



Microfinance and Climate Change: Can MFIs Promote Environmental Sustainability?

Speaker's Corner Summary Report



Close to 200 participants from 43 countries participated in this discussion hosted by [GreenMicrofinance](http://www.greenmicrofinance.org), allowing participants to connect and learn about each other's activities. The knowledge shared and lessons learned also informed a May 2009 [Microfinance Gateway Highlight](#)

Speaker's Corners are online discussions hosted by subject matter experts, designed to help practitioners share and learn from each other. They are hosted on microLINKS (www.microlinks.org) and Poverty Frontiers (www.povertyfrontiers.org)

This report summarizes key themes and “lessons learned” from the “**Microfinance and Climate Change: Can MFIs Promote Environmental Sustainability?**” Speaker's Corner, held November 18-20, 2008. Additional resources and original postings are available at www.microlinks.org/sc/greenmicrofinance.

GreenMicrofinance led this online discussion exploring how microfinance (MF) clients are impacted by climate change, and how microfinance can provide both positive impacts clients' lives and environmental benefit, both local and global.

This report highlights major themes from the discussion, and presents key challenges as well as success stories shared by our participants in the following areas:

Day 1: Welcome

Welcome to all of you joining us from many countries around the world. I am honored to host this forum and look forward to a lively dialogue as our facilitators guide us through the intersection of Microfinance and Climate Change, exploring the question: **Can MFIs Promote Environmental Sustainability?**
Dan Lundmark, GMf

1. **Environmental Impacts on Microfinance Clients**
2. **Microfinance Clients' Impacts on Their Environment**
3. **Win-Win Initiatives: Alleviating Poverty While Producing Environmental Benefit**
4. **Carbon Offset Income Stream Potential**

February 2009

This publication was produced for review by the U.S. Agency for International Development. It was prepared by Jessica Shortall of Social Enterprise Associates (jessica@socialenterprise.net).
www.socialenterprise.net

The Background: The Environment and Microfinance Sectors' Relationship

Earth Day, considered by many to be the kick-off of the modern environmental movement, launched in 1970. In 1976, Muhammad Yunus first extended credit to the ultra-poor. That venture's success, along with work by other pioneers in the field, spurred the international creation of microfinance, which grew rapidly and became its own sector. By and large, there was little connection between these two powerful, fast-developing arenas. Joan Hall, a microfinance veteran as well as environmental professional, notes there is still often a gulf between them: "In trying to bridge the gap between environmental practitioners and MF practitioners, we've learned to be careful with our vocabulary. In MF, **impact** is a good thing; in the environment, 'impact' is a bad thing!"

Likewise, "sustainability" refers to **financial** sustainability in the MF world, and **environmental** sustainability in the eco-sector.

1. Environmental Impacts on Microfinance Clients

Microfinance clients and their children spend a good deal of their time foraging for wood, crop residue, and dung to fuel the open fires they depend on for cooking. As populations grow and consume these resources faster than they are replenished, one consequence is that foraging requires increasingly more time, since gatherers must go ever farther in search of fuel.

Cooking over open flames causes continual exposure to extremely toxic air pollution, often resulting in respiratory disease. It also poses the constant risk of burns and uncontrolled fires. Kerosene, a fossil fuel commonly used for night lighting,

likewise produces toxic household air; its smoke and fumes are additional contributor to respiratory disease and flimsy lamps cause accidental fires.

Another environmental impact on MF clients, soil erosion and depletion, is a result of deforestation. The most extreme example, Haiti, is 98% deforested. Haitians are now regularly subjected to mudslide flooding, since the lack of tree cover translates into frequent disasters resulting from heavy rains.

MF practitioners report that the overuse of fertilizers pollutes fields and ultimately lowers soil productivity; in extreme cases, peasants must abandon their fields and search for other livelihoods. Run-off from polluted fields poisons streams, as well.

The effects of global warming such as extreme weather, drought, and flooding will impact MF clients at the most basic level; local changes are already being observed, and will likely have the biggest impact on small farmers.

2. Microfinance Clients' Impact on Their Environment

Microfinance clients' impact on the environment is direct, consuming natural resources both for personal needs and creating marketable products. Most live in locales without waste management, so normal daily activities of living and working impact soil and water quality quite directly. As mentioned, burning dung, crop residue, and wood for cooking contributes to major deforestation of their lands which in turn impacts them adversely.

Polluted water causes disease and contaminates larger eco-systems. Overuse of agricultural inputs can result in polluted fields and toxic run-off. Consuming fossil fuel such as kerosene for lighting also contributes to global warming through its carbon emission. (While each client's

carbon footprint is small, the aggregate impact is massive.)

