

# Scope for Energy Access Interventions: Tanzania & Nigeria

## SCENARIO REPORT



Lady cooking local snacks in a village in Nasarawa state, Nigeria. July 2015

# Contents

- Introduction:
  - Africa and Energy Access
  - Drawing Parallels: India and Africa
  - Overview of SELCO Foundation
- Africa- Deep dive
  - Purpose and Objectives
  - Country rationale and field
- Ecosystem Analysis: Tanzania and Nigeria
  - Approach, Methodology, Stakeholders
  - Ecosystem overview, Stakeholder mapping in Focus regions
    - End user and Enterprise financing
    - Skill Development
    - Technology
    - Policy
  - Potential Interventions
- Conclusion

# Africa and Energy Access

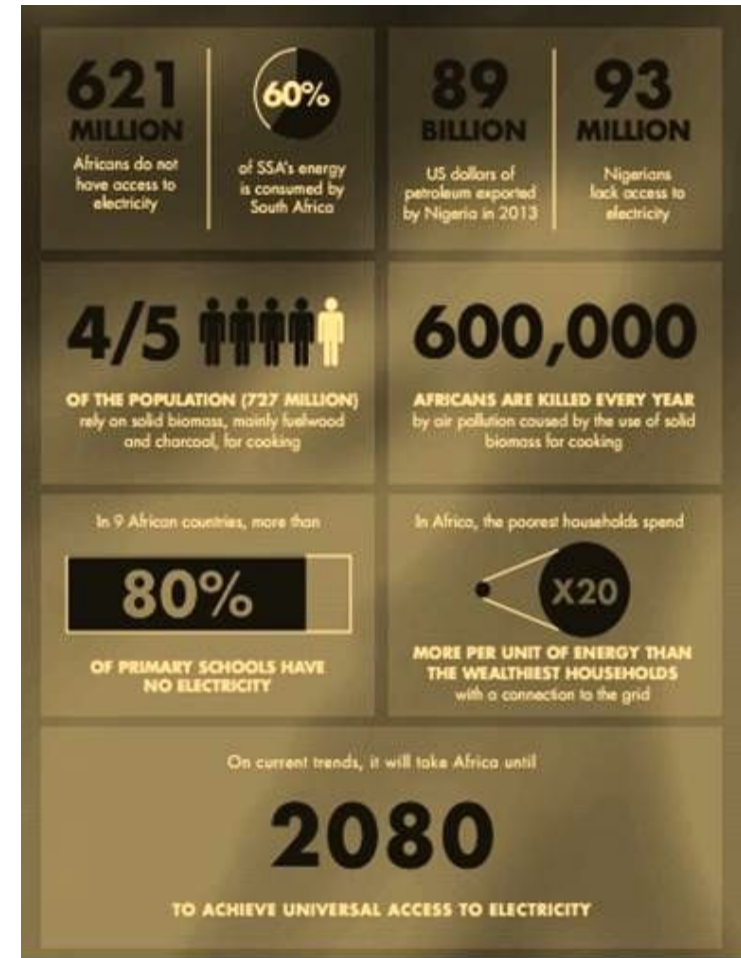
Energy is widely acknowledged as a pre-condition to enhance growth-economic and social. Africa is the world's fastest-growing continent—its average annual rate was more than 5%—buoyed in part by improved governance and economic reforms. However it still remains deficient in terms of energy poverty (generation capacity, consumption and access) with over 620 million people in sub-saharan Africa without access to electricity. Even if they do have access, it is unreliable, inefficient and costly.

- 12% world population but sub saharan africa accounts for 1.8% of world capacity to generate electricity
- South Korea (population of 5% of that of sub saharan africa) generates 3x electricity than the region.
- Disparity even within Africa where South Africa consumes 9x more energy than Nigeria despite having 1/3<sup>rd</sup> the population.

## Consequences of this disparity include

- *Reinforces poverty trap:* Failure to expand energy access perpetuates low incomes and human development progress
- *Constraint to Growth:* Lack of reliable energy is costly to growth with small and large industries resorting to expensive alternative-diesel generators-in its absence, cutting into operating costs.
- The *poor pay more for energy access than the rich* due to prevalent use of dirty inefficient sources like batteries, candles, charcoal, kerosene. Even when they pay more, like the rest of the world's poor, the quality is sub-standard.

**As it grows to meet the energy demands of its under-served poor citizens, Africa can choose a well designed low carbon pathway.**





# Drawing Parallels: India and Africa

Access to energy paves the way to appropriate opportunities; a much needed antidote to meet the aspirations of the poor. The very lack of these opportunities, like better livelihoods, education, health, quality of life will lead to social unsustainability.

SELCO Foundation seeks to become a library of solutions that can formulate decentralized low carbon pathways for the poor- across geographies and contexts. It recognizes India as a microcosm of world's disparities, a sort of LAB of the world. With near 25% of its population, 300 million without electricity and more than 70%, 700 million who rely on polluting wood and charcoal cook-stoves. A study by The Economist reflects the potential to draw parallels - For example: Uttar Pradesh, India's most populous state in itself could be the fifth most populous country having the same population as Brazil but its economy will be comparable to Qatar and its GDP per head close to Kenya (Refer Figure 1).

The challenges and opportunities presented by these varied socio-economic situations of each state in India can find a parallel with a country in Africa. There is an opportunity to work with other developing countries to rethink the way solutions for poverty alleviation and climate change are looked at based on the Indian context. For example access to financial institutions is a challenge in North East India however traditional financing practices are commonly used as a substitute. These practices can be shared with another country facing similar challenges. Further, the idea of tapping into traditional financing practices can also be sparked and fine tuned by drawing from lessons in India of using traditional financing practices to finance energy access solutions.

Many of the solutions and processes demonstrating linkages to sustainable energy and poverty alleviation that are developed and documented by SELCO Foundation have potential to be tested and replicated in other parts of the world, especially in poorer part of Africa, in one form or the other.



Figure 1: GDP per person. Comparing Indian States with Countries. Source: The Economist <http://tinyurl.com/66q8lwu>.

