

# New Ways of Protecting the Environment: The Case of Agro-Processors in Ghana

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## Abstract

Microfinance programmes generally involve granting of small loans to the poor, particularly women, with the aim of increasing their income levels. Results of most microfinance impact evaluations (Al-hassan, 2011 and Egyir, 2008) have revealed that small loan schemes have impacted positively on the lives of micro entrepreneurs (improved incomes, savings, health, education) and have ensured financial sustainability. It is well known that small loan beneficiaries highly depend on the environment to run their microenterprises leading to overutilization and sometimes depletion of natural resources and degrading the environment. Unfortunately, the relationship between microfinance activities and sustainable land management, agricultural development and natural resource protection has received little attention in most impact evaluations suggesting that microcredit impact evaluations over estimate the gains from such schemes. Again, positivists argue that microfinance institutions have played significant role in influencing environmental policy through advocacy and empowerment of rural micro entrepreneurs but the extent to which local people, particularly women entrepreneurs participate in environmental protection has received little empirical evidence. This paper analyses the practices adapted by women agro-processors to protect the environment using the sustainable livelihoods (SL) approach.

**Key words:** Environment, gender, Agro-processing, microfinance

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## 1. Introduction

Microfinance programmes generally aim at rural poverty reduction. It is the provision of financial services (credit and savings) to small and medium entrepreneurs, the productive but resource poor in a cost-effective and sustainable manner. The programmes aim at increasing the incomes of rural dwellers who are mostly micro and small enterprise owners, particularly women entrepreneurs. There have been several microfinance impact studies to unearth the impact of microfinance in developing countries but these studies have often focused on the gains of the loans, loan recovery or repayment rates and financial sustainability<sup>2</sup>.

The relationship between microfinance and sustainability of land, agricultural and natural resources has received little attention in microcredit impact evaluation leading to over estimation of the gains<sup>3</sup>. Loan beneficiaries over depend on the environment to run their microenterprises thereby depleting natural resources and degrading the environment as a result of wastes produced from these activities. Hall and others (2008) have argued that because poor people are more dependent on the environment for their livelihood sustenance the depletion of natural resources as inputs for production can affect an MFI's profitability in terms of business sustainability. Glazyrina (2012) have warned that in order to construct microeconomic quality of growth indicators, there is the need to determine the environmental damage of economic activities, taking into account that polluting substances often accumulate within the natural environment. This is important because undervaluing natural resources and ecological damage distorts the indicators of economic progress and development (Mekush, 2012).

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<sup>2</sup> 'Sustainability' refers to financial sustainability in the microfinance world, and environmental sustainability in the eco-sector (See USAID, [www.greenMicrofinance.org](http://www.greenMicrofinance.org)).

<sup>3</sup> Not all microenterprise activity is harmful to the environment, and some cases it can actually be environmentally healthy (See Hall, Collins, Israel and Wenner, 2008 for details).

More so, whether livelihoods can be sustainable or not, depends on the way the environment is managed (UNDP-UNEP, 2009) and thus, improving the ways in which environmental resources, such as forests, are managed increases the resilience of poor people and their livelihoods to environmental risks.

Environmental degradation is not pro-poor because it contributes to an increased burden on women and children (UNDP-UNEP, 2009). As such environmental degradation has caused policy makers or leaders in Ghana to sign treaties and protocols in the past few years to save the environment and natural resources from further contamination. Although the efforts of policy makers in Ghana have brought positive changes at the macro-level, environment protection at the grass-root level continues to pose a greater threat to the environment. The experience of Ghana shows that environmental degradation has not only had negative effects on the economy of Ghana but it has also affected the poor and vulnerable in many ways. Overall, soil degradation is estimated to cause productivity losses of 2.9% per year in all forms of agriculture (Alfsen et al, 1997) cited in Ghana Environmental Protection Agency (EPA) (2004). Bojo 1996 quoted in EPA (2002) estimated that the gross annual economic loss due to soil erosion to be between 2% and 5% of Ghana's agricultural gross domestic product. Reduced agricultural output and deteriorating conditions in rural areas, increased poverty and child mortality, increased out-migration of the youth, increased number of disasters (drought, floods, etc) and hunger and malnutrition due to low production and access to environmental resources have been identified as effects of environmental degradation. For instance, in 2002 the Environmental Protection Agency (EPA) reported that malnutrition among children under five in Ghanaian communities with severely degraded soils increased from about 50% in 1986 to 70% in 1990. A whole range of forest products has become scarce. Rural people must devote more of their productive time and effort to extract fuel wood, harvest charcoal and make building materials, medicinal plants, honey and bush meat.

