Rural Electrification: GEF Experience in Renewables-based Microgrids

Ming Yang
Sr. Climate Change Specialist
Global Environment Facility (GEF)

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What is the GEF

1991
$1 billion pilot program in the WB

1992
At the Rio Earth Summit, negotiations started to restructure the GEF out of the WB

1994
Instrument for the Establishment of the Restructured GEF

Initial partners: WB, UNDP, UNEP

GEF serves as financial mechanism for: CBD UNFCCC Stockholm Conv. on POPs UNCCD Minamata (Mercury)

Also, although not linked formally to the Montreal Protocol, the GEF supports its implementation in transition economies.

2017
World’s largest public funder of projects and programs to benefit the global environment
GEF Goal and Mission

Goal: to address *global environmental issues* while supporting *national sustainable development initiatives*.

Mission: the GEF is a mechanism for *international cooperation* for the purpose of providing *new, and additional, grant* and concessional funding to meet the *agreed incremental costs* of measure to achieve agreed global environmental benefits.
Institutional Framework

Guidance → Operations → Action

GEF Trust Fund

STAP

GEF Council
Countries: Council Members / Constituencies

Independent Evaluation Office

GEF Secretariat

Agencies
- UNDP
- UNEP
- WB
- ADB
- AfDB
- EBRD
- FAO
- IaDB
- IFAD
- UNIDO
- WWF-US
- CI
- IUCN
- DBSA
- FECO
- FUNBIO
- CAF
- BOAD

Projects
Countries:
- GEF OFPs / PFPs
- Convention FPs
- Other Gov’t Agencies
- NGOs / CSOs
- Private Sector

Conventions
- CBD
- UNFCCC
- Stockholm (POPs)
- UNCCD
- Montreal Protocol
- Minamata
GEF’s Replenishment Periods and Resources

<table>
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<tr>
<th>Period</th>
<th>GEF</th>
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<tr>
<td>April 1991-June 1994</td>
<td>Pilot Phase</td>
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<tr>
<td>July 1994-June 1998</td>
<td>GEF-1</td>
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<td>July 2002-June 2006</td>
<td>GEF-3</td>
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<td>July 2006-June 2010</td>
<td>GEF-4</td>
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<td>July 2010-June 2014</td>
<td>GEF-5</td>
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<tr>
<td>July 2014-June 2018</td>
<td>GEF-6</td>
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- **Pilot Phase**
- **GEF-1**
- **GEF-2**
- **GEF-3**
- **GEF-4**
- **GEF-5**
- **GEF-6**

Investment income earned (Note: GEF-5&6 - Projected amount)

- Carry over from earlier replenishment period
- New Contributions
GEF Renewable Energy Investment by Regions ($ Million)

- Africa: 30%
- Asia: 37%
- Latin America: 17%
- East Europe and Central Asia: 9%
- Global: 6%

Total: $1.19 billion
GEF Renewable Energy Investment by GEF Phases ($ Million)

- GEF Pilot, 1991-94, 12 projects
- GEF-1, 1994-98, 16 projects
- GEF-2, 1998-2002, 44 projects
- GEF-3, 2002-06, 53 projects
- GEF-4, 2006-10, 48 projects
- GEF-5, 2010-14, 56 projects
- GEF-6, 2014-Aug 2017, 25 projects

Investment Amounts:
- GEF Pilot: $94 million
- GEF-1: $147 million
- GEF-2: $228 million
- GEF-3: $249 million
- GEF-4: $119 million
- GEF-5: $207 million
- GEF-6: $143 million
GEF renewable energy investments by technologies ($ Million)

- Solar PV and thermal (1 project): $3 million
- Solar PV (25 projects): $118 million
- Solar thermal (7 projects): $30 million
- Geothermal (9 Projects): $65 million
- Wind (14 Projects): $42 million
- Small Hydro (19 projects): $54 million
- CSP (1 Project): $2 million
- Biomass (31 projects): $96 million
- Mixed and others (143 projects): $757 million
- Methane (4 projects): $20 million
Case Study 1: Promotion of Micro-Hydro Power Plants in Congo DR

- In May 2016, GEF funding: $3,187,669, Co-financing $14,150,000
- To enhance policy and institutional framework; reinforce technical capacities; demonstrate pilot investments in micro-hydopower; and strengthen communication and management
- To lead to construction of 39 microgrids using hydro power technologies (10MW) to electricity 200,000 homes.
- To avoid 1.97 million tonnes of CO2
1993 – 2002, GEF funding: $26 million
Co-financing $424 million to promote off-grid PV applications.
GEF funding was used to promote commercialization of RE technologies; create marketing and financing mechanisms for RE; and strengthen institutional framework for encouraging private investments.
Results included: 2.1 MW off-grid PV power generation for local communities.
Products including 5 W solar lanterns, 900 W PV irrigation pumps, 500–2500 W solar power packs, 25 kW village power microgrids and a 200 kW mini-grid system.
Thank you!

myang@thegef.org
www.thegef.org