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FROM THE AMERICAN PEOPLE

USAID After Hours Seminar: Financing Clean Energy

Mathew Chandy, CHF

Elizabeth Israel, GreenMicrofinance

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Moderated by Amanda O'Neil

This event is co-sponsored by the Society for International Development (SID) Development Finance and Urban Working Groups

Financing clean energy for the bottom of the pyramid: A comparison of Approaches in India and Prospects for Replication

November 11, 2009

Mathew Chandy
CHF International

Slum Electrification

- Private Utility Co -- \$2.9M yearly loss
- Audit – inefficiency and theft
- NGO contracted to educate slum dwellers on use of legal electricity
 1. educate the families in the optimal use of electricity;
 2. training families on exercising measures for safety and conservation of energy
- Subscribe new connections (or convert illegal to legal)
- SEWA Bank loan product



Slum Electrification

SEWA Bank loan product

The total cost of individual electricity meters is Rs. 3,700 (~\$82) which includes a ~\$5 security deposit. Additional cost for drawing connections.

Loan conditions:

- Borrower must have a savings account with SEWA Bank
- Standard energy loan amount is Rs. 4,000 (~\$90)
- Borrower must maintain min Rs. 500 (~\$12) in their bank account
- Borrower must be validated and approved by NGO providing services to access finance

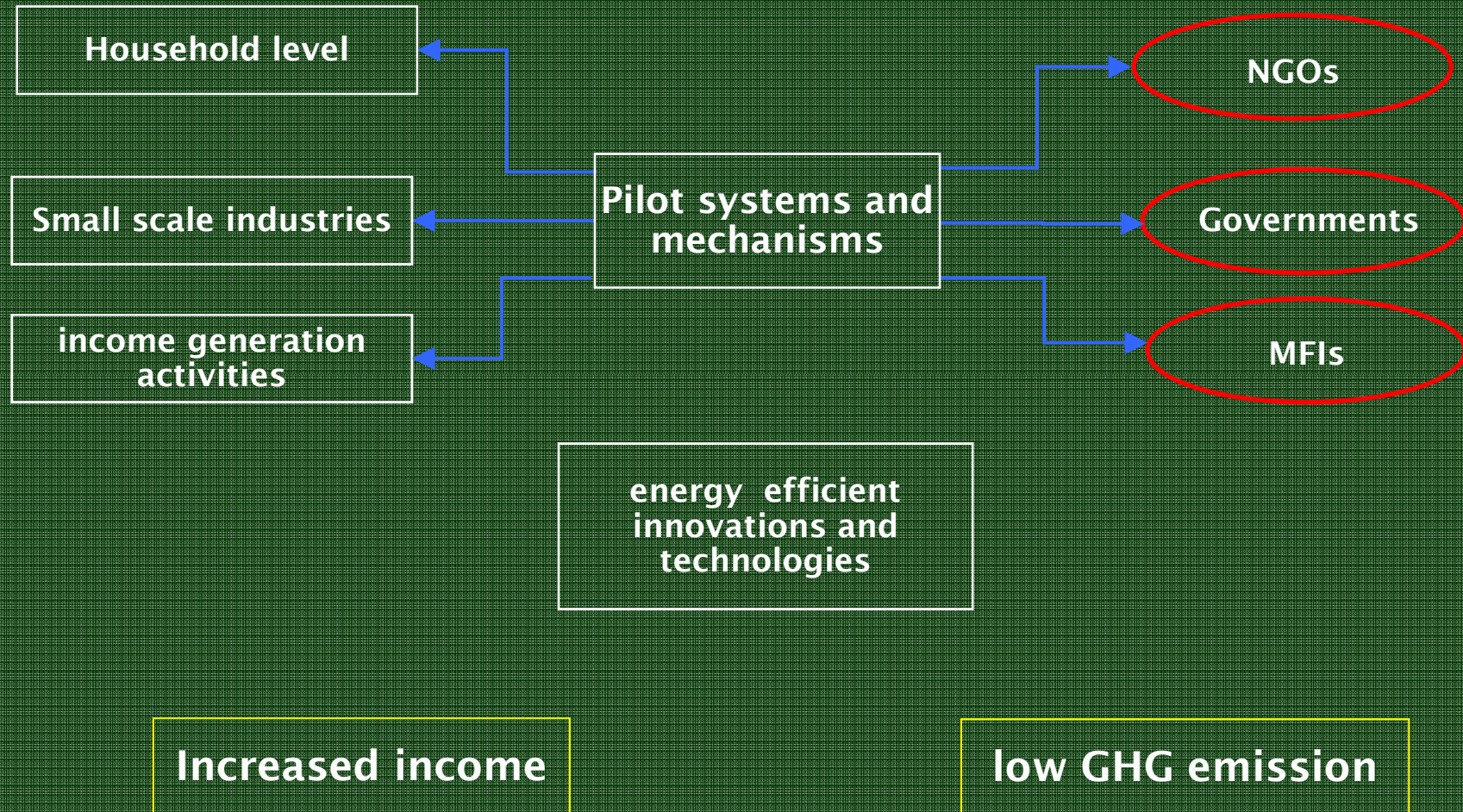
Energy Efficiency Audits for the Poor

Challenge

- Meeting the needs of people who still lack access to basic, modern energy services
- Evaluating household consumptions, equipment and usage patterns
- Transition to clean low-carbon energy systems
- Energy efficiency improvements offer the largest and least costly emissions-reduction potential



