Green Energy in the Sands of Sahel

Standard MFB
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- A mid sized regulated MFB in Adamawa State of North Eastern Nigeria.
- Has a large portfolio of small holder farmers in a difficult frontier market.
- Serves more than 60,000 clients.
- Was able to survive the challenges of insurgency.
  - Started as a community initiative.
  - All our Branches run on solar power.
Where we operate

- Adamawa is an arid area close to Sahara and has Sudanese type Savannah vegetation.
- One of the poorest states in Nigeria.
- Financial exclusion more than 70%.
- Most villages are off grid.
- Main activity is subsistence farming.
- Kerosene and charcoal, main sources of fuel for cooking and lighting.
- Nigeria is one of the pollution hot spots, according to WHO.
- For 178 million people Nigeria produces less than 5,000 MW of power.
Northern Nigeria is losing its tree cover and top soil at alarming rates.
Forest loss in Nigeria, 2001-2012 (ha)
Data: Hansen / Global Forest Watch 2013-2014

- Region
- Kwara
- Niger
- Oyo
- Ogun
- Edo
- Others
- Nigeria
- Linear (Nigeria)
The Impact.

- Nigeria has the highest rate of deforestation. (FAO)
- Nigeria lost 56% of its primary forests between 2000 and 2005. Main reason, wood used for cooking. (FAO)
- Each year Nigeria loses 350,000 hectares due to deforestation now. (This is more than before and higher than the historic trend.)
- Desertification is a big threat with 40% of Nigeria being vulnerable.
- In North East Nigeria, 84% use firewood/charcoal and 13% Kerosene for cooking.
- Eighty percent of the people rely on unfarmed community lands (read forests) for fire wood.
Some numbers from N. East Nigeria

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<thead>
<tr>
<th></th>
<th>Level for N. East</th>
<th>National Average</th>
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</thead>
<tbody>
<tr>
<td>Households owning gas cooker (%)</td>
<td>0.1</td>
<td>4.8</td>
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<tr>
<td>Households owning electric stove (%)</td>
<td>0.9</td>
<td>3.3</td>
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<tr>
<td>Households using firewood for lighting</td>
<td>8.0</td>
<td>4.4</td>
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<tr>
<td>Lighting using electricity(%)</td>
<td>15.1</td>
<td>25.6</td>
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<tr>
<td>Lighting using kerosene(%)</td>
<td>21.1</td>
<td>45.2</td>
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<tr>
<td>Electric connection in dwelling (%)</td>
<td>28.5</td>
<td>60.2</td>
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<tr>
<td>Households reporting daily black outs</td>
<td>71.3</td>
<td>56.7</td>
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</tbody>
</table>

Even for lighting, kerosene or wood is the Preferred option in N. East. Kerosene availability is a challenge and it is costly.

3 million deaths a year are linked to outdoor air pollution. Indoor air pollution can be just as deadly.

In 2012, an estimated 6.5 million deaths (11.6% of all global deaths) were associated with indoor and outdoor air pollution together (WHO)
Cost ...

- Rural Africans spend $100-$140 a year on kerosene lamps and candles. (Economist).
- Probably another USD 100 on kerosene/wood for cooking.
- Sometimes the fuel to cook a meal in a village costs more than the food.
- Linking villages to the grid is an expensive option.
- In Rwanda, it costs about $2,000 per connection, about ten times the cost of an off-grid system.
- The Africa Progress Panel, led by Kofi Annan, reckons that more than 600m Africans are not connected to grids and to wire them up, investment in electricity infrastructure has to rise to $55bn a year from the current $8bn.
- On current trends it would take until 2080 to link all Africans to the grid.
From 2010, price of solar power systems has nosedived. Off grid systems are now viable.

According to the International Renewable Energy Agency cost now is 52 American cents per watt of capacity. (Even this may not be affordable to many)

Environment friendly and fuel efficient cooking stoves are available at affordable prices.

Financing options have emerged, including pay as you go.

Pioneer institutions have gained critical mass. (M Kopa has installed 4000,000 solar power units under pay as you go.)

Similar initiatives in other areas also. (Water ATMs in Kibera slums of Nairobi, ONEA in Burkina Faso.)
Our plans.

- We had financed some solar lanterns on an experimental basis.
- Encouraged by this, we plan to scale this up and to develop a sustainable funding model. Pay as you go.
- Partnership with CCAC.
- M Kopa will provide technical assistance.
- Use of technology.
- The plan is to roll out the model on national level later.
- We hope to leverage our outreach and expertise in operating in frontier markets.
We have created many oases of green.
Our field team with clients

Now we hope to save the trees of Adamawa.