

GreenMicrofinance™

An Integrated Approach Addressing Poverty Alleviation, Global Health, and Energy

“Waste to Wealth” - Kerala INDIA

Since 2002, GreenMicrofinance (GMf™) has paired the power of renewable energy with the engine of microfinance. Our work with microfinance institutions (MFI's) assists them in providing their clients with clean, renewable, locally-based energy technologies - solar, wind, hydro, and biomass - which enhance their physical and economic well-being while reducing greenhouse gas emissions and deforestation. Though the developing world's contribution to global warming is miniscule, the effects of climate change such as flooding, droughts, and desertification have devastating impacts on these populations, the world's most vulnerable. GMf's educational, technical, and financial services help microfinance clients thrive, not just subsist, in the world's emerging green, carbon-sensitive economy.

GMf participated in the 2008 Asia-Pacific Microcredit Summit Bali and served as the official USAID microLINKS blog. Following our time in Indonesia, GMf team members visited Kerala in south India, to witness first hand the greening efforts of two MFI's with which GreenMicrofinance collaborates, Evangelical Social Action Forum (ESAF) and Wesco Credit. We are extremely impressed by their efforts to scale up their clean energy lending initiatives; this paper highlights several of their biogas initiatives which generate renewable energy, a local resource which simultaneously helps their clients overcome energy poverty and provides greenhouse gas emission offsetting.

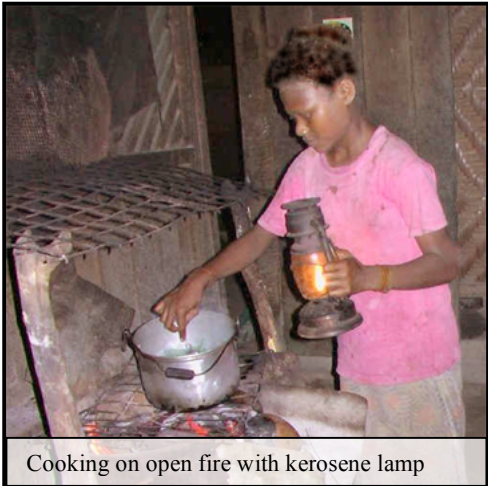
The Link Between Poverty, Waste, Health, and Fuel in India

Of India's billion + population, according to official estimates, from 26% to 50% are impoverished, comprising one third of the world's poorest citizens. 260 million live below the [Indian defined] poverty line. This number would increase to 390 million if poverty were to be measured by the international standard of those living on less than US\$ 1 a day. [Source: www.ratingsdirect.com, Standard and Poor's Ratings Services, MFI Grading: Welfare Services, Ernakulam (WSE), October 2007] Although India only produces 4% of the world's greenhouse gases, India's enormous population is significant as we look at the Millennium Development Goal of cutting the world's poverty in half by 2015 and as we address health and environmental concerns of India's poor.

Alleviating poverty in India remains an enormous challenge; many interlocking aspects combine to hold people back from progressing economically. One problem resulting from population growth is a shortage of fuel for cooking.

Reports from Wesco Credit state that “the rural community has seriously depleted its forest resources, making firewood a very scarce commodity and causing environmental degradation. Kerosene is subsidized and supplied by government fair price shops. Kerosene, of course, is a petroleum product, and has increased in price and become very expensive. Another fuel source is liquid petroleum gas (LPG) though it is unaffordable for the poor.

Subsistence farmers and landless laborers are the worst affected by fuel scarcity. Women in these households are forced to walk long distances to collect wood; trees are cut to meet short-term needs, creating long-term crises. Some households burn cow dung cakes as an alternative fuel source and suffer harmful health consequences, as well as creating environmental hazards. It is imperative to solve the problem of energy deprivation, since the absence of safe, abundant, affordable energy is not just an economic hindrance, but creates health and environmental damage.”