Dokum (1998) has observed that 'environmental degradation translates into a spiral of declining production, increasing poverty and diminished potential productivity. It exacerbates poverty which, in turn, exacerbates environmental degradation because, as the pressure increases, people are forced to exploit their land to survive. In doing so, they further diminish its productivity and the cycle continues'. Mueller (2006) has advised that in order to address the problems of sustainable rural development and poverty alleviation, donors must take account of the realities that both affect and characterise the daily lives of the rural poor. The explanation is that rather than being separated, international agencies need to integrate the micro and the macro as well as the economic, political and social realities of the rural poor before devising untenable solutions for people whose lives are not separated into discrete parts. The role of rural poor, particularly those engaged in agro-processing in protecting the environment is critical. Recently, donors have promoted civil society organisations as a means of circumventing and developing an antidote to states that are extracting more from their rural populations than they contribute to sustainable rural development. Recently, the United Nations Secretary General has called for global and national Post-2015 consultations aimed at ensuring that all people, especially the poor and the vulnerable, have an opportunity to contribute directly to the formulation of a development agenda for the next generation. Four interdependent dimensions have been highlighted to guide consultations. These include inclusive social development, inclusive economic development, peace and security and environmental sustainability.

## 2. Statement of the Research Problem

The Northern Region of Ghana harbours numerous MFIs because of the perceived role that they can play in reducing poverty<sup>1</sup>. These credit institutions lend mostly to women engaged in agro-processing involving shea butter industry, groundnut oil processing, and other petty trading activities. The location of MFIs in the region may be attributed to the fact that micro-entrepreneurship rather than industrialisation is seen as a key way to overcoming poverty and to promote rural development (Mueller, 2006). Egyir (2008) has demonstrated that micro loans have had a positive impact on the livelihoods of rural women in Ghana because the loans have brought about increased working capital, increased household food supply, improved quality of child education, improved household assets, improved participation in group activities and increased disposable income. Aside, microfinance institutions have been well noted for the role they can play in achieving environmental sustainability. It has been argued that microfinance institutions (MFIs) can be instrumental in spreading awareness about the poverty-environment linkage, educating poor people about environmentally friendly practices and managing their natural resources so as to get maximum return from them while maintaining them. MFIs can collect data about cause and effect, propose policy changes, instigate a revolution in the way the poor thinks, enforce environment management and set the path for a sustainable growth. MFIs are in a position to influence and enforce environmentally friendly decisions by the poor. They can make environmental management a prerequisite for their clients to meet a minimum environmental criteria and most importantly, involve the poor in environmental planning by coming up with innovative projects that provide employment in this area.

<sup>1</sup> See The Ghana Microfinance Directory 2009-2010 prepared by GHAMFIN for details.

In agricultural domain, MFIs can spread awareness and make experts available to the farmers to educate them about soil-nitrogen cycles, importance of soil biodiversity, use of natural manures, crop rotation to increase soil fertility and methods to check soil erosion. They can also help instill environmentally friendly practices for small industries like tanneries, pesticides manufacturers, aquaculture businesses, which need to balance degradation caused by them. MFIs can also collect data on the environment-poverty linkages and how it affects the poor as well as the environment. This data can be fed to research organizations to make a case on this, to advocate policy changes at higher levels and can also be used to formulate innovative projects that generate employment opportunities in environment management. Governments and research organizations can make policies and plans, by spreading the awareness about them, involving the poor and finally, helping with the implementations of such policies can be done best by MFIs. MFIs can be the pioneers and the drivers of these plans, policies and actions. Despite the above role of MFIs, the small loan schemes are usually designed without incorporating environmental issues such as land, agricultural and natural resource management issues into project impact monitoring and evaluation process. The activities of owners of microenterprises who are mostly the beneficiaries of microcredit schemes and who engage in unsustainable use of these resources are not properly captured. Microenterprise owners do not make conscious efforts to plant trees, manage water sheds and the soil as well as the solid and liquid wastes resulting from their activities. As a result, there is high rate of environmental degradation manifesting itself in many ways including disappearance of water bodies (water scarcity), soil erosion, deforestation and solid and liquid wastes problems.

