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**Microfinance and Decentralised Polycentric
Governance Approaches for Addressing
Africa's Twin Development Challenges of
Reducing Climate Change Vulnerability and
Improving Renewable Energy Deployment**

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Energy Use and the Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs)

- SDG 1 and 13- Reduce the vulnerability of communities to climate related extreme events, and other economic, social and environmental shocks and disasters.
- SDG 7- Universal access to modern energy preferably through the use of Renewable Energy Technologies (RETs).

However:

Intended Nationally Determined Contributions (INDCs) containing global ambitions to mitigate and adapt to climate change are falling short of the goal to limit temperature increase to 2°C.

Energy Sector Constraints

World Electrification Rate: 80.5%.

Sub-Saharan Africa (SSA)
Electrification Rate: 30-35% .

Reasons

- Limited capital investment.
- Lack of technological knowledge on renewable energy development.
- A lack of bankable projects .
- A lack of effective financing mechanisms for incentivising investments.



Figure 1: Solar Home Systems
Source: CEDPM, 2017

Climate Change Governance Systems

The Intergovernmental Panel on Climate Change (IPPC) considers that improved climate change governance can best be addressed by replacing hierarchical governance systems with integrated, multilevel, and flexible governance approaches.

Elinor Ostrom, who won the 2009 Nobel Prize in Economic Sciences, suggested that climate change was a complex multi-level problem that would adequately be addressed by complex multi-level systems such as polycentric governance systems.

South-South Climate Finance (SSCF)

- Historically, financial and technical assistance for climate change mitigation, adaptation, capacity building and Research and Development to Africa has usually been provided by western countries or the Global North.
- Recently emerging economies have provided significant amounts of aid and investments to numerous African countries (e.g. investment commitments in Africa by these emerging financiers jumped from less than US\$1 billion per year before 2004 to US\$20 billion by 2012 (Ubi, 2014).
- SSCF takes four major forms: i) developing countries' contributions to established multilateral funds; ii) bilateral initiatives; iii) new Southern-led international organisations like the BRICS bank and the Asian Infrastructure Investment Bank; and iv) private sector investments.

Therefore, explore how to leverage SSCF with other financing modalities for renewable energy deployment.

