smart PLS 4 program through the Structural equation modeling (SEM) technique. Microfinance sustainability can be used as another term for green microfinance.

Almost 300 questionnaires were distributed among customers from which 220 filled questionnaires were returned and incorporated in a research study for further statistical analysis. The questionnaire is divided into two portions one is demographic or descriptive information about the customers i.e., Gender, age, educational qualification, and customer bank experience with the Khushhali Bank. The second part of the survey questions are of the indicators as mentioned above like social, environmental, economic, and governance factors as exogenous variables and microfinance sustainability as endogenous variables. These questions were asked on a five-point Likert scale of 1 to 5 with very low to very high responses.

Findings

Triangulated findings have provided a comprehensive view of the validation of whether green microfinance is in its real practice by the MEPI analysis and at last quantify its contribution through scale analysis of social, economic, environmental, governance, and microfinance sustainability factors for women's economic, social sustainable livelihood as a strategic interest of investors and stakeholders.

MEPI analysis provided a detailed explanation of different weaknesses and deficiencies behind the misrepresentation of ecological reduction that leads to no sustainability. *firstly*, it was identified that Policy lacking issued discussed at the start that while data collection and observation clients lacked a proper policy on how they are obliged to maintain the environment and staff were in view that it's true we up to now do not have any written policy but we are in a phase of developing policy and other tool kits to create awareness for best practices in way of reducing carbon omission.

Secondly, staff provided views on quantifiable objectives and said that they don't have any quantifiable objectives but yes they are developing the process and adopting the culture where they can reduce ecological footprints. Thirdly, the point of deficiency of energy efficient technology was raised and again staff were having a positive dialogue they said in our few branches we are offering Green Microcredit Loans like "**Khushal Zimindari**". These types of loans are especially to improve livestock and agriculture. They come in the category of green microcredit and soon we will launch different other products in their line and in many other branches that contribute to the column of renewable energy. In their discussion, they also assured clients that soon they will launch and provide environmentally friendly technology for their green business. Strengthening their point they also discussed that they are even reducing their margin rate means low interest rate products have been given to their clients like "**Khushali Qarza**" where clients can avail 35000 that can be repaid on easily installments. This loan is especially for cost-effectively doing agriculture business.

Thirdly, the point of the training was discussed client said that they are not aware of strategies for maintaining the environment we just get a loan and go and the staff was in view that we have teams trained for assessing the risk of the environment but due to certain government regulations, risk was not fully assessed and we are developing new updated modules to monitor the client business in terms of friendly and healthy environment policies. Dialogue between clients, staff, and researchers recorded a healthy discussion and ended with a positive sign that these microfinance institutions are developing themselves in improving their client's living standards and soon will introduce different products and activities where ecological and environmental footprints could be sustained for a longer period.

To find out the quantification of factors' contribution, data was analyzed by using a two-step process of SMART PLS. In the first step, the measurement model was assessed where we did the validity and reliability analysis and in the second step, we moved towards the assessment of the structural model where we found the threshold loadings and path coefficients of the factors/variables involved. Measurement model assessment indicates that the average variance extracted (AVE) value should be 0.50 or higher. This is evident in current study findings that all constructs i.e., social, environmental, economic, governance, and microfinance sustainability have suitable AVEs higher than the threshold of 0.50. Another measurement model indicator is composite reliability where Cronbach's alpha value must be equal to or greater than 0.70. It is also evident that all the variable's composite reliability and Cronbach's alpha value meet the requirements.

