Results Based Financing for Pico-Solar Market Development in Tanzania

Rationale, Results & Lessons Learned (2014-2016)
EnDev Global Energy Access Program - 26 countries: 15 Africa, 6 Asia, 5 Latin America

Results Based Financing for Pico-Solar Market Development in Tanzania, SNV 2016
Results since 2005

- 14.8 million people with sustainable access to modern energy
- 6.1 million women and children with reduced exposure to household air pollution
- 1.6 million tons of CO$_2$e per year
- 30,500 SMEs with access to modern energy, 6,000 jobs created
- 17,700 social institutions (schools/health centres) with access to modern energy
- 37,000 manufacturers, retailers, local experts trained
Result Based Financing – 17 projects; ~45m EUR

Technologies:
- Small solar systems (6)
- Minigrids (2)
- Grid connections (1)
- Improved cookstoves (6)
- Gasifier stoves (1)
- Domestic biogas (2)
- Solar water heaters (1)
- Solar water pumping (1)

Organisations:
- GIZ (10)
- SNV (4)
- HIVOS (1)
- Practical Action (1)
- CLASP(1)

Countries:
- Africa: Benin, Ethiopia, Kenya, Malawi, Mozambique, Rwanda, Tanzania, Uganda
- Asia: Bangladesh, Cambodia, Lao, Nepal, Vietnam
- Latin America: Peru

RBF types:
- AMC (2)
- auctions (1)
- (Market development)
- OBA(11)
- CCT (1)
- voucher (2)
- credit OBA (2)
- inducement prize (2)

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EnDev Tanzania Programme

- Implemented by SNV - Netherlands Development Organisation
  *Tanzania Improved Cook Stoves (TICS)*
  *Results Based Financing (RBF) for Pico-Pv Solar*

- **Strong Focus on Performance**
  - Shift from Producers → Production, Sellers → Turnover
  - Incentives (Financial & Non-Monetized)
  - Formal & Informal Sector MERVA

- **Private Sector Fully in Lead**
  - Means, Methods and Markets for Engagement Chosen by Firms
  - Customer Interaction & End Pricing is 100% by PS

- **Flexibility & Innovation**
  - Responsive v. Prescriptive Approach
  - Business Modelling is Determined by Firms Themselves
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SNV: RBF for Pico-Solar in Tanzania’s Lake Zone

RBF Basic Characteristics & Principles

Shift in Practice & Thinking

• Up-front subsidies → Conditional post-incentives
  • Non-delivery = Non-payment
• Risk from donors → Market actors
• Barriers → Opportunity

Temporary Incentive to Trigger Growth

• Responsive design to unique market context
• Flexibility for private sector to drive business modelling
## Domestic Energy Technology Preference Breakdown

<table>
<thead>
<tr>
<th>Energy Technology</th>
<th>Like</th>
<th>Dislike</th>
<th>Want</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Stone (Traditional)</td>
<td>14%</td>
<td>42%</td>
<td>10%</td>
</tr>
<tr>
<td>Metal Stove</td>
<td>3%</td>
<td>4%</td>
<td>2%</td>
</tr>
<tr>
<td>Oil Lamp</td>
<td>0%</td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td>LPG</td>
<td>8%</td>
<td>18%</td>
<td>7%</td>
</tr>
<tr>
<td>Electric Grid (Modern)</td>
<td>19%</td>
<td>9%</td>
<td>21%</td>
</tr>
<tr>
<td>Gas Gen.</td>
<td>0%</td>
<td>8%</td>
<td>0%</td>
</tr>
<tr>
<td>ICS</td>
<td>27%</td>
<td>1%</td>
<td>18%</td>
</tr>
<tr>
<td>Biogas</td>
<td>6%</td>
<td>9%</td>
<td>6%</td>
</tr>
<tr>
<td>Solar (Renewable)</td>
<td>23%</td>
<td>7%</td>
<td>35%</td>
</tr>
</tbody>
</table>
## Rationale & Design