EPA (2003) and Kyambadde (2005) as cited in Karoli et al. (2011) argued that “rapid expansion of agro-processing industries in Eastern Africa can be viewed as an indicator of economic progress because they are associated with environmental degradation, notably the discharge of untreated or partially treated wastewater and greenhouse gas emissions, and consequently climate change. Karoli et al. (2011) found that integration of agro-processing, energy recovery and water reuse for economic activities especially agricultural sector is among the prominently neglected aspect in development activities. The absence of sustainable land, agricultural and natural resource management issues in the impact studies suggests that the gains of microcredit have been over-estimated. Thus, it is possible that the overdependence on natural resources such as trees, water and soil by small business development might have greatly overestimated the gains of microcredit, especially when the argument is taken one step further to include sustainability of land, agricultural and natural resource management. Perhaps, that is why Adams and von Pischke (1992) argued that debt is not an effective tool for helping most poor people to enhance their economic condition. According to the UN Human Development Report in 1998 environmental damage almost always hits those living in poverty the earliest and hardest. Tandoh-Offin (2010) has stressed the need for both the state and NGOs to engage in programmes to raise awareness about activities of individual environmental entrepreneurs especially the women innovators and their activities. This paper outlines the options available to MFIs to implement environmental management techniques with focus on women shea butter processors who use the loans. The paper identifies and analyses the new ways micro shea butter processors and rice potboilers are adapting to promote environment sustainability. The rest of the paper deals with available literature, study methodology, findings, conclusions and recommendations.

### **3. Agro-Processing and Environment**

Industrial activities as it were are inextricably linked to natural environment in one way or the other. Aside facilitating productivity of industrial outfits is the ability to attract maximizing demand for such industrial products with ultimate goal of favourable returns on production scale. Meanwhile, another useful feature of industrial outfits is the linkage effect (i.e. industries capacities to effect derive demand for products of other industries and/or sub-sectors in an economy. Most industries concentrate on forward and backward linkages. The capacity of agro-industry to create derive demand and/or facilitate activities of other industries has a recognized potential for activating "sideway linkages"; that is, linkages that are derive from the use of by-products or waste products of the main industrial activity (FAO, 1997). Findings of FAO reveal that;

*“animal feed industries can utilize several agro-industrial by-products, such as whey, oilseed presscakes and blood, carcass and bone meal. In addition, many industries using agricultural raw materials produce waste that can be used as fuel, paper pulp or fertilizer. Recycling and biological agriculture are two activities that go together to respond to the idea of a sustainable form of exploitation of natural resources within an efficient industrial context (FAO, 1997)”*.

Relatively overlooked linkage in this respect is the side-ways derived environmental effects that results from growing employment and livelihood demand that is mostly necessitated by increasing populations relative to fast degrading environment. Quiet significant empirical exploration on forward and backward linkages in shea butter industrial activities has over the years received relatively progressive attention from researchers and development stakeholders in Ghana and beyond. The least explored is sideway linkages that are derived from the

use of by-products or waste products of the main industrial activity vis-à-vis Sustainable Environmental Coping Strategies and Implications in Northern Region of Ghana. The study assesses the various sustainable environmental coping strategies that are used by shea butter processors in northern region of Ghana.

Empirical study in three villages near Hanoi and Vietnam revealed that agro-processing activities of Cassava and Canna Starch generates wastes of about 1.45million cubic meters during 1999-2000 processing season. These wastes levels exceeded the critical values set by government in terms of management of organic matter that is contained in waste water. Same was the solid wastes that were generated by processors totaling 51,750t dumped by the road sides and/or ponds. Meanwhile local residents perceived these waste as environmentally unhealthy and hazardous to health (Peters et al., 2000). FAO (1997) also found that agro-processing activities contribute to overall development of nations across continents. But agro-processing activities can equally produce adverse environmental effects such as; discharge of organic and/or hazardous wastes that pollute water sources, emission of dust, and emission of gases that could affect air quality. Despite these, many countries are still characterized with the lack of policy framework that adequately addresses institutional, legal and monitoring structures to implement environmental mitigation strategies and measures effectively. Ogbonnaya (2008) also found that agro-food processing industrial activities have both positive and negative impacts on the environments in Nigeria and hence the need for tentative interventions towards mitigation and conservation of adverse environmental impacts.