As reported by our participants, FME's (food microentrepreneurs) have particularly high environmental impacts, since their businesses generate large quantities of biomass refuse in locales without waste infrastructure. Their labor exposes the FME's to toxic cookstove fumes day in and day out, so they are highly impacted, negatively, by their immediate environment as well.

Our participants report that Microfinance Institutions are increasingly paying attention to reducing negative their environmental impacts and promoting sustainability. However, moving beyond concern about the MFI's internal impacts to the impacts of their clients' microenterprises is an important next step; protocols for measuring these impacts are being developed and implemented by various groups.

3. Win-Win Initiatives: Alleviating Poverty While Producing Environmental Benefit

We were excited to learn of so many pioneering MFI initiatives linking livelihood **with** environmental improvement; partnering with NGO partners or government, a new paradigm is developing. Managing and reducing negative eco-impacts is, of course, vital. But some MFI's report having moved from **reactive** to **proactive**, bridging eco-concerns with business.

These often have interrelated benefit. For example, sustainably managed forest wood can be used to produce biofuel which, when used along with High Efficiency Stoves, provides triple resource conservation benefits.

Win-Win Eco-Initiative Project Areas:

1) Combining agriculture with sustainably managing and/or restoring habitat, with related value-added income-generating activities such as organic, fair-trade products.

2) Clean energy generation technology provision (solar, biofuel, biomass, micro-hydro, and micro-wind), often paired with higher- efficiency cookstoves,

3) Clean technology infrastructure and related enterprise, such as selling solar equipment or processing and marketing biofuels or improved briquettes, and

4) Accessing international Voluntary Emission Reduction (VER) funds through the sale of global warming mitigating carbon offsets, an approach in its infancy.

These often have interrelated benefit. For example, sustainably managed forest wood can be used to produce biofuel which, when used along with High Efficiency Stoves, provides **triple** resource conservation benefits!

Sample Sustainable Agriculture/habitat Restoration Projects:

Sustainably managed forests provide livelihood through the sale of wood while protecting the forest. Additionally, afforestation (planting trees and forests where they did not previously grow) sequesters carbon, providing a vital role in climate change mitigation. Trees help avert soil erosion and retain water table. Inspiring projects were shared from around the world; many practitioners are eager to implement technology transfers to their locales.

- In Sri Lanka: sustainable, harvestable firewood production has been added to its national priorities. Gliricidia, a quick-growing tree which can be harvested for firewood without cutting down the trees themselves, helps restore degraded soils and also encourages energy independence, since in Sri Lanka, all fossil fuels must be imported. Additionally, organic solids produced by biodigesters (a substance called slurry) are used as high quality organic fertilizer, which counteracts the soil depletion caused by overuse of chemical fertilizer which has polluted soil and ground water. In their trial, the organic farming achieved remarkable results.
- In Belize, Sustainable Harvest International has been working with Mayan farmers, developing sustainable techniques for growing cacao such as companion planting, agroforestry and biochar, combining organic-style farming with reforestation.
- In Haiti, a pilot project growing jatropha, shows great promise. This fast growing tree, which thrives on non-arable or even saline land, produces seeds which are ideal for biofuel manufacture. Along with producing clean fuel the tree roots help prevent the soil erosion so catastrophic for Haiti.

Clean Energy Tech + Improved Cookstoves

Distributed renewable energy technology can address energy poverty through solar, biodigesters, and improved cook stoves. Bio-fuel generation projects go hand-in-hand with cleaner, more efficient stoves, since the fuel which is produced is then used for cooking. The improved stoves consume less fuel and generate less air

pollution, providing a trifecta of health, environmental, and economic benefit.

In Fiji, a demonstration microfinanced solar panel project with LED lighting is improving living standards in remote communities. A similar project in Nepal has helped reduce dependency on kerosene lamps and firewood.

In Sri Lanka, an initiative to supply 100,000 woodgas [synthetic biofuel] Improved Cookstoves has shown **a whopping 80%** per capita decrease in daily fuel usage, from 2.5 to .5kg. This also helps the country avoid spending foreign currency, since LP, the fuel which woodgas replaces, is 100% imported. The initiative is even more ecologically beneficial since the wood source, gliricidia, is a fast growing harvestable tree which provides reforestation benefits.

A Philippine FME cook-stove project has verified that the stoves' higher efficiency decreases fuel consumption, shielding FME's from the upswings in the fuel market and increasing the bottom line, while also decreasing pollution, smoke, and carbon emissions.