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<tr>
<th>Product Type</th>
<th>Typical Cost</th>
<th>Price Range</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>Basic Task Light:</td>
<td>€14</td>
<td>€7-€20</td>
<td>Generally produce less than 2 watts of electricity sufficient for 4-6 hours of light with 25-90 lumen output that generally (on a single full day charge) exceeds a kerosene lantern.</td>
</tr>
<tr>
<td>Light w. Charging Service:</td>
<td>€35</td>
<td>€20-€50</td>
<td>Produce around 5 watts of energy with enough light for 5-7 hours of lighting at 100-200 lumens per day with enough energy remaining to fully charge 1-2 cell phones per day.</td>
</tr>
<tr>
<td>Small/Multi-Room Light Kits:</td>
<td>€100</td>
<td>€50-€200</td>
<td>Generally produce less than 10 watts of electricity with light of +200 lumens sufficient for a minimum of 2 rooms for 6-8 hours on a single day’s charge along with small electronic and charging.</td>
</tr>
<tr>
<td>Small Solar Home Systems (Plug &amp; Play):</td>
<td>€500</td>
<td>€200-€800</td>
<td>In addition to appliances (Fans, radios, TVs) they typically provide 8-16 hours of daily lighting at 300-500 lumens. The use of pay-as-you-go (PAYGO) technology enables consumers to pay for a product in small increments over time via mobile phone has made these systems increasingly affordable.</td>
</tr>
</tbody>
</table>

**Quality Assurance:** All products are Lighting Global approved.
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SNV: RBF for Pico-Solar in Tanzania’s Lake Zone

Rationale & Design

Creation of a *Temporary Financial Product* within Mainstream Banking
- Accessible only to legitimate pico-solar import-suppliers
- Applicable only for rural distribution chain development in the Lake Zone

RBF Fund Tanzania
Total of **€1 million** in Competitive Private Sector Incentives Available
- Hosted by *Tanzania Investment Development Bank (TIB)* as the RBF Fund
  - *FI Fees are not pre-financed* (result based on flat rate % of fund transacted)
- Fund access is by competitive annual call to suppliers
  - *Bound in tri-partite between Firm-TIB-SNV*
- Managed in provisional and time bound shares
  - *Embedded default mechanisms* (fraud, false claim & non-use penalties)
  - *All shares expire in 2016 at which point the total fund balance is fully opened*
- **Total value of incentives paid** are against share value
  - *Share values of compliant players increase when others default* (re-allocation)
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• Incentives are *earned* on each verified unit sale to rural consumers
  • Incentive value per unit is based on energy service *(lumen-hours per solar day charge)*
  • Decrease in value by 25% per annum

• Incentives are *paid* to suppliers as 2 equal instalments of:
  i. Product Bonus to Retailers
  ii. Capital Bonus to Import-Suppliers
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Rationale & Design

Suppliers + Retailers + Consumers

EnDev's method of using Results Based Financing to promote market development through the production and distribution of Pico-Solar energy solutions in Tanzania's Lake Zone.
## EnDev Tanzania Programme
### SNV: RBF for Pico-Solar in Tanzania’s Lake Zone

**RBF Round 1 - First Eligible Sales May 2014**

<table>
<thead>
<tr>
<th>No.</th>
<th>Supplier</th>
<th>Location (HQ)</th>
<th>Pico-Solar Products</th>
<th>Business Model</th>
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<tbody>
<tr>
<td>1</td>
<td>EnSol</td>
<td>Dar es Salaam</td>
<td>Omnivoltaic</td>
<td>MFI Agents</td>
</tr>
<tr>
<td>2</td>
<td>Global Cycle Solutions</td>
<td>Arusha</td>
<td>Greenlight Planet</td>
<td>Village Agents</td>
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<td>3</td>
<td>Off Grid Electric</td>
<td>Arusha</td>
<td>Fosera</td>
<td>PAYGo Utility</td>
</tr>
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<td>4</td>
<td>Sunny Money</td>
<td>Dar es Salaam</td>
<td>d.Light, GLP</td>
<td>Institutional-Village Agents</td>
</tr>
<tr>
<td>5</td>
<td>Zara Solar</td>
<td>Mwanza</td>
<td>Omnivoltaic</td>
<td>Traditional Retail</td>
</tr>
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**First Observations (2014-15):**

- **Set-up & Articulation Require Significant Frontloading**
  - Coordinators, Implementers & Firms
- **Reversal from Traditional Project Implementation**
  - Hiring & Infrastructure as Pre-conditions
- **Under Estimating the Obvious**
  - Influence of Geography; Ease of Access v. Motivation; Coordination v. Competition
# EnDev Tanzania Programme
## SNV: RBF for Pico-Solar in Tanzania’s Lake Zone