Energy Efficiency Audit



Waste to Energy

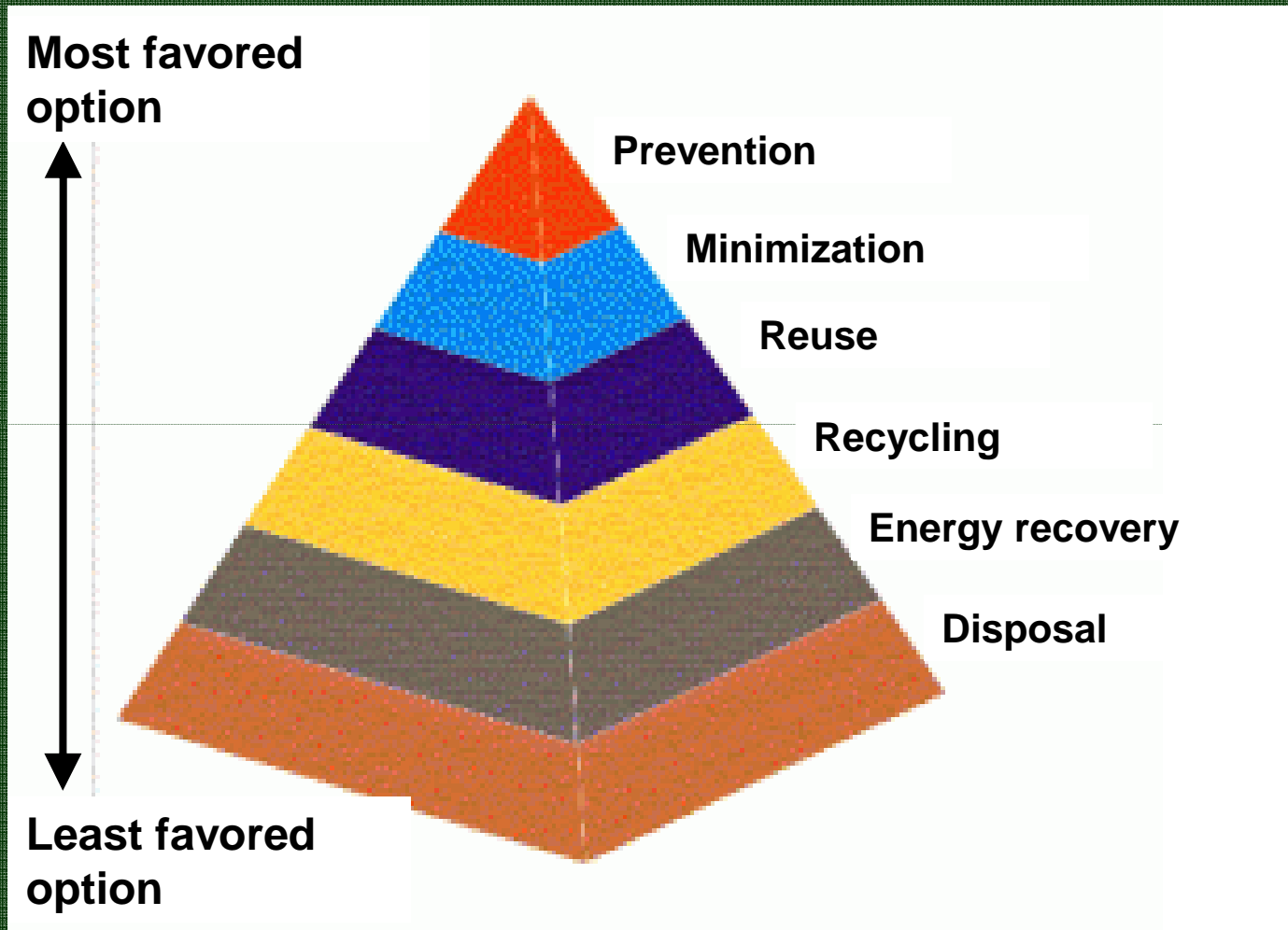
Significant increase of municipal solid waste

Waste generated in the urban centers estimated to increase from 46 million tons in 2001 to 65 million tons in 2010

- governments are ill equipped to efficiently manage the waste
- Environmental menace and spreading diseases
- Reduced green house gases
- Alternate source of electricity or fuel
- Reduce pressure on landfills through waste reduction
- Source of revenue for the government (CERs)
- Methane is a potent gas with high global warming potential