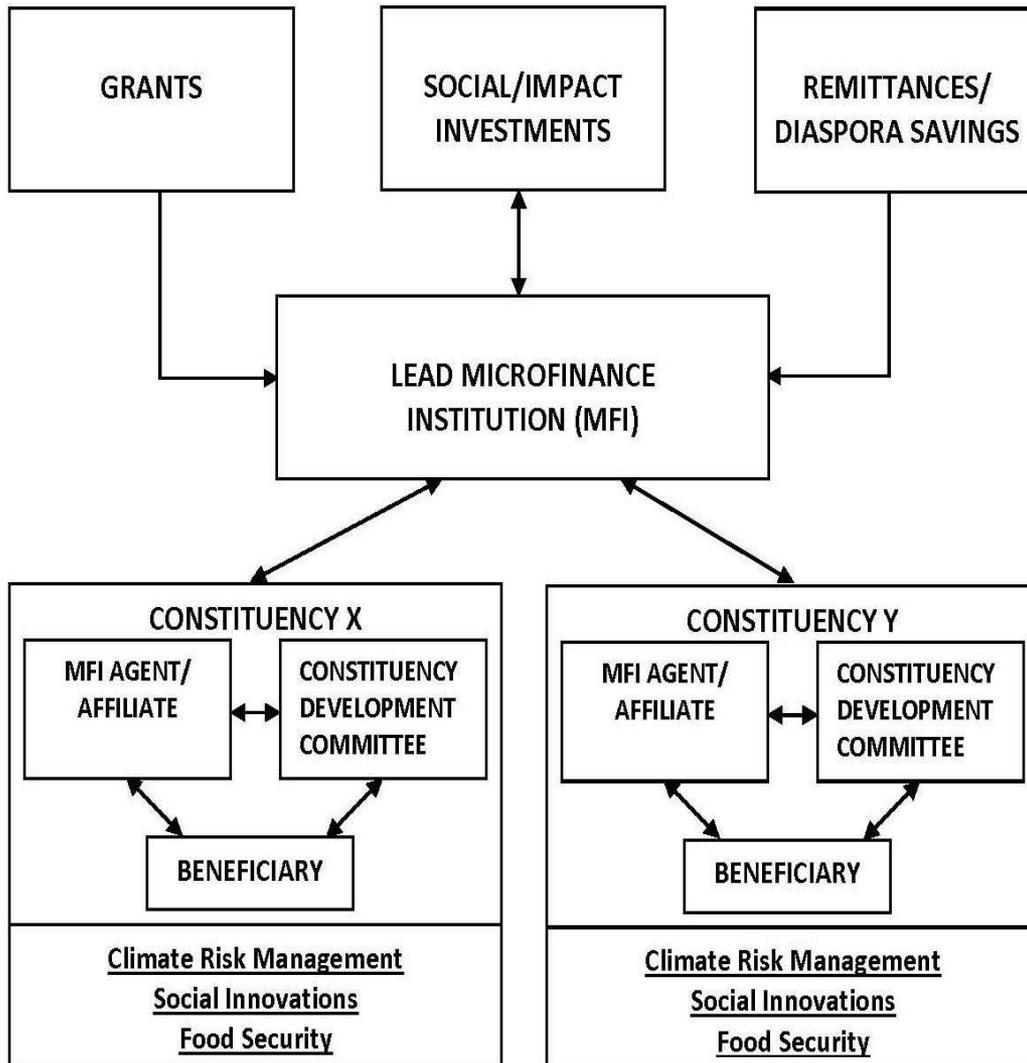
Microfinance for Social Development

- Improving access to financial services for households and entrepreneurs in the informal sector can unleash the potential of the informal sector to enhance the use and deployment of RETs.
- The SDGs are calling for policymakers to develop policies that promote entrepreneurship and encourage the formalisation of micro, small and medium sized enterprises (MSMEs), including through access to financial services.
- Various microfinance programmes have also been used to increase RET deployment and climate change mitigation through the provision of various RET products and credit facilities.
- Microfinance can enhance climate change adaptation and reduce climate change vulnerability through the provision of savings and insurance products for marginalised people and communities.

Polycentric Governance for Microfinance

- Polycentric governance is characterised by an organisational structure where multiple independent actors mutually order their relationships with one another under a general system of rules.
- Polycentric systems can function independently or form an interdependent system of relations in-order to address collective action problems, free-rider problems and social dilemmas such as climate change mitigation and adaptation (Ostrom, 2008; 2009; 2010).
- Polycentric governance systems in the microfinance sector can increase outreach at minimal cost by having agents or affiliates (i.e. third party organisations be it other microfinance institutions or any institution not necessarily in the microfinance sector).

Polycentric Governance for Microfinance



A microfinance institution can utilise agents and affiliates in various constituencies of a country in-order to increase its outreach and enhance financial inclusion.

Utilise mobile money technologies and facilitate branchless banking for loan disbursement and loan repayment through mobile phone based platforms and solar pay as you go systems.

Figure 2: Microfinance Beneficiary Led Development Framework (M-BLDF)

Source: Author

Waste-To-Energy Technologies for Urban Energy



Figure 3: The urban waste problem
Source: Clean Leap, 2017

- Africa's urban population grew from 56 million in 1960 to 409 million in 2010.
- Projected to increase to 672 million in 2025 and 1,364 million in 2050.
- Africa's theoretical potential of electricity produced from waste and its contribution to electricity consumption would reach 62.5 TWh in 2012 and 122.2 TWh in 2025, in comparison with a total electricity consumption of 661.5 TWh at continental level in 2010.
- Africa's theoretical electricity production from biogas from all generated waste to reach 27.5 TWh in 2012 and 51.5 TWh in 2025 (Scarlat et al., 2015).

Waste-To-Energy Technologies for Urban Energy

Abidjan Municipal Solid Waste-To-Energy Project

- 200,000 tons of municipal solid waste per year.
- Biogas derived from the waste to be used as fuel to produce annually 25 GWh of renewable electricity.
- First seven years of its operation, the project was designed to avoid 502,318 tCO₂e of greenhouse gas emissions (SITRADE, 2009).