George (2009) documents that conservation practices in Africa have been the traditional responsibility of all members of society. According to the author traditional approach to conservation activities especially in the southwest of Kenya shows a complex social behavior and rules. The conservation systems and approaches acknowledge the role and responsibility each category of persons in society are supposed to exhibit towards ensuring conservation of which environmental conservation is no exception. As part of the practice, inspection and monitoring of conservation activities generate useful information for sound decision making and judgments in the face of changing social, cultural, economic and environmental conservation in African societies. George (2009) explains that a typical instance in the study regarding the monitoring and evaluation is the monitoring of traditional labour arrangements such as the *saga system* created efficient and adequate ways of tackling conservation problems. Although labour depended on the loyalty of the subjects to the leadership, more often than not, cooperative action and togetherness compelled people to make themselves available for community work, even in the absence of recognized leaders. This strongly impacted positively on the traditional role of society in conservation of the environment. Francesca (2011) documented that rural areas of Northern Ghana depend heavily on the natural resources to meet their subsistence needs. He warned that this livelihood option of the rural households are threatened by increasing desertification and rate of extreme weather changes that has high tendency of gradually worsening the plight to the rural households in Northern Ghana. The author indicated the various forms and strategies of adaptation to the environmental changes determined by the types of assets people have.

#### **4. Conceptual framework and Methodology**

Environmental sustainability has become an issue because of the need to attain a better balance between economic, environmental and social goals, and great fairness in distributing the gains from growth among people and countries (OECD, 2006). Environmental sustainability is one of the pillars of sustainable development. However, measuring and implementing sustainable development has remained a tough task (OECD, 2006) for development agents and researchers. The concept of sustainable development includes a time element because it deals with the present and the future. As such, any measure of progress towards it must also include evaluating the longer-term implications of current decisions and behavior. In the environmental sphere, decoupling indicators show how economic growth can be accomplished without environmental damage. Materials flow indicators track the production, use and reuse of materials in an economy and the implications for resource productivity. In the social sphere, indicators of social capital are being developed to couple with measures of economic and environmental capital.

People's assets and external environment are continuously changing and for that matter the set of livelihood strategies also changes (Albu and Scott, 2001). However, the extent to which people's assets can be used to achieve desired livelihood outcomes is determined in large part by people's capability to re-combine their assets in response to change. This paper analyses the understanding and practice of women micro-entrepreneurs of environmental sustainability by using the sustainable livelihoods (SL) approach. SL approaches recognise the diverse dimensions to poverty, and the multiple strategies that poor people adopt to secure their livelihoods (Albu and Scott, 2001). The sustainable livelihoods approach is intended to guide researchers, practitioners and policymakers in gaining an understanding of people's strengths (their skills, status and possessions) and how they use these assets to improve the quality of their lives. It aims at showing peoples' ability to respond to shocks,

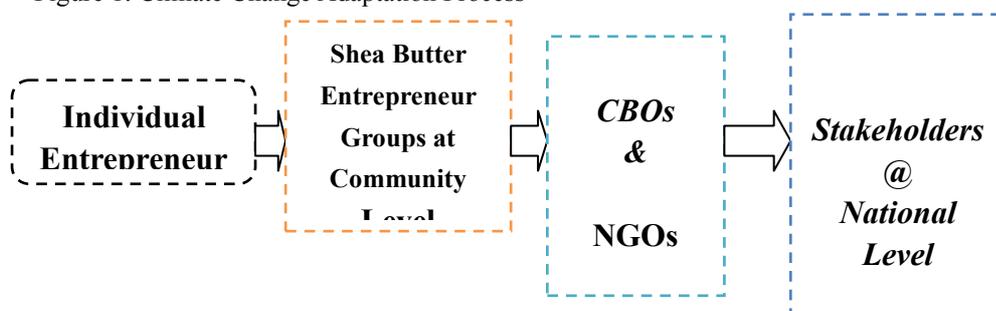
trends and other changes in their dynamic environment, by adjusting or –re-configuring the way they use their assets to pursue new or adapted strategies. SL approach regards assets not only as things that allow survival, adaptation and poverty alleviation, but also as the basis of individuals’ capability to act and to change the rules that govern the control, use and transformation of resources (Bebbington, 1999). The study approach emphasised participation by informants, and prioritised insiders’ knowledge. It also sought as far as possible to keep the analysis in the hands of the principal stakeholders (women microentrepreneurs). Information was verified where possible by triangulation between different sources.