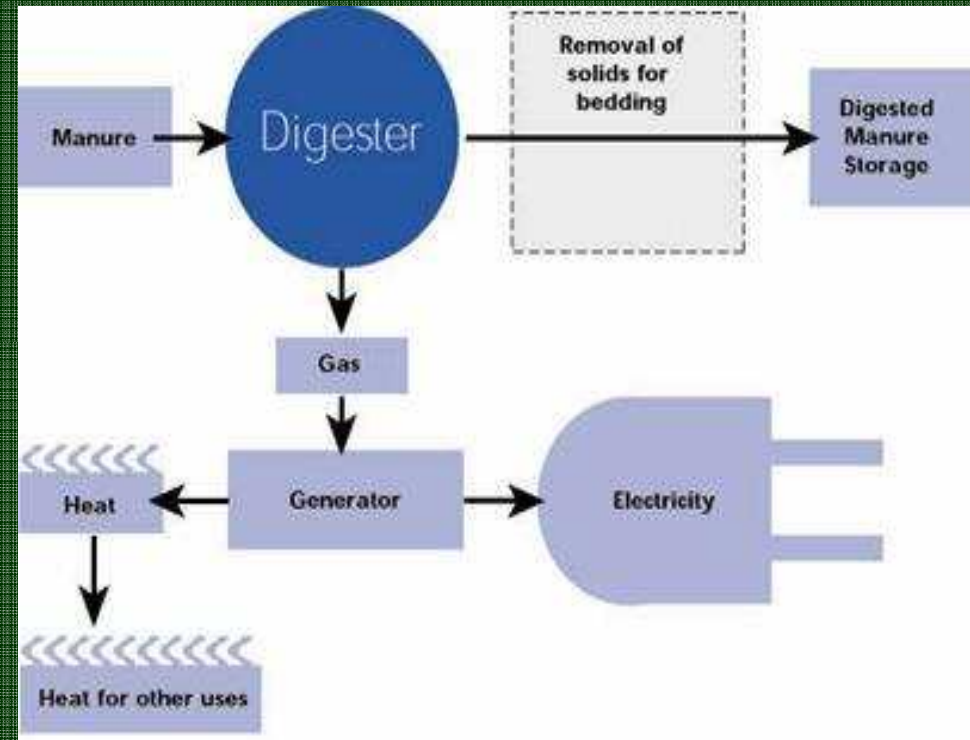
Waste to Energy



Waste to Energy

Recover energy from organic waste

- Recover biogas from organic waste
- Generate electricity/thermal energy OR clean and bottle natural gas
- Use of electricity /thermal energy OR retrofit vehicles to use the gas (94% methane)



Water harvesting

Problem

The last decade has seen a sharp rise in gated communities and apartment complexes in cities

Visible environmental deterioration, particularly depletion of water reserves

Bangalore

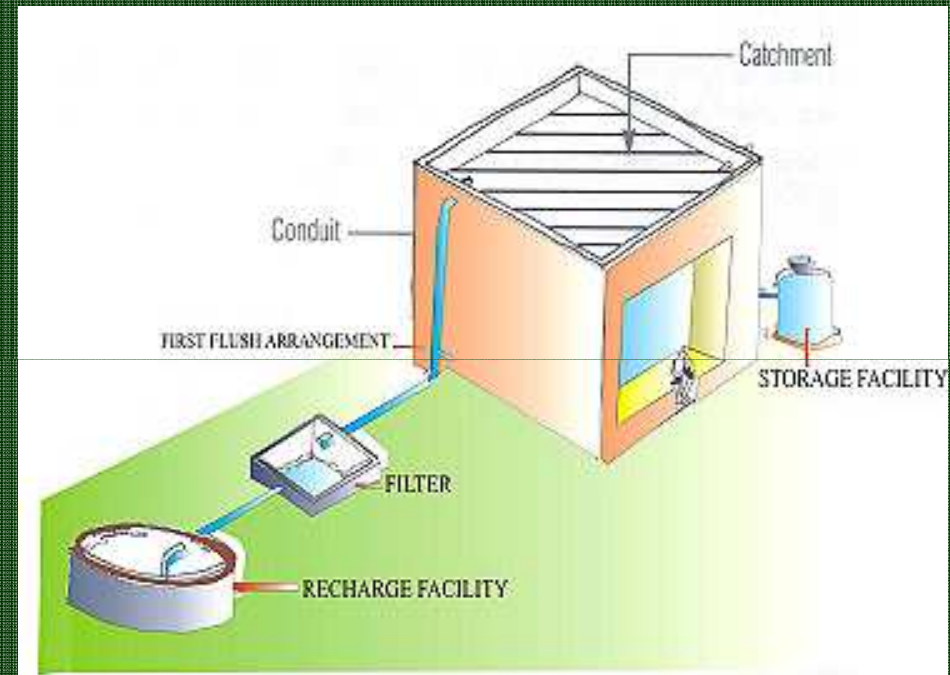
the current demand of water in is pegged at around 1400 to 1500 Million Liters a day

Currently water pumped from over 65 miles away (river) and height of around $\frac{3}{4}$ mile which makes it expensive