In India, biodigesters illustrate the interlocking social, environmental, health and economic benefits derived from state-of-the-art, yet paradoxically low-tech, micro-plants. This technology provide solutions to many of the rural population's chronic challenges, since biodigesters produce methane gas from animal and vegetable waste; a second byproduct of biodigesting is slurry, a valuable soil amendment. Improvements in education, women's empowerment, air and water quality, hygiene, nutrition, and income generation all flow from this simple but well-designed waste composting process. Built locally, they provide employment, an additional benefit.

Micro-Entrepreneurial Opportunities in Clean Energy Technology

New energy generation technologies potentially offer many new clean tech “green” microentrepreneurial opportunities, as presented by forum participants:

- **Clean energy cookstove fabrication** is well-suited as a local business activity. The stoves are small, relatively simple to construct, and inexpensive enough to be affordable to the poor.
- **Micro-energy entrepreneurs** sell solar study lights and parts for locally installed panel systems, along with solar battery and cellphone charging.
- **Clean energy repair technicians** develop expertise in maintaining local systems.
- **Organic fertilizer producers** can package and market slurry, the by-product of biodigesters.
- **Sustainably harvested charcoal manufacturers** produce charcoal from tree branches, avoiding cutting down the trees themselves.
- **Biomass Charcoal Briquette producers** create fuel from biomass waste.
- **Copra (dried coconut meat) & coconut shell processors** produce coconut oil biofuel. Since transport costs have escalated and made it dis-economic to transport waste products to large mills or intermediate depots, more income can be generated by processing locally and selling it as fuel.
- **Jatropha growers, processors, and sellers:** jatropha, an oil-rich, drought resistant tree, offers all the benefits of forestation along with producing

high-quality bio-fuel. Other trees show promise as biofuel sources, as well.

- **Biodigesters** are constructed on-site, almost entirely of locally available materials by local labor. They also provide the servicing units might need over time.

Carbon Offset Income Stream Potential

Carbon offsetting is a growing international sector. Microfinance Institutions have little experience with positioning themselves to capitalize on this potentially significant source of funding. The carbon which is offset by one MFI client switching from kerosene to solar lighting is measurable but very small, so the key will be scaling these initiatives and providing the MFI with simple measurement technology.

The dramatic economic improvements which clean energy can provide, particularly electricity in off-grid locales, is a compelling story, “carbon with a face”.

Reforestation has the capacity to sequester carbon, another potential source of VER (voluntary emission reduction, one of the Kyoto Treaty types of offsets) income. If these can be combined with income-generating activities, they will meet both global and local needs.

In conclusion, our many enthusiastic participants in this Microlinks Speaker's Corner demonstrate the urgency and the potential in merging microfinance with environmentally clean technologies, creating eco-friendly microenterprises which both improve the environment and generate profits for microfinance clients!

GLOSSARY of Terms Used in the Microlinks Microfinance and Environment Speaker's Corner

Aforestation - planting trees in areas not previously forested.

Agricultural Inputs - All substances or materials used in the production or handling of agricultural products, including fertilizer and pesticides.

Agroforestry - combining agriculture and forestry to create integrated and sustainable land-use systems. Trees and shrubs are co-mingled with crops and/or livestock to derive interactive benefits.

<http://www.unl.edu/nac/index.htm>

Anaerobic Digestion - biodegrading without oxygen, the process used in effective biodigestion to produce gas.

Biodigester - an installation in which organic materials biodegrade naturally, producing methane gas (biofuel) and high quality fertilizer (slurry). Generally this is accomplished anaerobically, without oxygen, in cisterns which are built in-ground.

<http://www.aidg.org/biodigesters.htm>

Biochar - carbon-negative charcoal produced from biomass

<http://www.biochar-international.org/aboutbiochar/informationaboutbiochar.html>

Biodiversity - the totality of living species, including plant, insect, and animal, from microscopic to large wildlife. Species extinction due to habitat destruction and toxic pollution is a worldwide concern.

Biogas - fuel produced by the anaerobic process in biodigesters, created from live, or recently lives, organic material. <http://www.completebiogas.com/>

Biomass - organic material sourced from plants and animals such as wood, crops and crop residue, and manure. Biomass contains stored energy from the sun.

Biomass Charcoal Briquettes - created from

non-wood products like agriculture waste or paper, eco-friendlier than wood briquettes since they don't require cutting down trees.