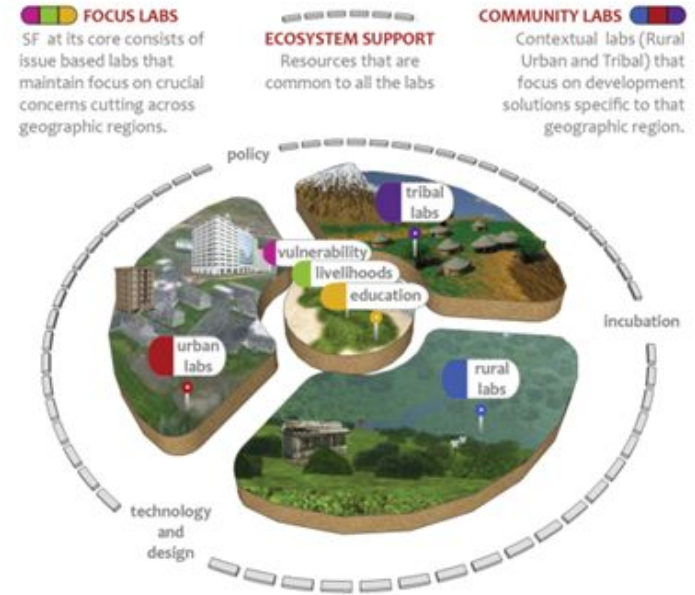
# SELCO Foundation, Policy and Replication

**SELCO Foundation:** Set up in Oct 2010, SELCO Foundation engages in field-based R&D and ecosystem building for the deployment of clean energy solutions that alleviate poverty amongst tribal, rural and urban poorer communities. The organization has a strength of 45 individuals from various disciplines who work closely with energy entrepreneurs and partners from various developmental sectors to broadly address three mandates:

- *Identifying and bridging gaps in the ecosystem* needed to deploy energy solutions
- *Building holistic, replicable solutions* that combine Technical, Financial and Social (community dissemination) aspects.
- Identifying and catering to the *needs of the heterogeneity within the poor*.

Through a network of research and innovation labs segregated by customer segment (urban, rural, tribal) and focus areas (education, livelihoods, vulnerability) as well as Ecosystem support centres like Technology and Design, Incubation and Policy, the SELCO Foundation is attempting to become a hub where solutions (models, processes, innovations) are developed based on field conditions and also where all parts of the ecosystem can be addressed while designing and implementing a solution. These are then replicated in similar contexts, within India and other parts of the developing world, through social enterprises and partners in the development sector or institutionalization through policy.

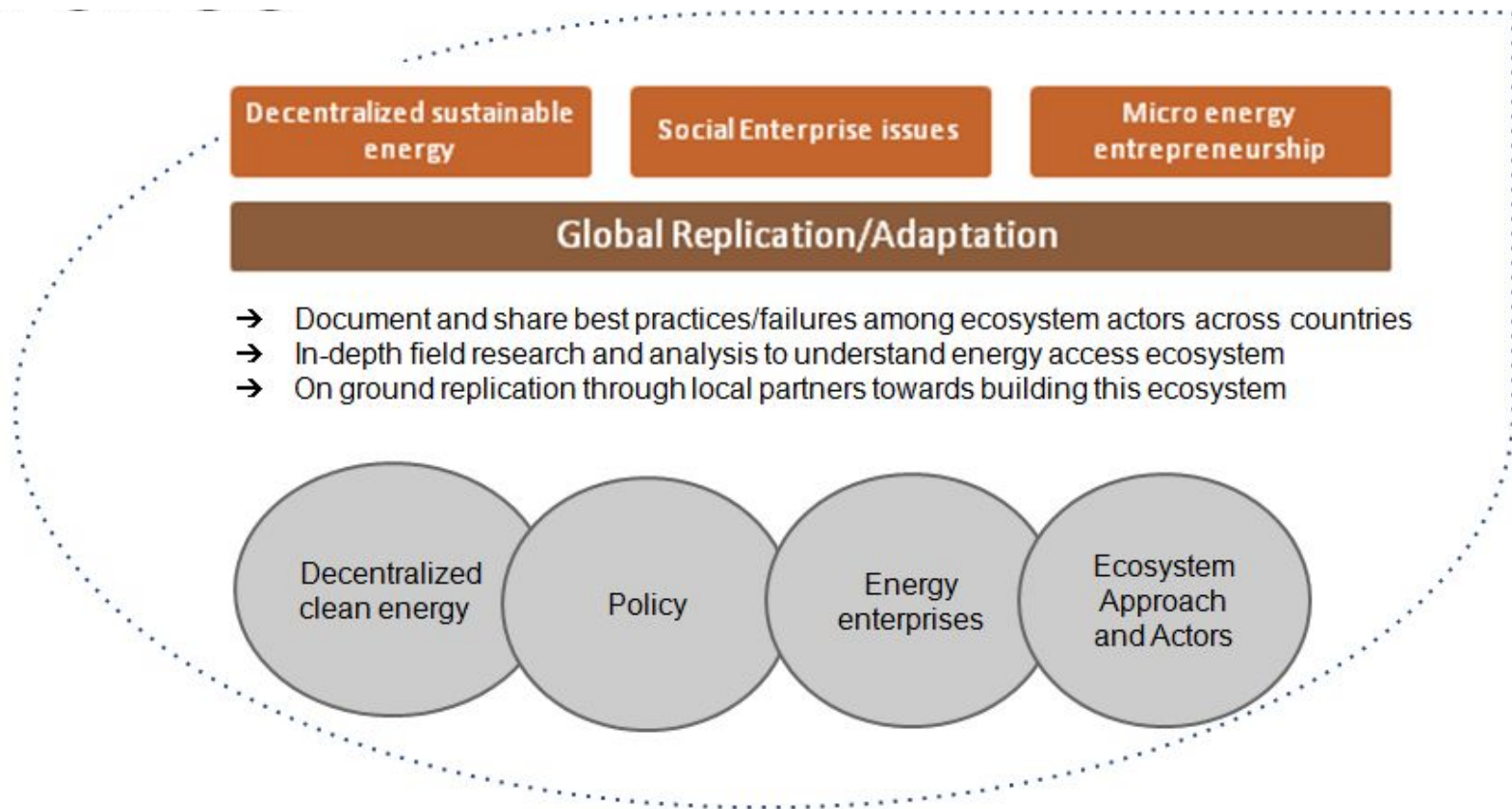
Within the Foundation, the Policy group is charged with plugging gaps in the ecosystem based on inputs from practitioners and stakeholders in the sector. This includes aspects of decentralized energy dissemination, energy entrepreneurship, finance and skill development.



**SELCO Foundation Structure: Network of research and innovation labs with a mandate to design and implement solutions that are replicable, holistic and based on the heterogeneous nature of the poor.**

# Focus Areas for Replication

Poor Underserved communities



# Purpose of Scenario Report

- To gain a more **in-depth understanding of supporting ecosystem** for energy access solutions in the region
- Corresponding **policy level bottlenecks and interventions** within 2 African countries in two regions
- Understand **policy influence process**
- Identify **potential ground level support** required to resolve these issues through a replication approach



# Country Selection and Rationale

## Country Selection Criteria

- Countries where governments and other local stakeholders are committed to making reforms
- Likely to make some headway in 12-24 months given the local momentum around energy access
- Presence of potential strong ground partners
- Overlap with funders and our own network
- Active representation from these countries in SELCO Africa workshops
- Institutional high level support from Power Africa, UN SEFA
- Significant energy poverty issue
- Language: preference for anglophone speaking