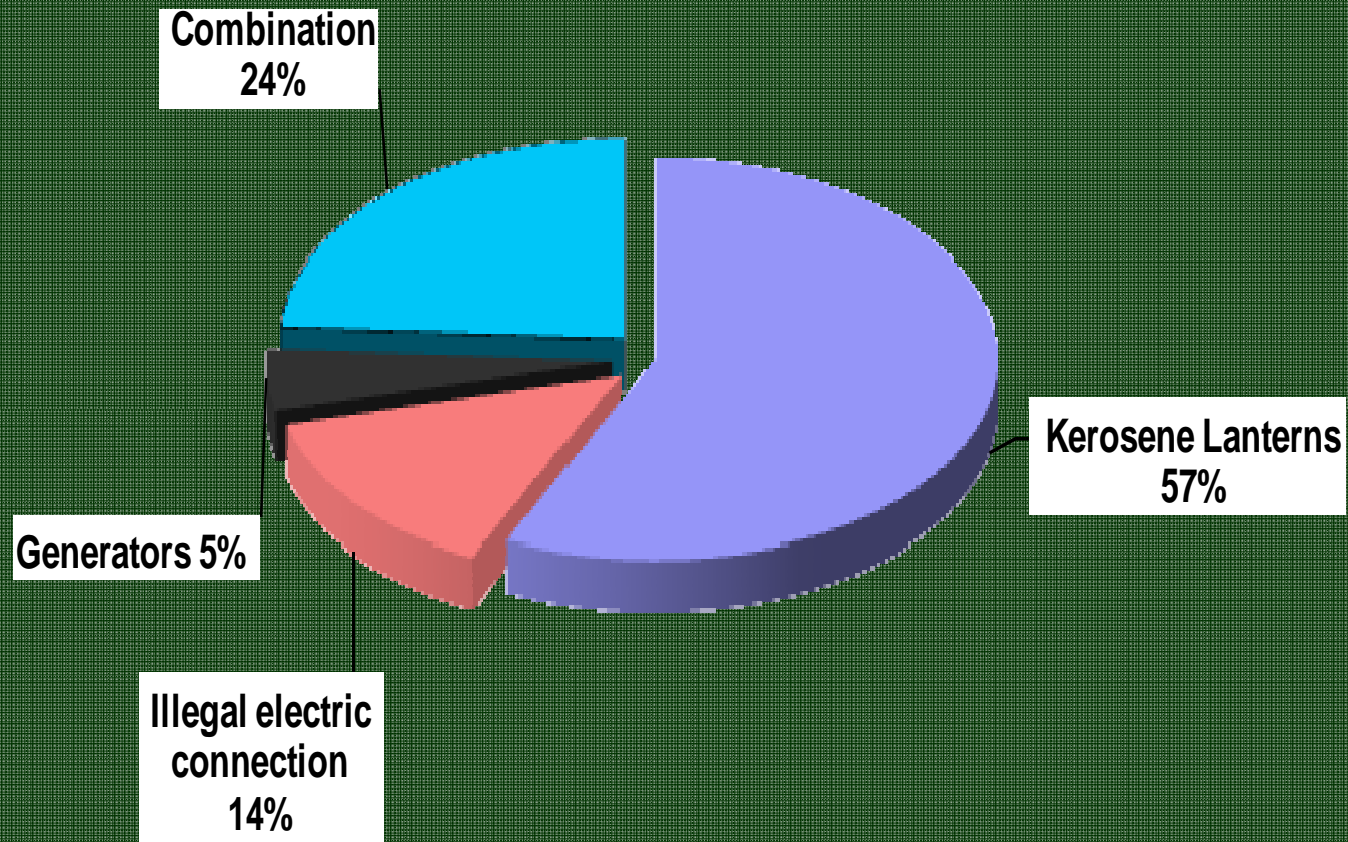
The combination of the lack of adequate infrastructure and shortage of supply has fuelled an extensive dependence on ground water

Water harvesting

- Evolve a strategic solution for rainwater harvesting that considers the overall water sourcing and management
- integrate water harvested into current water infrastructure
- ensure long term sustainability of ground water sources
- Fee based implementation services
- appropriate after sales services to maintain and manage rainwater harvesting system
- ensure trained labor



Solar Energy for the poor



Solar Energy for the poor

1. Street Vendors (Kerosene lamps) -- double LED solar light with 3 Watt panel
2. Street Vendors (Petrol lamps) with large size shops -- 3 LED LIGHT with a 3 watt charging panel
3. Slum households -- 2 LED light with 3 Watt Charging panel
4. Slum communities of about 25 families there is potential for community charging stations (entrepreneur model)



GreenMicrofinance™



USAID After Hours Series

Microfinance Learning and Innovation Seminar

November 11, 2009

Financing Clean Energy for the Bottom of the Pyramid:
A Comparison of Approaches in India \ and Prospects for Replication

Elizabeth Israel

GreenMicrofinance™



GreenMicrofinance LLC is a financial services and consulting company committed to the alleviation of poverty and environmental sustainability.



19th century technology contributes
to *global poverty*



1.6 billion lack
electricity,
consigning them to
kerosene or candles
for lighting and open
fires for cooking

19th century technology affects our *global environment*



2.5 billion people
on our planet lack
improved sanitation

We move families from the 19th century to 21st century clean sustainable solutions



19th-20th Century Archaic Energy Solutions	21st Century Cutting Edge Energy Solutions
<ul style="list-style-type: none"> ● fossil-fuel based ● require industrial infrastructure ● generate CO2 emissions and air pollution ● high in price, fund petrocacies, and ● subject to carbon taxation! 	<ul style="list-style-type: none"> ● renewable, sustainable, green ● emissions free ● technology cost is decreasing ● run on free sunlight and its derivatives ● will generate carbon offset credits
Candles - petroleum based, requires transport, dangerous, low-quality, inefficient lighting	Solar
Foraged Wood - destroys habitat	Wind
Wood / Dung / Charcoal	Biodigesters / Composters - improve hygiene while producing biogas
Single-Use Batteries - up to 10 times more expensive than grid electricity!	Biofuels (i.e. jatropha trees) - reforestation while producing income
Generators - fossil fuel consuming, spewing air polluting fumes	Higher Efficiency Cookstoves - preserve forests and eliminate household fumes