Cooking on open fire with kerosene lamp

The link between sanitation and health has long been known as a key goal for society; it was emphasized by Mahatma Gandhi. India is also aware of the relationship of environmental mismanagement to the health of the eco-system as well as the human population. The Eleventh Five Year Plan (2007–2012)

published by Social Sector Planning Commission of the Government of India [The Eleventh Five Year Plan (2007–2012); Social Sector Volume II; Planning Commission; Government of India], which states (in summary):

- Sanitation is a basic need, as basic as drinking water or food. A sanitary toilet, within or near home, provides privacy and dignity to women.
- Sanitation coverage, which ought to be a way of life to safeguard health, is inadequate in our country.
- Soil fertility is being badly affected by excessive use of chemical fertilizers. Large quantities of urban waste can be composted; application of this organic manure in agriculture and horticulture should be implemented.
- The smoke from cooking and heating with solid fuels on open fires or traditional stoves results in high levels of indoor air pollution, harming mothers and their children.
- Untreated sewage dumped into our rivers is a major cause of river pollution; holistic remedies are needed for safe bathing and to repair rivers' ecosystems.
- Low water, low-cost, and eco-sanitation models must be implemented in rural areas. They must be promoted, encouraged, incentivized, and rewarded.
- The recycling of metal, glass, plastic, rubber, tin, and paper available in the municipal waste provides salvage value. Inorganic and inert material such as sand, grit, stones, bricks, concrete, rubble, etc. may also be reused for making low-cost bricks, road material, aggregates, etc. Policies should reflect this goal.
- To keep cities clean, citizen involvement is essential to sort waste at source and minimize waste that needs to be collected and disposed, recycling and reusing to reduce volume.
- Water quality and quantity are both important: water treatment is essential, to counteract contamination by chemical fertilizers and chemicals, poor hygienic environment of the water

sources, improper disposal of sewage and solid waste, pollution from untreated industrial effluents, and over-exploitation leading to quality degradation.

The availability of firewood is also becoming scarce. So, an alternative fuel for cooking is a compulsion...It is not a fact that firewood is easily available.

When I was a boy we used to collect firewood very near to our house. Now land has become premier. The available forest cover has been cut and now the women and children have to walk about 4 to 5 kilometers and more for firewood collection.

The electric power situation in India is very bleak. Power supply for rural areas is only a few hours a day. That is not sufficient for lighting and water pumping. Then too, power is not cheap. Villagers can not afford to cook on electric power and pay the electric bills.

We can not use kerosene, petrol and diesel as cooking fuel as the price of these materials is very high and unaffordable.

Mr. D. Vidya Sagar, President, from SKg Sangha

“Waste is Wealth” (a term coined by Wesco Credit) in Kerala

The beautifully lush southern state of Kerala has achieved education and health outcomes rivaling those of EC countries, yet its people’s potential remains sadly unreached by the lack of financial resources. Keralites in the rural areas have no access to traditional financial services offered by banks; their only hope lies in microcredit, the provision of financing for income generating projects. Recently, Wesco combined the entrepreneurial spirit of its people with the power of microcredit to develop a pioneering, durable solution to regional disease control and waste management, an impressive win-win innovation.

Wesco Credit

Wesco Credit is the financial arm of Welfare Services Ernakulam (W.S.E.), which has earned a statewide reputation for combating communicable diseases and has developed and promoted its microcredit program with great success. Rated by CRISIL, the Credit Rating Information Services of India Limited, WESCO Credit demonstrates the highest caliber in its operations and governance. Of the thousands of microfinance providers in India, less than 1% undergoes the stringent requirements of an institutional rating. In fact, WESCO Credit was only the second microfinance institution in Kerala to achieve this high standard. WESCO Credit stands as a leader in Indian microfinance.