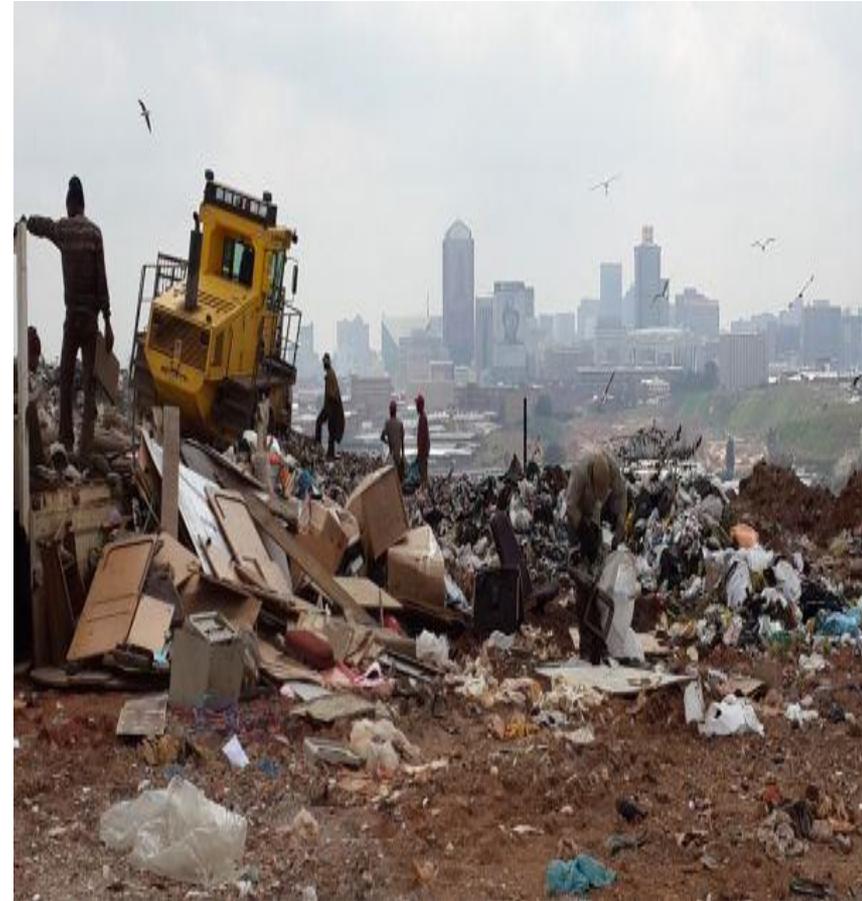


Figure 4: Robinson Deep landfill site in Johannesburg

Source: Brand South Africa, 2017

Waste for Jobs and Energy

- The informal economy employs 66% of the population in SSA and 45% of the population in the Middle East and North Africa.
- Developing countries will need to create 1 billion more jobs by 2030 to match their growing young populations.
- Street vendors made up between 2% and 24% of all urban informal employment and approximately three quarters of the 2012 Informal Economy Monitoring Study (IEMS) on urban informal workers sample relied on waste picking as their main source of income (IIED, 2016).



Figure 5: Integrating waste pickers in urban waste management plans

Source: The Global Alliance of Waste Pickers, 2017

Decentralised Energy from Retail Developments

Two Rivers Development (Kenya)

- Urban developments can generate renewable energy for their consumption and also for neighbouring households.
- The Two Rivers Development comprises of a mixed-use commercial development that includes a mega shopping mall, a hotel, office blocks and apartments.
- Two Rivers Development has integral 12 MW solar and diesel power sub-station.



Figure 6: An artist impression of the Two Rivers Development, Nairobi
Source: Business Daily Africa, 2017

More Renewable Energy Innovation and Investments

Microfinance

- Increase the penetration rate of microfinance services and utilise mobile money technologies and (mobile phone based) renewable energy pay as you go solar home systems.

Waste to Energy

- Replication and wide-scale deployment of Waste-To-Energy projects can be enhanced through Climate Finance Mechanisms and supporting policies like Feed-in Tariffs.

Urban Developments and Retail Parks

- Project developers should liaise with local governments to utilise Climate Finance Mechanisms.

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THANK YOU