A New Model

For Sustainable Development that Delivers
Economic, Plus Environmental, Advances for the Poor



Manual Irrigation



Drip Irrigation System

Our Approach



- Use economic leverage and environmental expertise to unify microfinance and environmental initiatives
 - Use microfinance to provide funding for products and services that have impact on lives of the poor and environmental conditions associated with economic development
 - Separately addressing the economic and environment effects of poverty does not work
 - Most institutions are not well-positioned to deliver an integrated approach
 - GMf has the resources, expertise, network and competency to be successful

Our Business Lines



Asset Management

- Establish and manage investment vehicles
- Bring capital to MFIs for environmental products and services
 - Alternative energy projects, water, and sustainable agriculture
 - Small and medium enterprises that manufacture goods or provide essential services consistent with GMf goals

Consulting Services

- Conduct Environmental *Risk Assessment* for MFIs
- *Market survey* for appropriate clean energy program
- Provide technical expertise for MFI environmental microfinance *program design*
- Sustainable microenterprise development *training* for micro-entrepreneurs
- Integrated *planning* for Eco-Village – Community Supported Agriculture (CSA)

GreenMicrofinance™



A Commercial Venture That Delivers the Triple Bottom Line

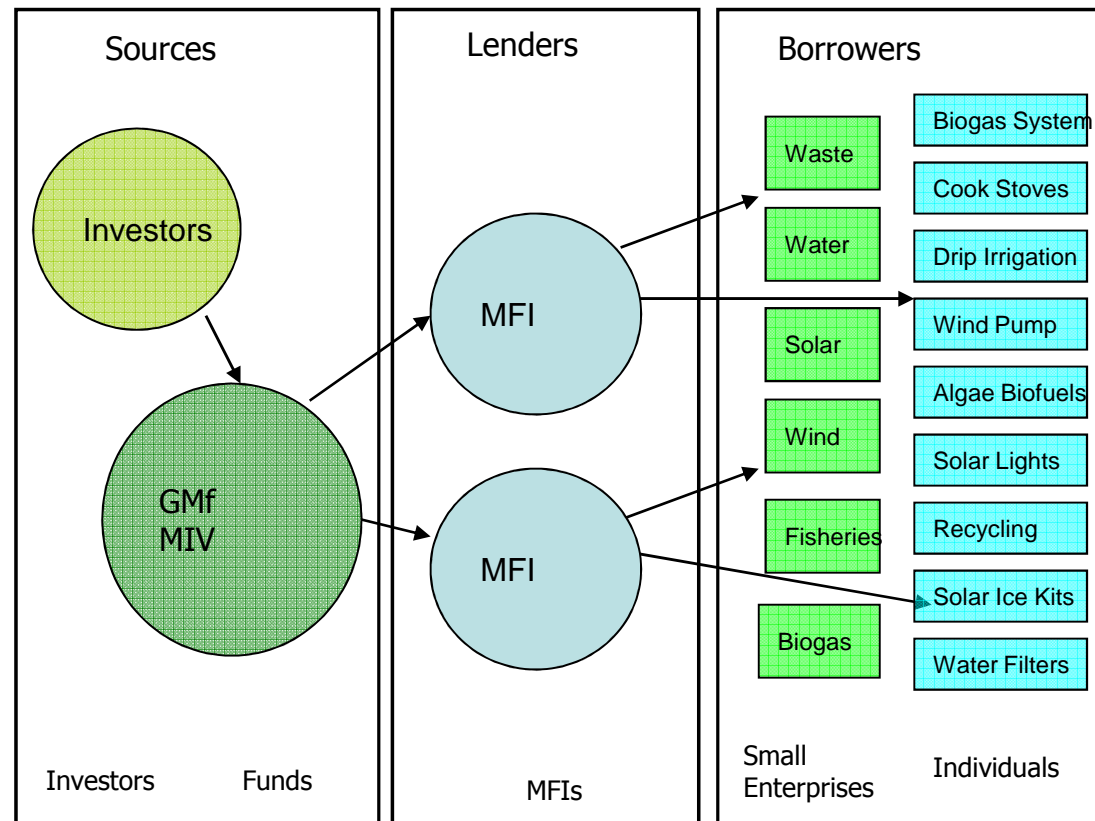
- ***Financial Returns:*** Generate positive financial returns for its investors
- ***Social Returns:*** Improve the quality of life for people at the Base of the Pyramid
- ***Environmental Returns:*** Improve the environment and foster economic development

Asset Management



GMf - Debt and Equity Microfinance Investment Vehicles

- Description of fund
 - Provides lending capital to MFIs for green initiatives
 - Initial funding target of \$100mm
- Available market
 - 10,000 MFIs
 - Total loan portfolio of \$34bb only \$2.7bb from private sector
 - \$300bb demand by 2015 for microfinance loans with \$20bb from private sector
 - Representative opportunities
 - 2008 India study - \$42mm clean tech loan demand
- Creates opportunity for GMf Services