Wesco now oversees some 2,000 local self-help groups (ShGs) reaching more than 35,000 of the most economically impoverished women in the region. Wesco Credit ShGs operate in 172 villages, regardless of how rural or isolated. Thousands more, from farmers and construction workers to the elderly and physically-challenged, have organized similar groups according to their specialized skills and specific needs. Fr. Paul Moonjely has served as Executive Director of Wesco Credit over the past seven years reports that the impact of these self-help groups has far exceeded expectations. In addition to servicing microloans, organizers use the regular SHG meetings as springboards for a host of community activities and social services.

Disease Strikes in Kerala – as recapped by Wesco Credit

A deadly virus disease struck Ernakulam, a city north of Cochin, the commercial capital of Kerala, in 2006. During that year's peak monsoon season, staff in Ernakulam began receiving alarming reports from their foot soldiers — local self-help group community organizers, council members and parish priests — that the *chikungunya* fever had returned to the coastal district of Alappuzha, just 16 miles from Ernakulam. A deadly mosquito-borne virus, it had last struck Kerala over 30 years ago.

Some 70,000 people in Alappuzha had already contracted the virus, for which no vaccine exists. The only available treatment alleviates the disease's symptoms, which include high fever, joint pain, fatigue and diarrhea. Extremely poor, most of the victims lived near stagnant, polluted bodies of water and slept without mosquito nets. And at the time, the district's waste management system and environmental policy were almost nonexistent and the local government responded to the crisis slowly.

With *chikungunya* spreading fast and tens of thousands already sick and fighting for their lives, Father Moonjely and his staff quickly mobilized their resources. Having battled outbreaks of *E. coli*, malaria, yellow fever and tuberculosis over the years, W.S.E. public health teams had a wealth of experience at their disposal. "When this disease was spreading in 2006, we activated all of our community groups in those villages," said Father Moonjely. Mostly poor people — those with health problems, those living in small huts — they were the ones most affected. Of course, they couldn't work and support themselves. So we gave them material assistance and food supplies — rice, eggs, milk. We were supporting 100,000 people — about 70,000 people who were infected plus their dependents as a preventive measure." Within two months, Welfare Services Ernakulam and its partners contained the *chikungunya* outbreak. Although an estimated 126 people died because of the virus, the toll easily could have been much higher had not W.S.E. responded effectively and quickly.

The agency's work did not stop once it resolved the 2006 *chikungunya* crisis. On the contrary, the leadership of W.S.E. saw the event as a wake-up call and opportunity and to start planning for more permanent preventive measures through Wesco Finance.

Father Moonjely and his team reasoned that the district required an integrated waste management system if it wished to minimize the possibility of a future outbreak. The leadership first conceived of this unparalleled program late in 2006. "All these communicable diseases have their origin in poor environmental sanitation," the priest said. "Any society that wants to really mitigate these problems of viral diseases and infections needs a well-structured waste management system."

Wesco Credit Launches Integrated Waste Management (Biogas) System

Rather than lobby local government or pressure impoverished and overburdened families to shoulder more responsibility, Welfare Services developed a bold, if not revolutionary, initiative incentivizing communities to keep their environment safe from disease. Wesco began promoting and constructing biogas plants which generate both clean energy and income for families (primarily by reducing household energy costs). They have already constructed 350 of these biogas plants for individual households as well as for commercial establishments such as shops, hotels, slaughterhouses and hospitals.

The equipment consists of a cement chamber, seal, and gas piping that runs to the kitchen. Program participants place biodegradable waste, usually manure, along with wastewater into the cement chamber and seal it. The waste decomposes anaerobically, without oxygen, inside the chamber, producing a mixture of methane -carbon dioxide biogas that the equipment pumps directly to the kitchen's gas-run stove. The process also generates solid compost called sludge slurry, which serves as a potent fertilizer for Wesco clients to use to promote organic farming. "All these programs are interlinked from the grassroots level to industry and the marketplace," said Father Moonjely. "This is the whole cycle of development."