## Country

**Tanzania**  
Pop: 49mill  
-Rural energy fund  
-Energy&Water  
Regulatory Act

**Nigeria**  
Pop: 173 mill  
-National Energy  
Policy 2010  
-RE Act 2011

## Preliminary Findings

- Weaker ecosystem but picking up
- Some active groups on the policy front
- Only country with a rural electrification effort with USAID guarantee tool
- Has socialist mindset so entrepreneurship uptake is slow
- .....
- Good entrepreneurship drive
- Identified a potential ground partner
- Institutional support from IRENA/ECREEE focused on ECOWAS countries.
- Main focus country in W. Africa development agendas along with Ghana
- Presence of major private banks
- .....
- heavy handed corruption
- insurgency issues



# Field visits

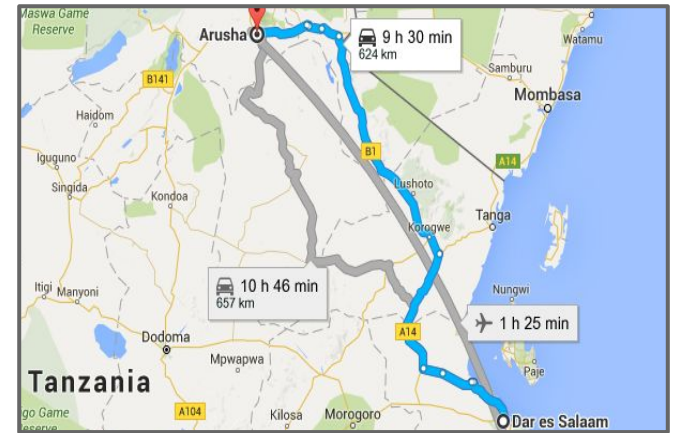
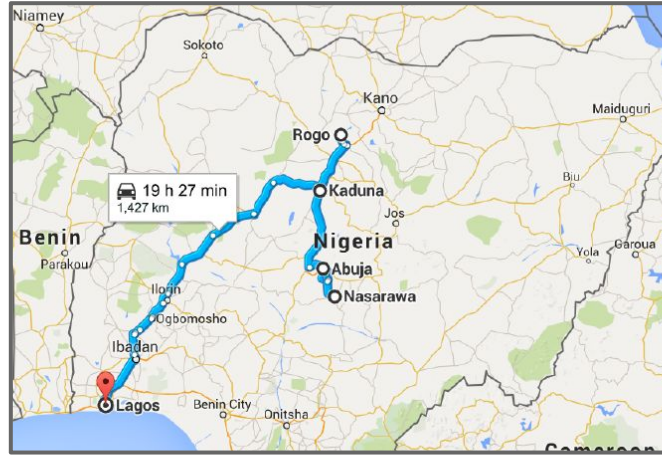


Image: Visit routes by teams in Nigeria and Tanzania 2015



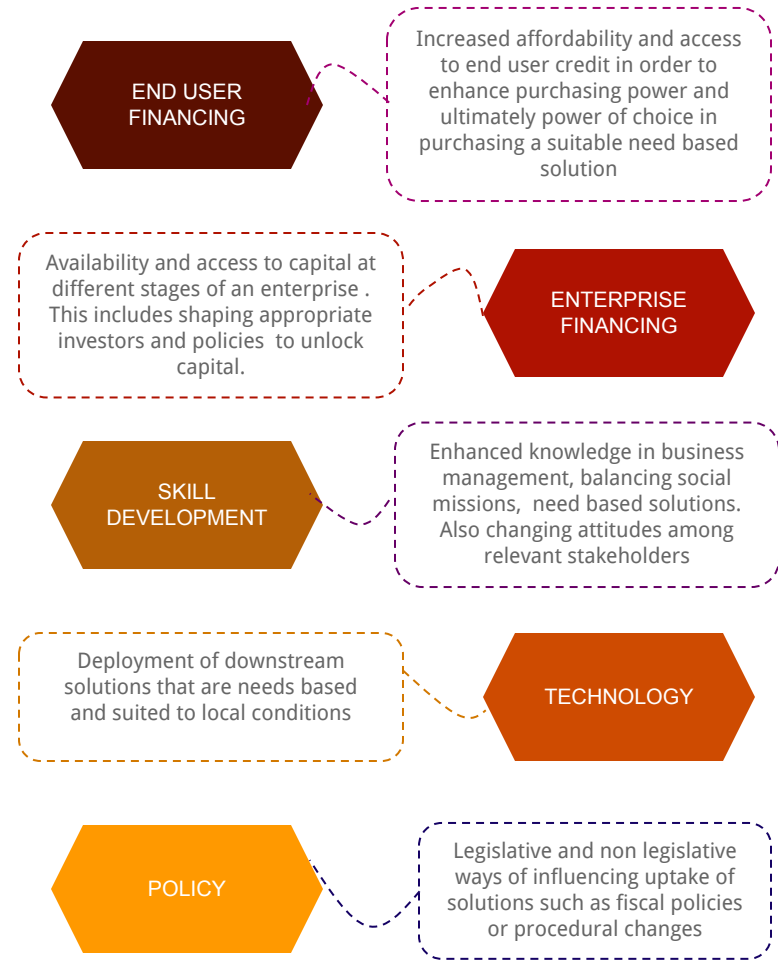
## **ECOSYSTEM FACTORS**

# Ecosystem Approach

For any enterprise to thrive it depends on a number of factors that contribute to an enabling environment suited to growth and sustainability of the enterprise and solution. These factors can range from suitable forms of enterprise financing, availability of appropriate technology, availability of trained workforce, conducive policies and so on. The term ecosystem has its origins in ecology to emphasize the integration of social, environmental and economic sustainability of natural resources but has been adapted to business management theory to highlight the integration of structures needed to sustain and build businesses.

By virtue of the challenging locations and customer segments they cater to, off grid energy enterprises operate in difficult environments across the world, often in under developed ecosystems. The enterprise is then caught up in trying to build this ecosystem or work despite its absence, stagnating growth or worse - creating unsustainable models. The fallout from this is that very often only particular factors are built but they are not blended to create interactions which ultimately develops sustainable models.

Thus, to understand the challenges faced by energy enterprises, SELCO Foundation has adopted an “Ecosystems Analysis” framework (refer notes) which maps the various factors that contribute to the planning and design of context specific solutions targeted at underserved communities. Each factor is further analyzed to understand influence on deployment of the solution, roles of different stakeholders, their level of influence or impact and associated challenges. The five factors (right: graphic) helped narrow down the priority areas to be addressed and potential partnerships.

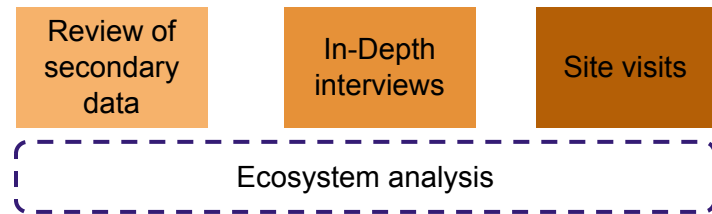


# Methodology

This report maps the energy access landscape through the framework of an ecosystems analysis described in the previous section. It builds off existing deep dive country research conducted by UN SE4All, Energy+ TWG and ADP: The Energy Access Market Accelerator. To date, there is limited research that uses this ecosystems analysis in Africa, thus the team compiled secondary research from publicly available reports, papers, articles in the region and supplemented this with primary research which included interviews-phone calls and in-person, with investors, government institutions, energy enterprises, incubation centers, donors, networks and other stakeholders.