Environmental Demand Study India Conservative Loan Fund Estimate

Partner	Annual Demand (000)	Loan Fund Estimate					
		Year 1		Year 2		Year 3	
A	\$10,292	50%	\$5,146	75%	\$7,719	110%	\$11,321
B	\$5,984	50%	\$2,992	75%	\$4,488	110%	\$6,582
C	\$1,184	40%	\$474	75%	\$888	75%	\$888
D	\$25,000	30%	\$7,500	50%	\$12,500	50%	\$12,500
Total	\$42,460		\$16,112		\$25,595		\$31,291

GMf Case Studies



COMMUNITY BIOGAS PRODUCTION INDIA



A biogas plant in India provides income for eight men, who collect garbage at several local hotels in carts and bring it to the plant. They divide the garbage into paper, plastic, and biodegradable mass that is produced into methane. This provides gas to an adjacent pre-school and apartment building.

ELECTRIFICATION FOR JAMII BORA KENYA



GreenMicrofinance Investment money will be channeled into the microfinance organization to build sustainable infrastructure, such as solar and wind power for the support for the growth of green" micro-businesses, such as biowaste plants, agricultural initiatives, and clean water and sanitation projects.

The GMf Team



- Extending the heritage of GreenMicrofinance
- Unparalleled experience and dedication
- Recognized leaders in their fields
- Impressive global rolodex
- GMf Management
 - Elizabeth Israel, CEO
 - Thomas Israel, President
 - Ira Wagner, CFO and Director of Loan Fund
 - Jay Brown, Director of Business Services
 - Paula Pagniez, Director of Program Development
 - William Yager, PhD, Director of Sustainable Microenterprise Development
 - Sebastian Kretschmer, Director of Sustainable Agriculture

Elizabeth Israel eisrael@greenmicrofinance.com

A stylized landscape illustration. The sky is filled with large, overlapping, semi-transparent shapes in shades of light blue and cyan. In the foreground, there are rolling green hills in various shades of green. A row of black wind turbines is positioned across the middle ground. To the right, a cluster of black trees with large, rounded green canopies stands prominently. The overall aesthetic is clean and modern, emphasizing sustainability and nature.

New Ventures

Ten years of sustainable enterprise for tomorrow's markets



Roadmap

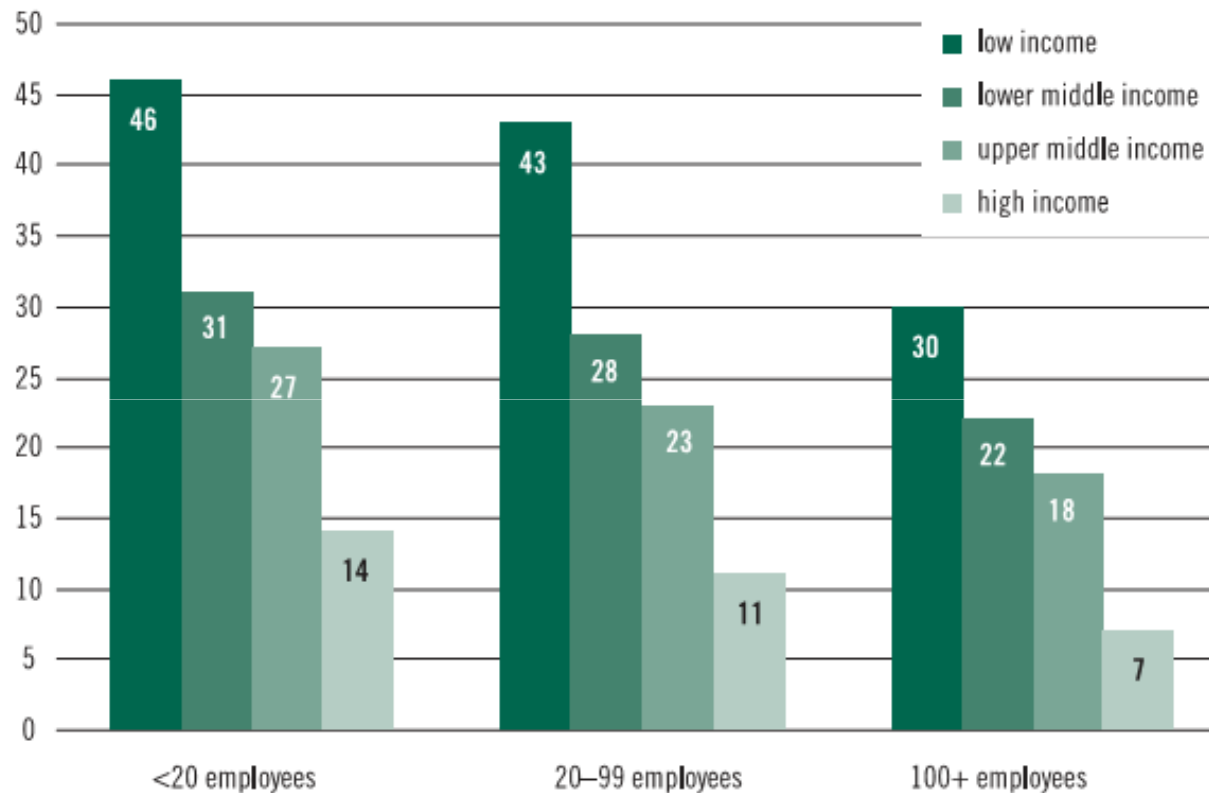
- Challenges of sustainable SMEs
- Brief Overview of New Ventures
- Our Approach in India
- SBA Hydro Case Study



