DUAL KEY PIPELINE: INVESTING WITH IMPACT

Home Grown Solution- **Local Transformative Finance**

MAGUTA 2.4 MW HYDRO INVESTMENT

Most of the rural areas of Tanzania are endowed with varieties of natural resources and good climatic conditions which offers good platform for local economic growth on different frontiers. Kilolo district in the southern highlands of Tanzania is one of these areas with year-long streams of water, forestry and stable rainfall for decades. These features offer reliable and predictable conditions for production of food and commercial crops like maize, beans, fruits and vegetables, dairy milk, tea and timber.

Lack of Electricity for Productive and Consumptive Use

Despite of these favorable conditions there are inverse relationship with low social and economic development in the areas. Most of their agriculture produces are sold in raw forms at very low prices or wasted because of limited value additions and shelve-life. Over their lifetimes, lack of electricity has been at the centre of these challenges. Among the resultant effects are lack of industrialization activities, poor access to health facilities unsafe drinking water, poor education and maternity health and income poverty and unemployment.

Faith Based Entity as a Transformative Agent - "Bread, Water, Health, Education and Job"

Iringa Catholic Diocese leaders are quoted insisting; "encouraging people to be good God-Fearing and good citizens without addressing other complementary needs (Bread, Water, Health, Education and Job) is less effective and short lived. Lack of appropriate infrastructure and social amenities stemming from lack of productive power i.e. electricity is a reflection of similar challenges in several areas in the southern highlands of Tanzania.

Stemming from the above, in 1997 the Catholic Diocese of Iringa initiated the construction of Maguta small hydro Power Project (SHEPP) to address these challenges around Maguta Ward at Kilolo district in Iringa Region. Other than own equity the project received financial and technical assistance from Italian based NGO, M/s Solidarity and Cooperation without Frontier (SCWF), UNCDF and Rural Energy Agency (REA). This NGO through its network in Italy identified, engaged and commissioned a detailed topographical survey of the site and hydrological studies. Based on the outcomes, the SCWF developed detailed engineering design (civil) and equipment specifications. The combination of the two confirmed the Project's technical feasibility and commercial viability.

Project Status

The project is about to be completed and commissioned. The Project is designed as a reservoir system small hydropower project and therefore utilizes a storage reservoir (dam). The surface mounted (above ground) hydropower plant has been completed entailing the construction and completion of the dam, civil works, penstock and main inlet valves for two units. The civil works for installation of one turbine-generator, with an

installed capacity of 1.2 MW is done. The second turbine will be installed during the second phase.

Establishment of the Special Purpose Vehicle/Company

Through the support of UNCDF the Catholic Dioceses established the Special Purpose Vehicle/ Company in the name of Lun'gali Natural Resources Company (LNRC) Ltd to run and operate Maguta SHEPP. The company is registered under the Companies Act of the laws of Tanzania Cap 212 as a private company limited by shares. The commercial company is managed in compliance to professional principles' and guidelines. This includes entering into contractual obligations separate from Church related activities

Participation in National Energy Policy Initiatives

The Maguta SHEPP was initially conceived as an off grid to serve surrounding villages which could not absorb more than 20% of the installed capacity. However, following the enactment of the Rural Energy Act, 2005 and changes in the electricity Act, 2008 the Government of Tanzania encouraged the private sector's participation in generation and distribution of electricity hence curtail TANESCO monopoly and increase competition. On the same front. the Rural Energy Act, 2005 established Rural Energy Agency (REA) which has been instrumental in providing grants and subsidies to developers of the rural energy projects including Maguta SHEPP.

Project Contribution to the National Electricity Demand & Supply Gap

Grid connectivity in Tanzania is very low. Access to electricity in Tanzania especially rural areas remains a significant challenge. The national installed national capacity is 1,579.44MW, involving frequent power rationing especially during the drought season. The current generation and distribution capacity in Tanzania are unable to cope with existing demand. Peak demand is projected to increase rapidly from the current capacity to about 4,700 MW by 2025, and 7,400 MW by 2035. As a result of the limited supply, many energy users in isolated rural areas and towns turns to turn to privately owned diesel power generators as power supply back-up, a non-environmentally friendly and expensive source of electricity. This 2.4 MW Project will 100% sell to the national grid and therefore partly address the existing and widening gap between electricity demand and supply.

Project Link to Sustainable Development Goals (SDGs)

SDG 1 Poverty Eradication.

Direct and indirect employment will be created with improved access to reliable electricity. The project used local labor in the construction of the power plant whereby about 30 jobs created, also in the operation and maintenance of the plant a total of 24 permanent jobs will be created, and non-agricultural employment opportunities for members in the community and adjoining villages will also be increased.