The approach involved a combination of institutional analysis aided by relevant participatory rural appraisal (PRA) techniques (e.g., discussions, probing, interviews, observations, etc). The case study approach was employed. The techniques were designed in such a way that wider issues relating to the impact of microenterprises activities on natural resource, channel of transmission and nature of business owners response to environmental difficulties in terms of sustainability were considered. Specifically, the approach paid attention to the extent to which microfinance affects natural resource use through small and medium scale business development, particularly those engaged in agro-processing (shea butter, rice parboiling and groundnut oil extraction). The study involved data collection through institutional analysis, field visits, in-depth interviews and observation.

The object of the research is those who have benefited from microfinance and are engaged in shea butter processing for both local and international markets. In total, five community-women shea butter groups (1 in each district) were selected purposively for the study. The districts included Tamale Metropolis, Gushegu, Tolon-Kumbungu, West Mamprusi and Savelugu-Nanton. These districts are selected because they contribute to over 70% of shea butter output and also hosts offices of almost all the MFIs operating small loans in the region. Five communities, Jisonaayili, Kpaatili, Mbanaayili, Walewale and Savelugu were respectively selected from the districts because they are popular shea butter processing communities.

Data covered channels of transmission of the impact of microfinance on the environment and the nature and direction of response by SMEs to environmental difficulties. Data editing involved checking of data collected from each district. The editing aimed at checking the accuracy and consistency of data in relation to the study objective. The data analysis approach combined qualitative and quantitative data analysis techniques. Data analysis involved a careful matching of study objective and expected outcomes. Presented below is the conceptual framework of climate change adaptation processes of shea butter processors. The framework emphasises the climate change adaptation responsibility relative to environmental sustainability as in Figure 1 below.

Figure 1: Climate Change Adaptation Process



**Source:** Authors’ Construct 2013

Figure 1 above present climate change adaptation processes in the agro-processing sector in Ghana. The focus of this framework is an explanation of climate change adaptation in shea butter processing activities in Ghana. Climate change adaptation is a collective responsibility of different stakeholders at the individual and/or household levels to international levels. The task of environmental protection in shea butter industry starts from the individual shea butter processors at the household levels. The shea butter entrepreneurs at group levels, CBOs, NGOs, other stakeholders at national and international levels all have roles to play in adapting environmentally friendly practices that ensures environmental protection and sustainability. Environmentally sensitive practices, support from CBOs and NGOs, direct and policy interventions of governments, other national and international stakeholders collectively facilitate climate change adaptation processes in the agro-processing sector in Ghana. When each stakeholder adapt good practices, it goes to complement the efforts of other stakeholders thereby building a collective effort in ensuring environmental protection towards mitigating climate change in the long-run. Presented below is the shea butter processors and environmental sustainability.

## 5. Shea Butter Processors and Environmental Sustainability

### *Protection of Shea Resources*

The findings show that women shea butter processors in different communities have become key advocates for improved care for shea trees and are succeeding in getting their male counterparts to support<sup>1</sup>. The women showed improved lobbying skills as well as ways of protecting shea trees and other resources. As a result of advocacy the women groups have won the support of policy makers who are key actors in the shea industry to pass bye-laws that help to protect the shea tree. The bye-laws are mainly meant to deter people from cutting shea trees indiscriminately and from burning them or using them for the production of charcoal. The Mbanaayili Tungteeiya and Kpaatili Tungteeiya Groups have been able to protect shea trees covering about 4 acres piece of land at different locations in their communities. The group has erected bill boards to deter people from cutting or burning shea trees. The groups have been able to lobby their community chiefs and elders to give their fullest support to group activities manifesting itself in the community's ability to make bye laws to protect the shea trees. Although the trees are accessible to all community members of the shea processing groups play key role in driving the process in terms of sensitisation of other community members and clearing bush around the trees.

### *Recycling of Shea Butter Wastes*

Previously women shea butter processors used to dump both solid and liquid wastes indiscriminately causing damage to the environment. The results show that shea butter processors have adapted sustainable ways of managing wastes (slurry). Owners of microenterprises explained that they use the wastes as a source of energy. This finding is similar to the conclusions of Basit (2010) that 68% of shea butter processors use the wastes as source of energy for processing and other household use. Evidence from field visits indicates that the wastes are being recycled in the form of energy source. The liquid wastes are moulded into balls which are then dried for a certain period and used as source of energy (Figure 2).