**RBF Round 2 - First Eligible Sales May 2015**

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<td>Lotus Africa</td>
<td>Dar es Salaam</td>
<td>Azuri</td>
<td>PAYGo via Telecom</td>
</tr>
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<td>7</td>
<td>Mobisol</td>
<td>Arusha</td>
<td>Mobisol</td>
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<td>Ongeza</td>
<td>Arusha</td>
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<td>Agents-Franchisees</td>
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<td>9</td>
<td>SimuSolar</td>
<td>Musoma</td>
<td>Omnivoltaic</td>
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<td>Sollatek-Power Control</td>
<td>Dar es Salaam</td>
<td>Niwa</td>
<td>Agro-Cooperatives</td>
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SNV: RBF for Pico-Solar in Tanzania’s Lake Zone (Sales 2014-16)
Results to Date (2014-2016):

- 8 firms opening a total of 23 offices in the Lake Zone (+ add. sales hubs)
- 23 types of Lighting Global approved solar products being sold
- 776,000 EUR Transacted in RBF Incentive Payments to Private Sector
- 593 new jobs created (368 retailers / agents; 225 solar company staff)
- 104,000 people with access to clean energy services (24,000 systems)
### EnDev Tanzania Programme
#### SNV: RBF for Pico-Solar in Tanzania’s Lake Zone

#### Overview of companies participating in the RBF

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**EnDev Tanzania Programme**: SNV: RBF for Pico-Solar in Tanzania’s Lake Zone

**Overview of companies participating in the RBF**
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Rationale, Design & Reality

Suppliers
Retailers
Consumers
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SNV: RBF for Pico-Solar in Tanzania’s Lake Zone

Way Forward (2016-18):

• **RBF Expansion**
  - Central Zone (Tabora, Singida, Dodoma)
  - Round 3 & RBF Fund Opening
  - Growing Pains & Absorption Capacity

• **Natural Divisions & Pacing Market Development**
  - Fine Print Segmentation
  - Normalization of PAYGO
  - Reassessing Market Intelligence

• **Coordination & Competition**
  - Public Sector Integration; Partner Mainstreaming
  - Secondary & Indirect Results
  - Rationalization, Relevancy & Redundancy
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Lessons Learned: Conditions & Considerations

Sufficient Private Sector Capacity
• Financially Able to Initiate and/or Leverage the RBF
• Conceptually Able to See RBF as Tool for Innovation & Scaling

Strong and/or Willing Financial Sector
• Implementing Bank Recognizes Added Value of RBF Approach
• Commercial Pre-Financing Generally Available

Foundational Market Presence
• Awareness, Standards, Taxation, etc. are Manageable within Capacity of Current Actors

RBF is a Tool Appropriate for Market Segments where Pre-Conditions are Given

Without Pre-Conditions… Classical Approaches with Pre-Financing & TA are More Suitable
### EnDev Tanzania Programme

**SNV: RBF for Pico-Solar in Tanzania’s Lake Zone**

**RBF Lessons Learned: Opportunities, Risks, Realities**

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<th>Disadvantage – Risk</th>
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<td>Limited costs if no transaction</td>
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<td><strong>Quality &amp; response time critical for company confidence (and cash flow)</strong></td>
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Stimulate Competition
Maintain Transparent, Enforceable and Answerable Frameworks
• Articulate Valuations, Guidelines, Procedures & Relationships
• Convening Role $\rightarrow$ Feedback & Dialogue at All Levels & All Times

Generate & Apply Market Intelligent Approaches
Ensure Upstream & Downstream Benefit Flows
• Get the Right Incentive in the Right Place
• Limit Isolated Dependencies, Chain Distortions & Actor Breakdowns
• Ease Compliance Pressures $\rightarrow$ Reduce Risk of Verification Failures

Maximise Existing Structures & Processes
Adapt RBF to Work in the Reality of Current Systems
• Employ Tools, Language and Practices that are Locally Understood
• Discard Project Logic $\rightarrow$ Repackage as Business Proposition

Enforce Quality & Sustainability
Mainstream quality assurance of products and services to customers
• Require and verify warranty and/or after-sales provision
• Adopt international quality standards $\rightarrow$ IFC Lighting Global
Thank you for your attention!

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