Table 1. Reliability and Validity analysis

S:No	Constructs	Average Variance Extracted	Cronbach's Alpha	Composite Reliability
1	Social Factor	0.555	0.856	0.876

2	Governance Factor	0.675	0.902	0.907
3	Environmental Factor	0.640	0.889	0.898
4	Economic Factor	0.640	0.888	0.896
5	Microfinance Sustainability Factors	0.640	0.889	0.898

The discriminant validity (HTMT)

Another measure to check the validity of the Likert scale so that data is free from error is through discriminant validity. It checks that the constructs are different from each other. One method is through the HTMT ratio called the Hetrotrait-Monotrait ratio. This means when all the indicator averages are combined and then correlated with other constructs the value should be less than 0.90 or 0.85 than the discriminant validity principles concept is served in the data analysis. Results depicted in Table 2 explain that all the values of the HTMT ratio are below the threshold of 0.90 or 0.85. It means that discriminant validity is maintained in the analysis. This concludes that all the constructs i.e., Social, Environmental, Economic, governance, and Microfinance Sustainable constructs are different from each other. They are not measuring the same concept. Hence, it confirms no issue of Multicollinearity.

Table 2. Hetrotrait-Monotrait Ratio (HTMT)

	ECF	EF	GF	MSF	SF
ECF					
EF	0.463				
GF	0.455	0.492			
MSF	0.418	0.389	0.260		
SF	0.389	0.577	0.492	0.345	

ECF (economic factor), **EF** (environmental factor), **GF** (Governance Factor), **MSF** (Microfinance Sustainability factor), **SF** (Social Factor)

Assessment of Structural Model

The structural model measures the significance of all the indicators through a p-value equal to or less than 0.05 and through a T statistics value that should also be less than or equal to 1.96. Table 3 shows all seven paths and their impact on governance and microfinance sustainability factors from all seven paths only two paths are insignificant i.e., Governance factors to Microfinance sustainability factors as their p-value is 0.876 this value is greater than 0.05 and that statistics value is 0.156 this value is less than 1.96. The other insignificant path is from Social factors to Microfinance sustainable factors as their p-value is 0.076 this value is higher than 0.05 and the value of the statistic is 1.775 this value is lower than the 1.96 value of the standard threshold level. Hence both paths are insignificant.

For the remaining paths from Economic factors to Governance factors, the value of impact through regressions weights is 0.235 with a p-value of 0.002 and t statistics of 3.152. This impact is significant. In the paths from Economic factors to Microfinance sustainability factors, the value of impact through regressions weights is 0.268 with a p-value of 0.002 and t statistics of 3.100. This impact is significant. In the paths from Environmental factors to Governance factors, the value of impact through regressions weights is 0.238 with a p-value of 0.002 and t statistics of 3.147. This impact is significant. In the paths from Environmental factors to Microfinance sustainability factors, the value of impact through regressions weights is 0.192 with a p-value of 0.005 and t statistics of 2.813. This impact is significant. Lastly, for the paths from social factors to Governance factors, the value of impact through regressions weights is 0.231 with a p-value of 0.001 and t statistics of 3.300. This impact is also significant results.

Table 3. Path Coefficients

	Beta	(STDEV)	T-statistics	P values	Paths
Economic->GovernanceFactors	0.235	0.074	3.152	0.002	Significant
Economic->Microfinancesustainability	0.268	0.086	3.100	0.002	Significant
Environment->Governance	0.238	0.076	3.147	0.002	Significant
Environment->Microfinancesustainability	0.192	0.068	2.813	0.005	Significant
Governance->Microfinancesustainable	-0.013	0.080	0.156	0.876	Insignificant
Social->Governance	0.231	0.070	3.300	0.001	Significant
Social->Microfinance sustainable	0.122	0.069	1.775	0.076	Insignificant

Qualitative discussion

If we look back to the literature, the micro-financing process has only a single prime aim of helping the deprived/poor community by providing them loans/finance so that they maintain their living standard and the basic condition on provision of that loan is utilized in away so that environment must be safe and clean from any wastage or global warming but when we observed the situation we found that villages were properly utilizing their loans to raise their livelihood and living standard but no any consideration was given to ecological footprints. Certain observations that we formulated during field observation are: Human sheets were lacking with few environmental services, and environmentalism symptoms were missing there. It was concluded with the observation that social and government factors were the major contributing reasons behind. Apart from that it was also observed that there was no proper audit after providing finance that whether its utilization is promoting their life or how they are utilizing, even terms and conditions were not cleared. They were not aware of the basic conditions on which their loan had been sanctioned.