Carbon Offsets - financial instruments representing a reduction in [greenhouse gas](#) emissions, typically generated from emissions-reducing projects, measured in metric tons of carbon dioxide-equivalent. There are two primary markets for carbon offsets, the regulated compliance market and the voluntary carbon market.

CDM - the UN's Clean Development Mechanism, global projects approved and funded through the Kyoto treaty protocols for offsetting carbon emission in the industrialized world, paid for by emitters through the sale of "carbon offsets".

Charcoal - the carbonaceous material obtained by heating wood or other organic substances in the absence of air (anaerobic). In affluent countries, it is used for outdoor grilling and campfires; in the developing world it is used as a primary cooking fuel.

CHULO - closed mud/stone stove without a chimney, used in Nepal

Companion Planting - the establishment of two or more plant species in close proximity so that some additional benefit (pest control, higher yield, etc.) is derived.

<http://attra.ncat.org/attra-pub/complant.html>

COP - Contaminante Orgánico Persistente, see also POP, subject of the Stockholm Convention. These are chemical fertilizers which don't break down organically and pollute soil.

DER - Distributed Energy Resource - systems which are small-scale power generation technologies (typically in the range of 3 kW to 10,000 kW) used to provide an alternative to or an enhancement of the traditional electric power system with a central power plant which must transmit its output offsite.

Fertigation - targeted drip delivery of

fertilizer along with water (irrigation), ideally reducing the required quantity of each and lowering production costs and waste. Enhanced yields are reported.

FME - Food Micro-Entrepreneurs

GAEP - Generally Accepted Environmental Principles for MFI, created in 2004

Gasification - a manufacturing process that converts any material containing carbon—such as biomass—into synthesis gas (syngas).

<http://www.woodgas.com/index.htm>

GHG - GreenHouse Gases, produced by emission, come primarily from the combustion of fossil fuels in energy use. Chiefly carbon dioxide, but also methane and others. Their surplus accumulation is the cause of global warming.

Gliricidia - a versatile, fast-growing tree favored by farmers for living fences, fuel, fodder, green manure, shade, support for crops, and erosion control.

<http://www.winrock.org/fnrm/factnet/factpub/FACTSH/gliricidia.htm>

GRI - [Global Reporting Initiative](#), provides guidelines for NGO sustainability reporting

Inputs - See Agricultural Inputs

Jatropha - *jatropha curcas* is a quick-growing tree which produces seeds rich in oil which can be efficiently processed for biofuel, hence the harvests are income-generating. It can grow in non-arable land with dry and saline soils, so does not displace food crops. Additionally, its roots (like all trees) help maintain soil, preventing erosion and providing flood control.

Lease Hold Forestry - Forty-year leases are provided to groups of households giving them user rights over plots of degraded forest land. They rehabilitate the land by banning grazing and by stall-feeding their livestock, and use and sell forest products such as timber, fuel wood and fodder.

http://www.ifad.org/evaluation/public_html/eksyst/doc/profile/pi/np.htm

LED - light emitting diodes, high efficiency

lighting

LP - liquefied petroleum, see LPG

LPG - Liquefied Petroleum Gas, mainly propane and butane, fossil fuel used for cooking, primarily in urban areas, delivered in cylinders. In India and Brazil it is government subsidized.

It is similar to American "natural gas", but not distributed by pipeline grids.

ME - microenterprise or microentrepreneur, the business or client who runs a business

POP - Persistent Organic Pollutants, also known by its Spanish name, COP - chemicals which endanger health and bio-accumulate, addressed by the

[Stockholm Convention](#)

RE - Renewable Energy, not sourced from the ground, generated by sources which are not finite, as contrasted with fossil fuel (natural gas, oil, & coal). Renewable energy is consumed without emitting carbon dioxide, the primary cause of global warming.

Reforestation refers to the re-planting of trees on areas that were once covered with healthy forests.

Sample of Participating Organizations

GreenMicrofinance (facilitator)	FSSI
New America Foundation	IFAD
ATREE	PCCP
FMO	SNV
HCDYO	MEEP
SOPAC	SKG Sangha
Sustainable Harvest International	

Written by Betsy Teutsch
GreenMicrofinance
Director of Communications
BTeutsch@greenmicrofinance.org
www.GreenMicrofinance.org

We must also acknowledge the ongoing efforts of many others in this field already seeking to integrate sustainability solutions into microfinance, including SEWA, Grameen Shakti, GVEP, FMO, PlanetFinance, Asian Development Bank, Jacques Whitford, Foundation for Development Cooperation, and more recent efforts by Arc Finance, AED, Accion and MicroEnergy International with the Microfinance and Climate Change Working Group.