Fr. Paul Moonjely by a demo biogas plant

Today with the assistance of GreenMicrofinance, Wesco Credit is now planning to scale up its biogas initiative. Over the next year, they intend to install 1200 residential biogas units, 1,000 family-size units and 200 units to be used in rural farms. They plan to install 50 institutional biogas plants supplying fuel to hospitals, parish halls, and apartment complexes. Wesco Credit has experience in eco-friendly housing based on their experience with the tsunami and will continue to build another 500 homes.

Wesco Credit's Environmental Commitment

Wesco Credit's interventions maintain a strong environmental focus. Environmental education, promotion of eco-friendly living practices, and environmental sustainability are all cross-cutting themes of their focus. Environmental Impact Assessments are integral to all of Wesco's development programs. The rural poor are eager to solve their fuel shortage problems.

Biomass is considered a vital alternative to fossil fuels and can be used for a range of energy needs. Energy from biomass can be produced in three different ways:

- **Direct burning of biomass to get the energy**
- **Convert biomass to ethanol and methanol to be used as liquid fuels in engines**
- **Ferment biomass anaerobically to obtain a gaseous fuel called biogas**

SKg Sangha – http://www.skgsangha.org/activ_bio.html

Evangelical Social Action Forum (ESAF) Promotes Waste Management

Evangelical Social Action Forum (ESAF) is a dynamic environmental leader in Indian microfinance. They work with 250,000 clients spread over five states in India. ESAF proposes to introduce alternative energy solutions to its 250,000 clients; it recognizes the importance of assessing the right energy product for the different localities where ESAF operates. ESAF has recently completed an energy demand study for 1,200 of their clients in three states, Kerala, Maharastra, and Jharkhand. With the assistance of GreenMicrofinance and with energy service providers, ESAF will develop appropriate financial product to support the energy products that are developed in partnership. The

proposed study helped in understanding the current level of energy use by the clients of ESAF and how potential energy options could improve their living conditions.

Paul Thomas, Director of ESAF states in this study report, “Failing to achieve energy sustainability has the potential to make the lives of future generations more difficult. Sustainable development will only happen if poverty is tackled with a care for the environment. Protection of nature and environment therefore is closely linked to sustainable development and energy use. Poverty reduction efforts should not distort the stability of nature but should try to bring more balance with nature. Renewable energy provision could provide access to income earning avenues and would ultimately compliment the efforts to reduce the poverty. A full range of appropriate energy options should be considered while providing energy services to the poor.”



ESAF has installed 5 biogas plants attached to institutions, restaurants, and hospitals. One of the highlights for GreenMicrofinance team to Kerala was the visit to the biogas plant in Cochin. Eight men at the plant collect garbage at several local hotels in carts and bring to the plant. They divide the garbage into paper, plastic, and biodegradable mass which produces methane. In a closed-loop win-win cycle, this provides gas to an adjacent pre-school and apartment building. During the visit, the industrious men, who formerly worked in crushing rocks for road construction, expressed great pride in their work.

“We now have steady daily income for our families through waste recycling which then provides clean energy.” They are leading the way in keeping their city clean, improving the lives of their families and community!

Through ESAF’s partnership with GreenMicrofinance, they seek to launch a long term energy program, which will encompass a full range of appropriate energy options focused on biogas, biofuel, and solar. They seek to promote appropriate biofuels, which may include jatropha planting, for small and marginal farmers to convert biomass to liquid biofuels. Wesco Credit and ESAF are working with GreenMicrofinance to secure the needed financing to scale up their present initiatives and to integrate new clean energy initiatives.

Harnessing clean energy to microfinance can bring the low-income poor up out of poverty, without further compromising our already stressed planet. Indeed, it is beneficial not just to microfinance clients, but to the whole planet, to create viable, renewable, localized energy sources which simultaneously improve health and reduce deforestation!

GreenMicrofinance - www.greenmicrofinance.org

Welfare Services Emakulam (Wesco Credit) – <http://welfareservices.org/>

Evangelical Social Action Forum - www.esafindia.org

SKg Sangha - www.skgsangha.org

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