Another thing that we observed was lacking strategies for the reduction of carbon omission. There were not any proper objectives/way out to deal with such issues. Maybe they were newly inducted employees or maybe Khushali Bank did not have any real objective. Clients were having scarcity of energy efficient technology even though they were never offered any access to renewable energy. The issue of training was also observed where clients were given different pieces of training on how to develop environmentally friendly activities to run in a way that not only improves lifestyle but also helps in fostering green elements of the environment.

Conclusion

Up to now, the summated findings can be concluded with the fact that the results of this study, focusing primarily on the efficiency of microfinance institutions have not achieved a significant improvement of microfinance on financial inclusion, reduction in poverty, promoting gender equality, and bringing any improvement in household condition.

1. Concluding objective 1, it was found based on analysis that Khushali Bank is genuinely providing loans to all needed but the green part is still not in practice, or it can be said that very rare focus has been given to that practice. Though they are improving their products to sustain the environment with green components,

much effort is needed to create a link between green components and sustainable development. Ecological footprints are still not maintained, and environmentalism is also weak. There is a ratio of 40/60 where 60% of borrowers are of the view that we don't have any refined policy or objectives even if we are not fully aware of the practices or strategies that help in developing a hygienic environment.

2. Concluding objective 2, it has been stated that environmental and ecological factors were playing their role in promoting microfinance sustainably, but government and social factors were creating hindrances in applying the systematic process of promoting microfinance sustainability. Government regulation, level of interest rates, and the inclusion of the poverty line as a daily increase in petrol prices were different government regulations because of which loan amount was insufficient for them to maintain a sustainable environment and from the social side culture was a major problem, people were not aware, quantifiable objectives were missing, maintenance policy were not properly communicated. The loan was properly utilized but the element of green microfinance was missing.
3. Concluding objective 3, it can be argued that staff and clients of Khushali Bank are in the positive sense of improving their products and services. As this objective was achieved using qualitative dialogues all the stakeholders were very optimistic towards betterment. Staff also ensured that soon they will launch many products that help in efficient energy renewable resources. Even staff said they will allow training to clients as well before sanction of loan on how to properly utilize so to achieve the green component of microfinancing.

Recommendations/Implications for Policymakers

Though the inclusion of financing products and decreasing interest rates are positive signs of microfinance's future, non-sustainability towards the environment is still a big question to be answered. Stakeholders must ensure the implacability of conventional finance to sustainable microfinance from poor captive borrowers. As a huge provision of microfinance seems good for poor customers its diversion alerts a lack of sustainability towards the environment. According to the views of Hesary & Yoshino, (2020), green financing tools are very essential and supportive under capital pressure. It also has a positive influence on efficient energy resources (Meo and Karim, 2021). In short, to maintain sustainable growth, microfinance institutions should follow some strategies discussed below:

1. As findings indicate green components are missing toward sustainable growth of society. It is recommended to bank authorities develop quantified objectives and policies that must be aware with staff as well.
2. Training must be given to customers or borrowers regarding maintaining sustainable practices while utilizing funds. Ecological footprints must also be reserved for a better and healthier environment. This means financial literacy should be fully promoted and, in this way, we can achieve objective 1 in a more refined way.
3. By empirically analyzing the influence of social, government, environmental, and ecological factors on microfinance sustainable factors it was found that social and governance factors were not contributing to microfinance sustainable factors so microfinance institutions especially Khushali bank authorities are recommended to make continuous efforts while creating a climate where employee's perceptions, behavior and procedures must be supported and rewarded in terms of quality and in this way address the awareness and acceptability issue of customers.
4. Considering the views of staff and borrowers, Khushali bank authorities and all other microfinance institutions are recommended to immediately offer training practices for the usage of microcredit in a way that improves income generation potential.

5. Not only staff, clients, and borrowers must also be given training in different parameters such as sales, accounting practices, and the pros and cons of a hygienic life. In this way, they will also be fully aware of the outcome and consequences of not utilizing microcredits sustainably.

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