Two 2-person teams from SELCO travelled to Nigeria and Tanzania for a period of a week each in June and July 2015. The team conducted in person interviews with 17 individuals in Tanzania and 17 individuals in Nigeria. Including phone calls the team collectively consulted with 44 stakeholders through the entire research process. (refer Interviewee list- next slide)

The findings and recommendations proposed are subsequently drawn from a mix of ground experience from the interviews and SELCO's own experience in the energy access space for over two decades.



*Figure 1. Methodology to collate content for report*



# Interviews

Type	In Person Interviews	Phone calls
Incubation centres, Networks	TAREBI, TAMFI (Microfinance Association)	
Intl. NGOs	WWF, GVEP Intl, SNV, ICEED, Winrock-International	
Knowledge groups		IRENA, Intellecap
Banks/Investors/Funders	SunFunder, SNV, Showers of Love, Ecobank	REEEP, DOEN
Govt. and Bilateral agencies	SIDO, Rural Energy Agency, World Bank, UNDP (GEF), Nigerian Electricity Regulatory Commission, Energy Commission, DfID-Solar Nigiera programme, IFC-Lighting Africa	
Individuals	Ranti Odebode-Oke (formerly with Fortis Microfinance bank), Traditional governance system head- Hakimi (Kano), Village head (Nasarawa)	Christine Eibs Singer, Richenda Van (Leeuwen UNF) ,Emma Caddy (Impact Capital) Caroline Narich (Accenture Development Partnerships), Mohammed Sokona (GIZ Consultant), Robert Van Buskirk
Practitioners	M-Kopa, Sosai Energies, Blue Ocean Nigeria, Sosai Renwable Energies, Envirofit International, Egg Energy, Sunny Money, Arti Energy, Ensol, Mobisol, Embark Energy	Off grid electric

Key: colour code  
 Blue text: Tanzania contacts  
 Green text: Nigeria contacts  
 Unmarked text: Neutral



## *Tanzania and Nigeria*

---

# OVERVIEW OF ECOSYSTEM



## End User Financing

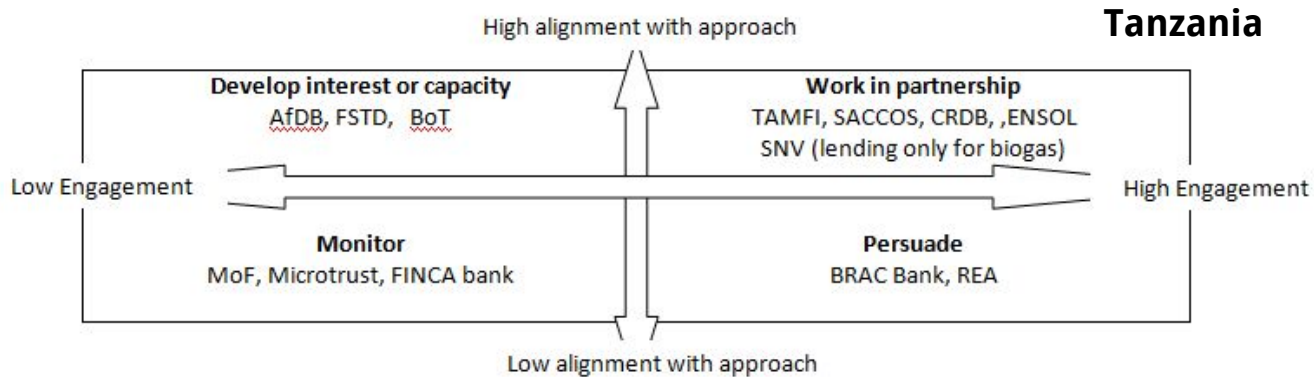
### Tanzania

- End user financing is recognized as an important aspect but there are almost no policies (or very weak ones) on financial inclusion.
  - policy draft being floated to institutionalize this aspect of financial inclusion.
  - Commercial banks exist, but find it difficult to accessing domestic finance
  - Strict lending criteria and urban centric locations restrict reach of Commercial banks (limited rural connectivity)
  - Savings and Credit Cooperative Organizations (SACCOS) (and MFIs exist but there is a lack of capital for domestic micro finance institutions including SACCOS
- Appetite exists to give priority financing for clean energy solutions. However, mainstream domestic financiers are unfamiliar with decentralized models and related small business concepts leading to a risk aversion to lend
- Lack of awareness on enterprise models and opportunities for long term renewable/clean energy solutions for underserved communities is a key constraint. In addition, the informal record keeping processes of local financial institutions make it less transparent and problematic to track.