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FIGURE 1. THE SME FINANCING CONSTRAINT IN LOW-INCOME COUNTRIES

Average % of businesses rating access to finance / cost of finance a major constraint to current operations



Notes: Countries weighted equally within income groups to calculate overall average. As defined by the World Bank, country classifications are defined by gross national income per capita.

Sources: World Bank Enterprise Surveys; World Bank List of Economies; Dalberg analysis.

6 local centers established



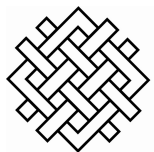
229 entrepreneurs supported

\$200m transferred



New Ventures Approach

1. Improving companies' bottom lines via business advisory services
 - Business plan development
 - Access to Coaches' Network
2. Bringing companies in front of investors
 - Investor pitch development
 - Participation at Investor Forum
 - Arranging one-on-one meetings with interested investors
 - Quarterly investor meetings in different cities

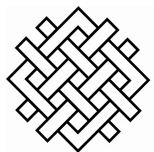


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New Ventures Approach

3. Getting more investors to look at clean energy BOP companies
 - Producing publications on the investment potential of the sector
 - Engaging angel investors and banks
4. Helping companies measure their performance and impacts
 - Creating a user-friendly toolkit that enterprises can use
 - Developing a data management system to collect these metrics



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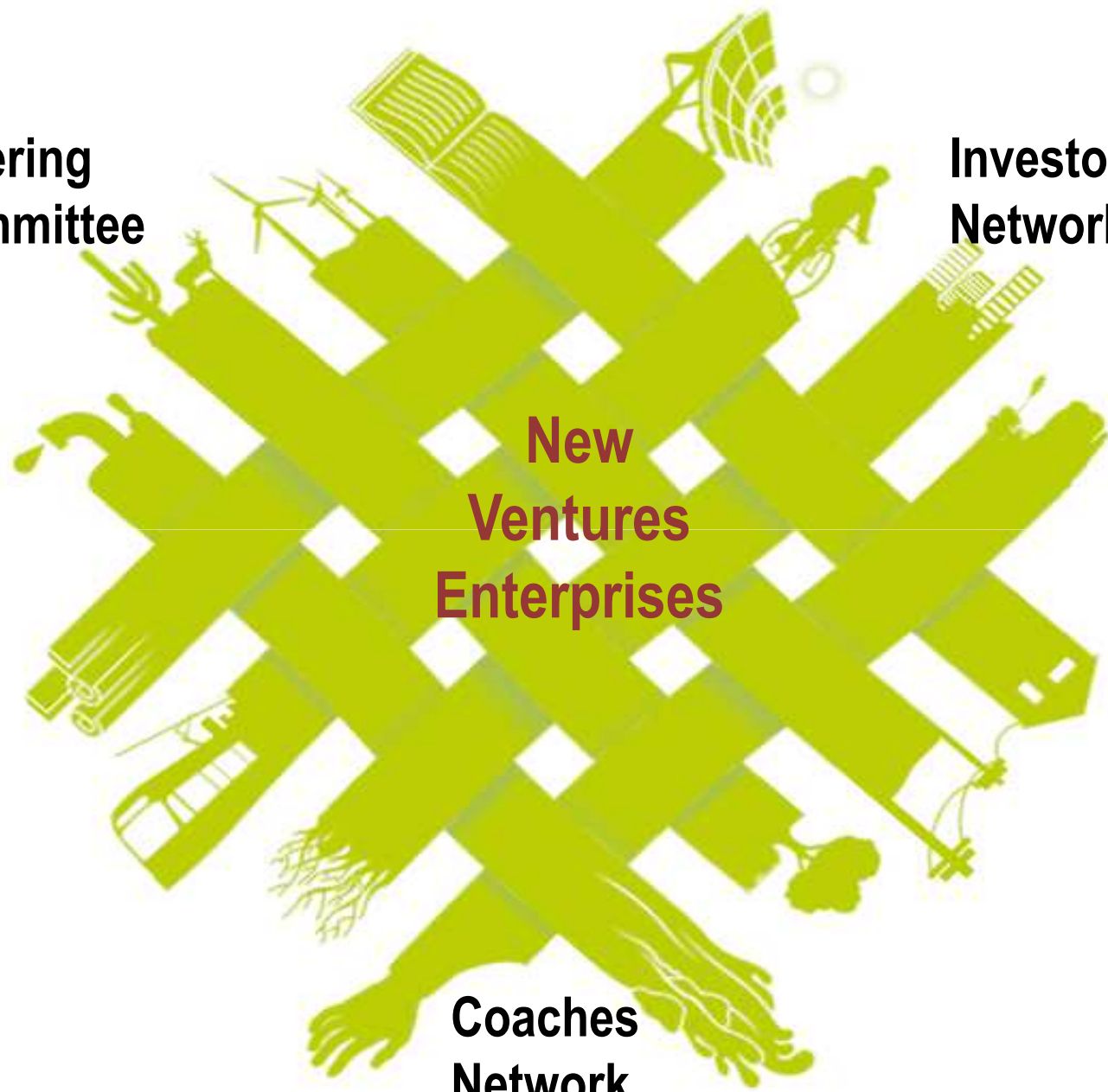
New Ventures India – A Local Ecosystem of Support

