Session 1
Public Private Partnerships: Global Experience and Lessons Learned
Romeo Pacudan – UNEP Risoe Center

Presentation Outline

- Some key features of rural electrification
- Rural electrification and PPP
- PPP arrangements
- PPP grid-extension projects
- PPP off-grid projects
- PPP impacts
- Lessons learned
### Rural Electrification

#### Some Key Features

**Options**
- Grid extension
- Off-grid
  - Mini-grids
  - Micro-grids
  - Isolated systems

**Subsidies**
- Not So Poor: Can pay full cost
- Poor: Need financing assistance
- Poorest: Need subsidies

**Market intervention on Projects**
- Commercially viable returns and risks once funded
  - Concessional financing on project development
- Commercially viable returns but above-market risks
  - Concessional financing on a contingent basis
- Below market returns
  - Concessional financing on a limited and targeted basis

### Rural Electrification and PPP

**Key Issues**
- Lack of financial resources for grid extension
- High initial costs of off-grid technologies

**PPP**
- Collaboration between a *public body* and a *private company* to address specific issue and/or implement a common venture
- Key dimensions
  - Organizational
  - Contractual
  - Investment
PPP Arrangements

Public Private Partnerships

<table>
<thead>
<tr>
<th>Fully Public Sector</th>
<th>Joint ventures</th>
<th>Passive public investment</th>
<th>Public Private Partnerships</th>
<th>Fully Private Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provider</td>
<td>Investment Responsibility</td>
<td>Government Role</td>
<td>Private Enabler Regulator</td>
<td></td>
</tr>
<tr>
<td>Public</td>
<td>Government bonds</td>
<td>Service, Management contracts</td>
<td>Government bonds</td>
<td></td>
</tr>
<tr>
<td>Passive private investment</td>
<td>Co-responsibility</td>
<td>Operate, Maintain Lease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government bonds</td>
<td>Equity, Debt Guarantee, Grants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional public contracting</td>
<td>BOT Concession Build, Operate and Invest</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design Build</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PPP Grid-extension Project

CHILE - PER Project
- Rural electrification programme in a liberalized electricity market
  - Distribution: nonexclusive concession
- Grid extension rural electrification project
- Subsidy through competitive bidding
  - Local communities in partnership with private operators develop and submit a proposal specifying the amount of subsidy and company contribution
- Funding: National Fund for Regional Development (subsidy), distribution company (investment costs), customers (connection costs)
- Implementation: local distribution company operates, manage and maintain
- Results: increased rural electrification by 50% (1994-1999)
PPP Off-grid Projects

**Mini/micro-grids**

**MOZAMBIQUE – Inhambane Province**
- New Electricity Law permits private sector participation
- Mini-grid (generation, distribution) rural electrification project
- Concession through competitive bidding (Mozabican and South African consortium)
- Technology – natural gas generation
- Funding: concessionaire, government (25%), energy fund (subsidy for HH connections)
- Expected results: 3000 new connections

**NEPAL**
- Electricity Act allows private/community participation

  **Tetrathum Village**
  - Performance improvement (financial and technical) of small hydro project (100 kW)
  - Lease agreement – private company SBB and NEA
  - Results: improved performance, 800 customers

  **Gandruk Village**
  - Local community initiated and owned micro-hydro project (50 kW)
  - Funding: Agricultural Bank (loan), government (grant), community (cash and in-kind contribution)
  - Results: 278 customers, paid-off the loan, operating profit

**PPP Off-grid Projects

**Isolated systems**

**ARGENTINA (PERMER project)**
- Rural electrification programme in a liberalized electricity market
- Electricity service through Solar Home Systems for HH and public sector
- Concession (exclusive) through competitive bidding
- Funding: WB, GEF, Electricity Investment Development Fund (output-based subsidy), concessionaires, customers (fee-for-service)
- Expected results: 70,000 HH and 1,100 schools and clinics

**SRI LANKA, Uva Province**
- Remote Province and considered to be economically unfeasible for grid extension
- Provincial council
  - Diverted grid extension budget for SHS subsidy
  - Project monitoring
- Micro Finance Institutions and Private Banks
  - Provided loans to HH
- PV Dealers
  - Marketing and capacity building
- Results: more than 6000 systems are installed
PPP Impacts

<table>
<thead>
<tr>
<th>Country</th>
<th>Projects</th>
<th>Livelihood benefits</th>
<th>Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETHIOPIA</td>
<td>Private diesel off-grid, Bonna</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Municipality owned diesel off-grid, Bonosha</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Community owned off-grid micro-hydro, Yaye</td>
<td>XXX</td>
<td>XX</td>
</tr>
<tr>
<td>NEPAL</td>
<td>Micro hydro scheme, Ghandruk</td>
<td>XXX</td>
<td>XXX</td>
</tr>
<tr>
<td></td>
<td>Small hydropower, Tetathum</td>
<td>XXX</td>
<td>XXX</td>
</tr>
<tr>
<td>SRI LANKA</td>
<td>Micro-hydro Hettikanda and Athulauda Villages</td>
<td>XXX</td>
<td>XXX</td>
</tr>
<tr>
<td></td>
<td>Solar PV Home Systems, Uva Province</td>
<td>XX</td>
<td>XXX</td>
</tr>
<tr>
<td>UGANDA</td>
<td>Mini-grid from Diesel Genset, Magale Village</td>
<td>XX</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Micro-hydro system, Kisiizi</td>
<td>XXX</td>
<td>XXX</td>
</tr>
</tbody>
</table>

KEY: X – weak, XX – medium, XXX – strong

Source: Mazzoni and Isaac, 2005

Lessons Learned

• Stakeholder’s participation, particularly local communities
  – key to successful and sustainable PPP
• Institutional aspects
  – Clear national policy, legal, regulatory frameworks result in both national and local level initiated partnerships
  – Absence of ‘rules’ from the national level results in local level initiated partnerships
    ▪ Local institutions must have administrative power and capacity to engage with the private sector
• Financing
  – Mechanisms to make rural electrification projects viable (or financing available) provide private sector incentives to enter into partnerships
    ▪ grants, output-based subsidies