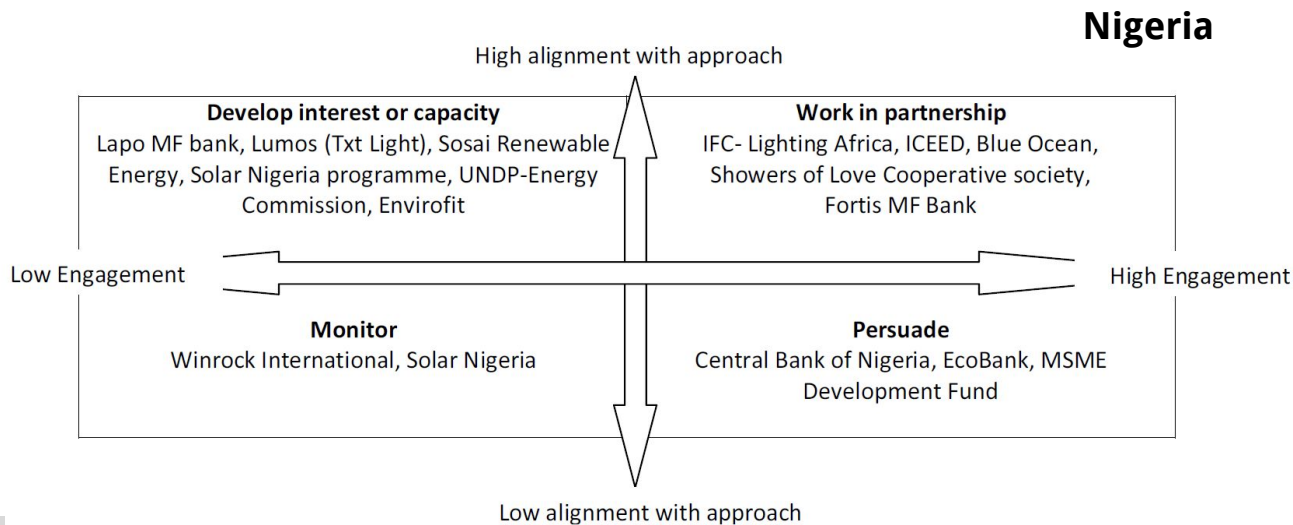
### Nigeria

- Micro Finance (MF) banks, Cooperative societies and some Savings and Investment Groups (SIGs) do exist for end-user financing but few have engaged in financing for solar
  - Closest to end users, with presence in small towns
  - Provide credit in small ticket sizes (typically \$10-\$300),
  - available for end users, small local businesses and solar distributors
  - Operate at a State level or pan-Nigeria depending on license
  - Unlike in most parts of India, community mobilization and financial training for end users is not a part of the loan disbursement process
  - Commercial banks in larger towns only engage with end users purchasing larger systems - 200KW and larger.
- With the bulk of sales being pico solar products (starting with 5-6W products) financing options have included: Up-front payment (cash sales), loans from MF banks and cooperative societies - typically combined with other loan products, Pay-as-you-go in the absence of strong bank financing which is being explored by 2-3 solar companies in cities.
- Provision of loans at affordable interest rates is a clear missing gap with interest rates as high as 3-5% per month through MF banks. Loan periods in the case of MF banks are typically 3-9 months; while with cooperative societies they are typically short- 6-10 weeks.

# Stakeholder Map and Potential Partners



END USER  
FINANCING





# Enterprise Financing

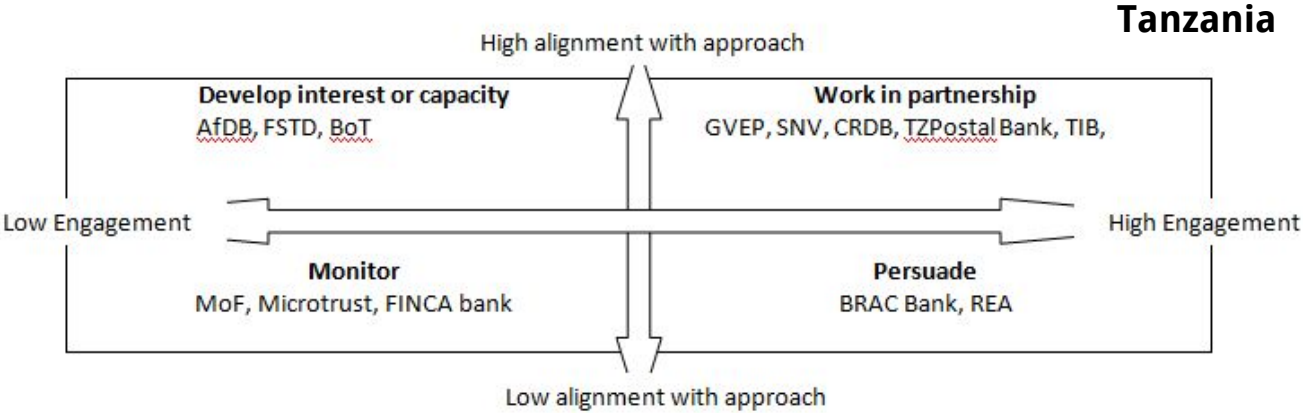
## Tanzania

- Domestic and foreign impact capital for energy access sector is difficult to access (and repay) owing to:
  - High transaction costs of disbursement of funding resources less than \$100,000 difficult.
  - Tough local lending criteria; High collateral (>100%) and interest rates (15-20%).
  - With regard to international investors, volatile shifts in inflation increase cost of repayments
  - Limited human resources who are familiar with ground challenges and understanding of impact capital needs/instruments suited to the needs of energy enterprises
- Sun Funder and SNV have worked on facilitating Enterprise financing. Results based financing initiated by SNV Tanzania for enterprise financing has been widely successful. Other mechanisms could also be explored to derisk lending and unlock domestic capital (such as loan guarantees for small entrepreneurs).
- The import driven market puts local enterprises at a disadvantage during negotiations with foreign suppliers especially around credit terms, replacement issues, in country accountability.

## Nigeria

- While commercial banks are, in principle, willing to extend credit to enterprises working on Decentralized solar energy, there are concerns around the financial viability, the scale of operations and the technology itself. Bilateral and Multilateral agencies have in recent times focussed on improving Enterprise financing, in partnership with existing banks.
- Bank Guarantee with Technical capacity assessment: Winrock International and USAID, in partnership with Ecobank have created a financial product that includes 80% risk guarantee for loans given out by the bank towards solar enterprises. Winrock also supports with the assessment of technical capacity and a vendor list.
- Central Bank of Nigeria and Bank of Industry's 'MSME Development Fund' aims to provide MSMEs with loans at Interest rates of 7-9% per annum (much lower than typical rates of 23-27% p.a.); This scheme can be accessed by MSMEs through commercial banks and is eligible to those who do not use primarily imported products.
- The Solar Nigeria programme seeks to introduce a programme that combines initial grants, followed by performance based loans at lower interest rates for companies, while also supporting them with business plans.