**Steering
Committee**

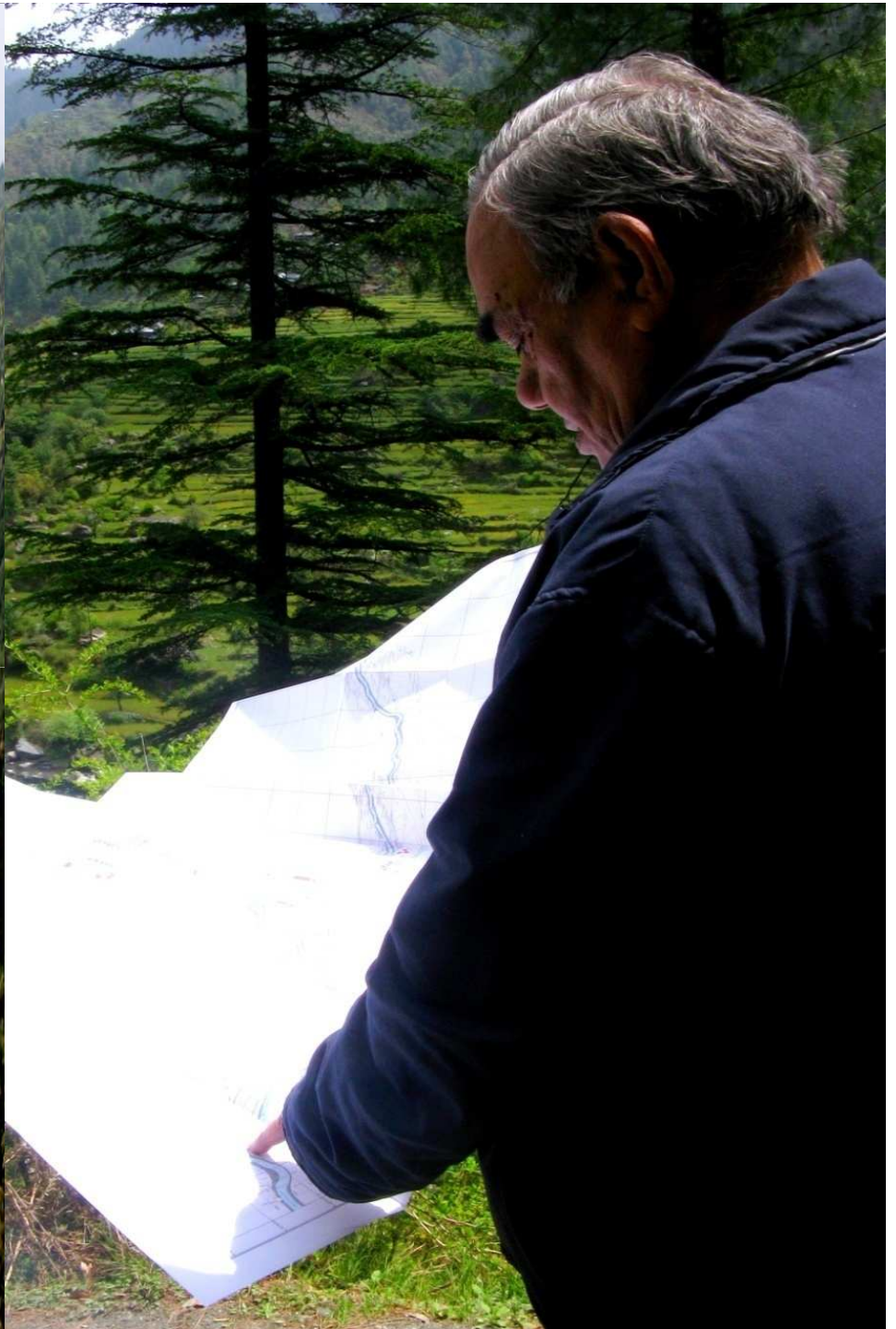
**Investor
Network**

**New
Ventures
Enterprises**

**Coaches
Network**



SMALL HYDRO IN THE HIMALAYAS





July – October 2007: Selected for the New Ventures program, and underwent mentoring

November 2007: Presented their business plan at New Ventures India Investor Forum

November 2007: Met with Acumen Fund during Investor Network one-on-one meeting

August 2008: Received equity funding of \$1.26 M from Acumen Fund to construct 10 more small hydro plants in the region

December 2008 - Presented at an IADB's in Colombia – met Colombia's VP and IADB's VP for private sector to replicate the model in Colombia



THANK YOU!!!

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Saurabh Lall – slall@wri.org



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THANK YOU!

Please visit www.microLINKS.org for a seminar screen cast and event summary.