SDG 7 Affordable clean energy

The hydro generation and connection to the grid will partly reduce the usage of heavy Fuel Oil (HFO) which produces harmful emissions thus impacting the global climate and human health. Businesses which previously depended on unclean energy will switch to new reliable clean energy and relatively cheap sources.

SDG 8 Economic growth

Direct & indirect employment created and in addition, this project will contribute to the improved standard of living for more than 3,000 households situated in 16 villages within the powerhouse vicinity. Increased energy supply in the village is expected to improve rural livelihoods and sustainable economic growth. High wage employment opportunities for the local communities which will lead to reduced inequalities (SDG10)

SDG 13 Sustainable Cities

Investment falls within the UNCDF local economic development mandate focused on public and private financing mechanisms. The project is designed to fill the gap of inadequate access to energy, environmental resilience, underemployment, industrialization, food security, and contribute to i) Increasing basic services and sustainable and inclusive

growth and ii) increase resilience to economic and environmental shock

SDG 5 Gender Equality

Access to electricity enables women to shift time spent on unpaid housework, such as collecting firewood and fetching water, toward income-earning activities and businesses. Lighting provides more security to enable women-owned businesses to extend their trading hours into the evening. Moreover, girls will be afforded more hours to study in the evening

SDG 9 Industry, Innovation and infrastructure

The project will enable the access to productive power resulting into industrialization, SMEs growth and other industry innovations. Transfer of knowledge and technology that will serve as a model for replication.

Other Investment Impact:

Import substitution:
Tanzania is a net importer of oil (petrol, diesel etc) which is number one in draining foreign currency. On a nationwide scale, the generation and transmission of approximately 2.4MW will result in sizable foreign exchange savings for the costs that would be spent in buying heavy oil for running diesel generators.

Increase in Economic Infrastructure:
The power availability will trigger the establishment and construction of supporting infrastructure which will create a multiplier effect in the local economy. For example, the construction of feeder roads to the project site will increase connectivity and result in potentially higher level of distribution, transportation and storage facilities.

Improved Business Environment i.e. Value Addition and New Businesses: Provision of relatively cheaper and reliable energy/electricity will be catalytic in improving operational efficiencies of local businesses therefore enabling business expansion. For example, there are currently 37 milling machines in the project area which would run more efficiently with access to reliable electricity.

Inclusive Women Economic Empowerment: The availability of reliable electricity for consumptive and productive use will enable women to establish small businesses like tailoring, poultry, restaurants, grains and cereal milling, mobile phone charging, recreational activities etc.

Improvement in Public Health: Hospitals, health centres and dispensaries will be afforded to procure various laboratory testing equipment and apparatus that are powered by electricity. Maternity wards and overall maternal health and wards will be operating day and night with proper attendance of emergency services including mid-night delivery for laboring women. Respiratory health of villagers will improve due to the reduced breath of toxic fuel wood smoke.

Knowledge and New Skills- Families and household members will be able to use radio, TV and other means of communication to learn new knowledge, skills and acquainted with different experiences, special global programmes etc. trainees, medical and veterinary colleges will be afforded an opportunity to use different equipment's i.e. laboratory.

Reduction of Carbon Emissions and deforestation: The electricity generation and usage will displace and replace the use of fossil energy which produce carbon emissions. Gradually the rural households, schools, hospitals, dispensaries and health centres, prisons, campsite etc will start replacing wood fuels, briquettes and charcoals with electricity. This change in lifestyle will reduce tree-cutting which eventually reduce deforestations.

Location: Kilolo district, Iringa, Tanzania

Project Cost: $ 5,548,730 of which USD 4,336,609 is own equity and the remaining USD 1,212,121 is debt. The recently approval of USD 421,000 grant from REA will further reduces proposed debt finance from TIB Bank

Development Impact: Local Economic Development and economic and social effects mitigation of climate change

Financial Leverage unlocked by UNCDF:

Because of UNCDF's intervention:

- a combination of technical assistance, USD 204,000 straight grant; USD 112,00 reimbursable grants and USD 400,000 concessional loan, it will be possible for Tanzania Investment Bank (TIB) and REA to provide additional USD 421,000 and USD 420,000 respectively to finance the remaining electro-mechanical equipment and power evacuation to the national grid.
- Rural Energy Agency (REA) Financing: Because of our strategic relationship with REA and collaboration in supporting investments in the renewable energy, REA has financed the construction of 14.5 km transmission line to evacuate power from Maguta powerhouse to the national grid. This transmission line could cost Maguta SHEP about USD 2.0 million to construct.

UNCDF Unique Approach

The intervention has demonstrated UNCDF business model and developmental finance approach which bundles and combines (i) Technical Assistance; (ii) seed capital (first loss) to unlock more development and impact-based finance; (iii) market and business development and (iv) governance and legal architecture.