# Stakeholder Map and Potential Partners



## Skill Development and Capacity Building

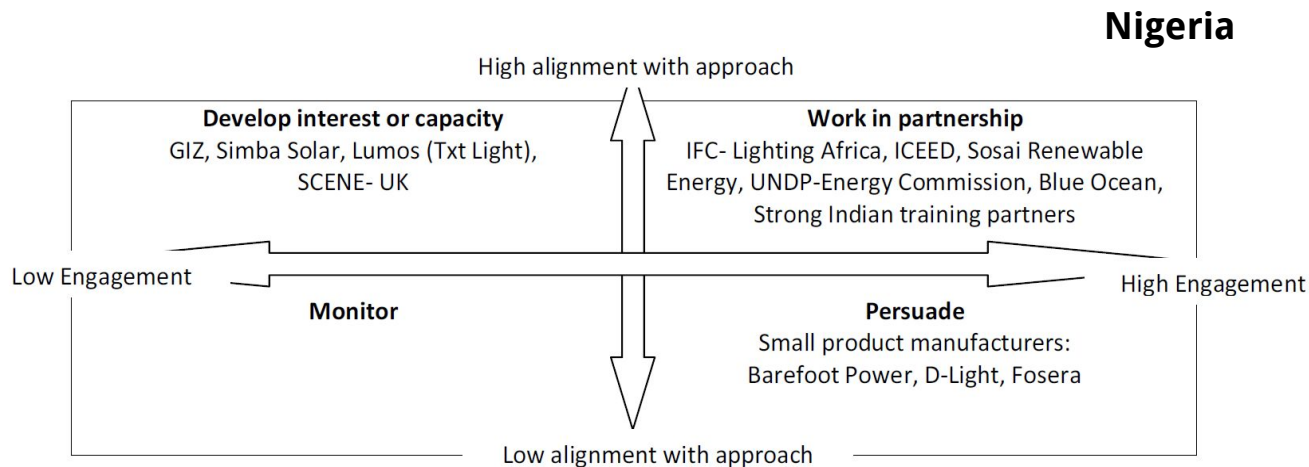
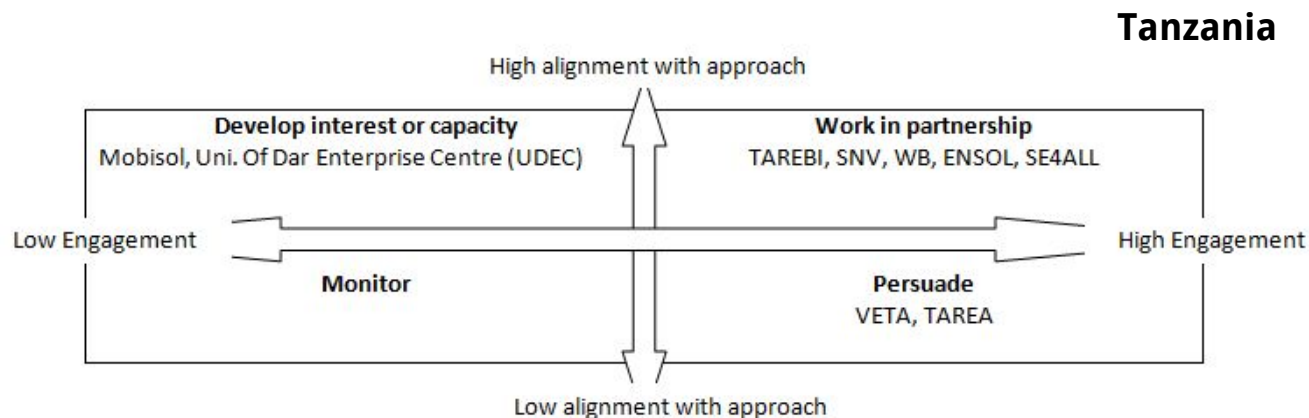
### Tanzania

- Technical: There is a dearth of technology mentors and technical training on aspects of social innovation, including energy access
- Operations and Business management:
  - Recruitment is constrained by limited personnel across all levels in the energy enterprise sector i.e. supervisor, technician, sales, accountants in enterprises.
  - Business management skills especially financial management/accounting in enterprises are weak. Qualified financial personnel with experience are expensive for small enterprises. Enterprise that has been lauded for maintaining good financial records emphasized the need for long term training to basic “accountants”
  - Mentorship and motivation are closely linked to retention as with other organizations in the development sector.
- Ecosystem actors: Engagement of other actors in the energy access space like financiers, govt. officials, community partners, development agencies who share vision and risk in deploying solutions has been limited. The large challenge of building a sustainable energy enterprise targeted at low income groups while also influencing other stakeholders to build the necessary ecosystem continues to exist.

### Nigeria

- Technical and System design: Currently, there is a limited experience in design and installation of larger DRE systems - since most products are small imported ones. In order to meet the large energy demands while ensuring good functioning of existing and new products, it is critical to undertake training on System design, Installation and Servicing as well as repair of imported pico solar products.
- Sales and Financial Management: Entrepreneurs do express a difficulty in finding strong individuals with financial and sales management experience- or they come at a high cost, unaffordable for small enterprises.
- Ecosystem actors: Currently there is limited engagement of various actors including local financiers (of MF banks) and local government officials, traditional governance structures in the North (Hakimis, Emirs etc.) in discussions around energy access using DRE. This could be alleviated by showcasing models that have worked in similar circumstances in other regions and introducing them to Enterprises

# Stakeholder Map and Potential Partners





## Technology

### Tanzania

- Energy products and models: There is an absence of a robust internal manufacturing sector making sourcing of products difficult and expensive. It also leaves the local enterprise with little choice on the type and quality of systems suited to local contexts.  
There is a dearth of opportunities for replication of innovations, particularly around new applications, efficient equipment, new models of delivery etc.
- Quality standards: With Tanzania being an import market there have been issues in dealing with product quality. IFC standards for pico systems are followed but in general enforcing these standards at the port of entry has been riddled with problems.  
There is a need for in-house nimble and low cost product quality & testing, selection techniques, validation of manufacturer claims etc. Enterprises are often left with little choice but to believe claims as there is no means to verify these claims except when used on the field. This could result in customer dissatisfaction and difficulties in planning logistics around after sales service.

### Nigeria

- Energy products and models: The demand for energy in Nigeria is high- with most households (across various parts of the country) using large diesel generator sets to meet electricity requirements. However, owing to limited technology and design expertise in this area as well as the lack of equipment for design of larger solar home energy systems and micro grids, very few systems of this size have been implemented. Typically, most solar companies are in the business of selling imported pico solar products- LED lights of 0.5W to 5W with mobile charging ports. There is a lack of systems and models to meet higher energy needs.
- Appliances: Given that Nigeria is an import-driven market for electrical appliances, a variety of equipment are easily available and the demand already exists in most areas for Televisions, Refrigerators, Borehole pumps, Hair-trimmers and other household and livelihood products. The opportunity exists to import more energy efficient products that will bring down costs with increased dissemination of decentralized power sources.
- Quality standards: The Standards Organization of Nigeria (SON) exists to create and implement standards for various products. UNDP and Energy Commission have established minimum standards for solar lighting products, with testing undertaken at all major ports of Nigeria. Recently, standards have been created for refrigerators but are yet to be enforced.
- IFC-Lighting Africa will focus on creating standards in Nigeria for systems of 10W- 100W as well (in addition to small product solutions)

### Tanzania

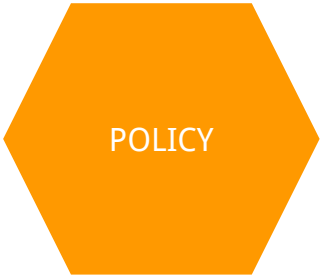
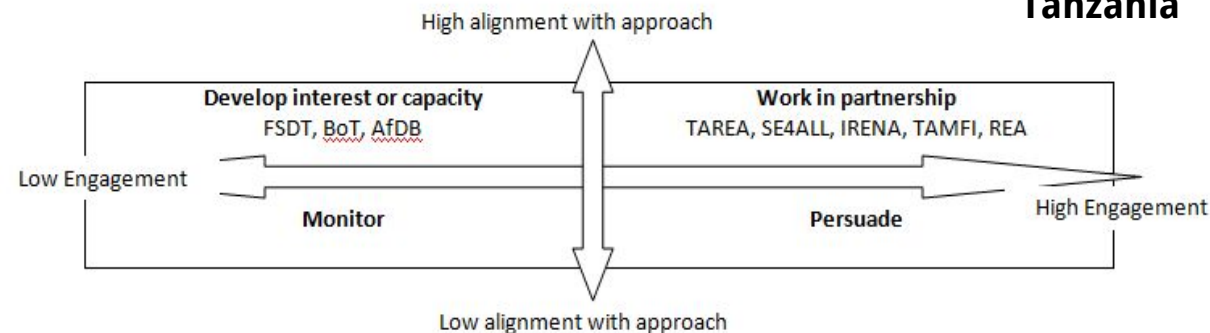
- **Energy policies:** While there is a National Energy Policy (2003), it does not articulate a longer term vision on integration and deployment of clean and renewable energy solutions. The energy sector is also under represented at the district and local levels as most energy policy players and administration are centralized. Despite opportunities for synergies, there have not been any concerted efforts to integrate energy into other developmental issues and ministries.
- **Taxation:** Despite a VAT exemption policy, its interpretation and implementation has not been very robust. This exemption is currently the only incentive for the manufacture or uptake of RE systems. There is a lack of policy incentives that facilitate holistic solutions like after sales service, end user credit and so on.
- **Standards and Regulation:** As mentioned in the section on 'Technology', product standards are available but enforcement of the same by the relevant agency has been lagging. A capacity building effort of the govt. enforcement agency was deemed useful but was adhoc. However there is an opportunity for to revisit and streamline the exercise.