**Figure 2: Shea Butter Wastes turned to balls to be used as source of energy at Mbanaayili Community**



### *Sustainable Agricultural Practices*

As a result of improved farming technology most women use shea butter wastes as a form of organic fertilizer (compost). The women apply the compost to their farms which is improving agricultural productivity in a sustainable manner (Figure 3). Compost application increases and maintains crop yield, it improves soil ability to hold water and nutrients, it keeps the soil healthy for sustainable production and also prevents soil erosion and

<sup>1</sup> The men help the women to make fire belts around densely populated areas of shea trees in all beneficiary communities.

soil degradation. This finding is similar to the conclusion of Greenland et al., (1975) that organic manure plays a major role in the maintenance of the physical, chemical and biological properties of the soil. It acts as a source and sinks to plant nutrients. Research has also shown that organic manure maintains continuous higher yield on tropical soil than inorganic fertilizers.

**Figure 3: Shea waste used in the preparation of compost**



## 6. Conclusion

Rural poverty reduction has often been targeted through the use of microfinance whereby financial services (credit and savings) are packaged for small and medium enterprise owners, mostly women. Results of most microfinance studies are often biased to gains from the loans, loan recovery or repayment rates and financial sustainability without paying attention to the relationship between microfinance and sustainability of land, agricultural and natural resources. Meanwhile small loan beneficiaries over depend on the environment to run their microenterprises thereby depleting natural resources and degrading the environment as a result of wastes produced from these activities. The implication is that the gains that are claimed to emanate from credit schemes could be highly over estimated.

Environmental degradation is not pro-poor because it exacerbates the already deplorable condition of the vulnerable, particularly women entrepreneurs. In Ghana environmental degradation has not only had negative effects on the economy but it has also affected the poor and vulnerable in many ways. Reduced agricultural output and deteriorating conditions in rural areas, increased poverty and child mortality, increased out-migration of the youth, increased number of disasters (drought, floods, etc) and hunger and malnutrition due to low production and access to environmental resources have been identified as effects of environmental degradation. Environmental degradation translates into a spiral of declining production, increasing poverty and diminished potential productivity. The conclusion is that in order to address the problems of sustainable rural development and poverty alleviation, stakeholders especially donors must take account of the realities that both affect and characterise the daily lives of the rural poor. The fight against environmental degradation must be seen as a collective effort whereby all key stakeholders (individuals, community based organizations, NGOs, government and donors) are involved. This is similar to the conclusion of George (2009) that conservation practices in Africa have been the traditional responsibility of all members of society.

Women shea butter processors have realised that improvements in their livelihoods highly depends on how well the environment is managed. Women microenterprise owners have developed ways of protecting natural resources (such as the shea tree), recycle wastes from microfinance activities and adapt sustainable agricultural practices. Thus, recycling of shea butter bi-product into usable energy resource, discovery of numerous uses of shea butter bi-product and enforcement of bye-laws are the major sustainable coping strategies that are being adopted by shea butter processors in Northern Region of Ghana. Though these strategies are still at its primary stage they have the potential for ensuring environmentally sustainable shea butter processing in Ghana.

It is recommended that gender be mainstreamed into microfinance schemes as well as national poverty-environment policies and community-based climate change adaptation processes. This can be achieved

by collecting community-specific data on the contribution of women to innovative ways of adapting to environmental degradation. Women shea butter microentrepreneurs need motivation or incentives by the government and/or MFIs to encourage them to strengthen their sustainable environmental practices. Various incentives can be used for encouraging polluting women shea butter small enterprises to adapt environmental management techniques. Possible incentives include provision of more favorable interest rates and repayment schedules. Another form of an incentive is to create competition whereby the least impacting (pollution or resource degradation) community shea butter processing group receives some sort of reward.

More so, strengthening community adaptive capacity such as access to environment and climate information, innovation and managing risks is important. There is the need for women shea butter small enterprise owners to strengthen existing networks. This is useful for obtaining information on not only access to small loan but also environmental management techniques. There is already an existing partnership between civil society organisations (NGOs) and women shea butter groups and this must be strengthened. Emphasis should be placed on local partner organisations because of their knowledge about the local context within which these small enterprises operate. Partner organizations can also help to directly implement environmental management. This could be in terms of training (women shea butter micro entrepreneurs and MFI staff) and promoting new technology and efficient production methods. Networking with government agencies and environmental groups can also enable MFIs to reach out and support small entrepreneurs involved in recycling and waste management.

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