### Nigeria

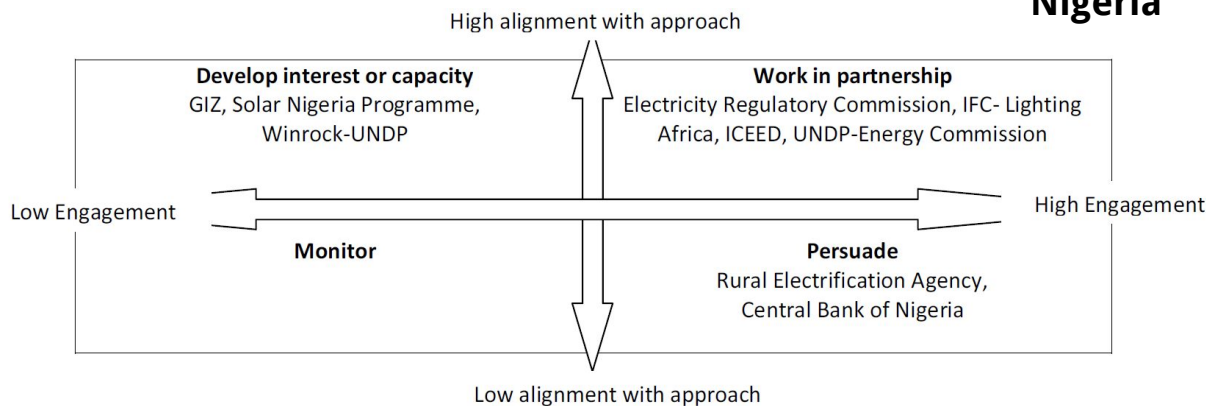
- **Independent programmes for solar energy:** Currently, each individual Ministry/Government department relevant to electrification and power appears to have its own programme for renewable energy or energy efficiency promotion. This includes Ministry of Science and Tech through Energy Commission, Ministry of Environment, Ministry of Power → RE Rural Power Access, Nigerian Electricity Regulatory Commission among others. It appears to be missing an integrated approach to renewable energy solution provision.
- **Subsidies and Taxation:** Large amount of subsidies continue to exist for companies importing processed fossil fuels-including kerosene (which has been an area also affected by corruption). There continue to be import duties on solar products as well as VAT.
- **Rural Electrification using Renewable Energy:** While there is a general consensus amongst most decision makers on the need for renewable energy for meeting the electricity needs of rural areas, there is currently no comprehensive policy that supports rural electrification using decentralized renewable energy. Such a policy/Mission would also be able to address aspects of tax and regulation that hinders deployment of solar energy.
- **Mandates for Banks:** There is some regulation of Commercial and Micro Finance banks in the country, with each of them requiring to publicly publish interest rates on a weekly basis. However, there are no mandates for banks in terms of the types of customers or the types of loans that should be prioritized.

# Stakeholder Map and Potential Partners

## Tanzania



## Nigeria



# Tanzania: Other observations from the Field

## General

- Tanzania is largely viewed as the **next “energy access hub” after Kenya**. Despite feedback that the “socialist” mindset may not be conducive for business there is still an optimism and momentum for an enterprise approach to energy access. In general, Tanzania’s business environment is perceived to be difficult for new businesses. As a result, businesses must pass investment and operational costs onto their customers.
- **International community efforts are getting consolidated** around Tanzania as per ongoing research/interventions by SE4ALL, IIED, WWF, GIIN.

## Economy and Finance

- **Banking culture is new** so there is a low risk appetite which in turn explains the general sense that commercial banks nor other local FIs are very open to trying anything new and need to be persuaded. Additionally different types of financial infrastructure is there but needs to be incentivized and strengthened to be more inclusive.
- The energy access market is dominated by a very **retail centric, pico solar mindset** in part due to the ease of procurement, sale and transport. This is not unique to Tanzania but is dominant across Africa, India and elsewhere.
- **Import driven market** with less local manufacturing incentives. Lighting Africa is largely viewed as having made an impact in bringing in high quality products and distinguishing products based on quality however, there are still loopholes that allow inferior products to seep in. Such as conflicting import rules in neighboring Zanzibar which opens up the possibility of infiltration of inferior products through backdoor channels.
- **Financial Inclusion Framework** being floated by the Bank of Tanzania that can be a stepping stone to get important language in the policy.
- **Credit bureau started in Tanzania** two years ago which might prove useful when soliciting investments.
- **Currency fluctuations and forex** make dealings more expensive for the local enterprise and risky for the investor

## Last Mile Delivery Environment:

- **Local players need to encouraged** and provided a robust support system. Those enterprises with dual offices i.e, offices in Europe or U.S.A or India have an advantage in terms of enterprise financing, R&D over those who are limited to in country facilities.
- **Local players confessed to be more patient with the system** having been born into the culture and system. The wheels turn slowly but they do seem to find ways to tackle the system deficiencies.
- **Best practices can be drawn from the region especially Kenya, Uganda and Ethiopia** for product quality testing, VAT exemption, end user financing and enterprise financing. Both have had success in these areas and can be replicated to suit the Tanzanian context.
- **Project driven approach rather than a systems driven** approach especially in light of end user financing. Thus momentum fizzles out once “funding” for a project is completed rather than trying to create a locally anchored solution.

# Nigeria: Other observations from the Field

## Socio-political aspects:

- The Northern and Southern regions of the country come with distinct features in terms of the governance structures and demographics. In the North, in addition to the regular administrative structures, the traditional system of governance (community based, popular prior to the creation of modern Nigeria) continues to command respect from people and has considerable influence. (Regions are headed by Emirs and Hakimis- which is a position based on ancestry); The South has benefited financially from a larger service, financial sector, access to ports and oil.

## Economy and Finance:

- Largely Import driven market with most products- consumables as well as durables such as TVs, Cars, Electrical appliances- being imported from various parts of the world- primarily China, India and the West. While this means that products (to be powered) are easily available in the market, there is a limited assurance on the quality of products.
- Limited manufacturing sector; agriculture mainly includes growth of maize, yam, potato, fruits and animal husbandry.
- The country is rich in oil with Gasoline prices being approximately 50 cents (\$) per liter. However, from field inputs, it can be gathered that rural households with multiple appliances pay upto \$40 per month on diesel generators
- The Central Bank of Nigeria is the apex body for banking and financial institutions. Apart from the Bank of Agriculture and the Bank of Industry, most banks are private in nature. Private banks are now mandated to publicly share their interest rates on a weekly basis (summary of loan terms provided in earlier sections). a summary of the categories of financial institution is also provided here.
- In parts of the North, some financial institutions speak about needing to address the concept of 'no interest' → For eg: by repackaging the way instalments are looked at and communicated.
- There also exist informal savings and credit mechanisms in certain rural parts of the country called 'Ajo'.

Retail banking		
Commercial banks- Ecobank, Zenith	Micro Finance banks- Fortis MF Bank, LAPO MF	Cooperative societies

## Energy:

- Power generation is currently at around 4000MW. Less than 50% of rural electrification has been undertaken. This provides a good opportunity to leapfrog to decentralized, clean energy solutions.
- Various energy and environment related ministries have been undertaking programmes to introduce Decentralized renewable energy systems in rural areas. These entities include Ministry of Science and Technology (through Energy Commission), Ministry of Environment, Ministry of Power, Rural Electrification Agency, Nigerian Electricity Regulatory Commission, among others.
- In terms of Livelihoods, agriculture includes growth of maize, yam, potato, fruits and animal husbandry. Within the Micro and small enterprise space, there are a large number of Retail shops, Motorbike repair shops, and Hair salons that could benefit from Decentralized energy solutions.



## *Tanzania and Nigeria*

# POTENTIAL INTERVENTIONS





Training

Advocacy  
Capacity Building

Direct engagement



**Specialized Training:** Enhance business management skills within energy enterprises particularly on aspects related to running a social enterprise, best practices for rural distribution or inventory management, marketing techniques.

**Capacity Building:** Facilitate cross-regional learnings among stakeholders to stimulate strong enabling conditions for diffusion of decentralized energy services.

**Policy Advocacy:** rethinking language and priorities that were not previously part of energy policy discourse (ex. Shaping language of off grid component in energy policy), procedural changes (ex. adding pro poor lending guidelines in circulars of banks; introducing curriculum into state vocational institutes) and influencing policy legislation (ex. Exemption of VAT).

**Direct Engagement:** Demonstrating feasibility of recommendations by helping local players implement solutions (ex. provide loan guarantees for small entrepreneurs in local banks, extend capital to local financial institutions like SACCOS from local commercial banks). Undertake replication of specific energy innovations across education, health, livelihood needs (from other developing contexts) through support on design, vendor selection, financing and implementation processes. Explore possibilities of incubating 1-2 enterprises on rural energy service delivery using DRE solutions (through local partners), for household, community and livelihood needs

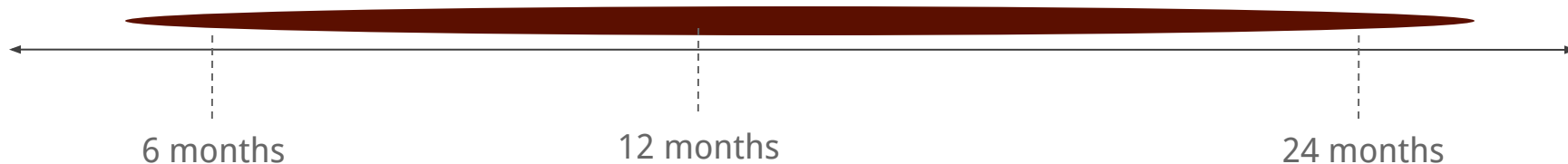
Technical and  
System design  
Training

Capacity building with Financiers;  
Replication of Innovations;  
Incubation support to new models

Policy Advocacy,  
Interventions for End user financing



**NIGERIA**



**Technical Training and System design:** Undertake training of technicians and system design engineers on design, installation, maintenance and repair of small products, Home energy systems and micro grids. Introduce Training of Trainers programme following a few pilots directly with technicians and engineers.

**Capacity building with Financiers:** Facilitate cross-regional learnings on development of energy portfolios and risk mitigation strategies of small retail financing institutions- Micro Finance institutions, Rural banks and so on.

**Replication of Innovations:** Undertake replication of specific energy innovations across education, health, livelihood needs (from other developing contexts) through support on design, vendor selection, financing and implementation processes. Explore possibilities of incubating 1-2 enterprises on rural energy service delivery using DRE solutions (through local partners), for household, community and livelihood needs

**Policy Advocacy and Interventions on End user financing:** Facilitate new channels or mechanisms of affordable credit and Project based Innovative financing including Interest subsidies and Collateral for decentralized renewable energy loans to end users. Following the experience of the above two, also share inputs on Policy guidelines/recommendations on Integrated planning, Decentralized Renewable energy in Rural electrification plans, Exemption of Value Added Tax on RE products and spare parts.

# Conclusion

Clean energy and particularly decentralized energy solutions have been at the fore of country priorities as apparent in the recent COP 21 meeting in Paris in December 2015. Every country is seeking ways to balance economic growth with sustainable energy pathways which is a significant step in acknowledging that these two areas are not mutually exclusive. With well over half the world's population living without access to basic services there is an urgent acknowledgement to close the gap however, the poor are often forgotten or misunderstood when it comes to implementing long term energy solutions. Some of the inequality in the world today is a direct result of climate change and communities not being able to adapt to the consequences. Energy access is a key area that has developmental and environmental implications. However, for sustainable energy access interventions, an enabling environment or ecosystem is critical, as suggested in this report.

With Africa touted to be the next big emerging economy there is a very real opportunity for the continent to leapfrog into new low carbon pathways that can drive its growth. However, steps need to be taken to build a strong ecosystem. This scenario report attempts to articulate the current state of the energy ecosystem for Tanzania and Nigeria keeping in mind both demand and supply. It suggests interventions- near term as well as longer term- that can build the ecosystem and facilitate clean energy provision for rural and urban poor communities. Critical linkages have to be made from the demand side- communities, local livelihoods and households; the supply side - last mile enterprises, technology developers; as well as from the enabling environment perspective- financiers, policy agencies, skill development institutions. The report also suggests stakeholders in each of these regions, who could facilitate this ecosystem development.

Given the opportunities from both a developmental and environmental perspective, these African countries are well placed to leapfrog in a holistic manner that considers technology, financing, capacity as well as policy interventions. By capitalizing on replicable models from other parts of the developing world and contextualizing them, Tanzania and Nigeria can attempt to improve energy access for households, livelihoods and community needs. More importantly, the contextualized solutions from these regions would contribute to the innovations in energy access provision required in other challenging geographies within India and elsewhere.