

**PROJECT INFORMATION DOCUMENT (PID)
IDENTIFICATION/CONCEPT STAGE**

Report No.: PIDC90459

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| Project Name | Accelerating Solar Water Pumping via Innovative Financing |
| Region | AFRICA |
| Country | Tanzania |
| Lending Instrument | IPF |
| Project ID | P161757 |
| Borrower Name | United Republic of Tanzania |
| Implementing Agency | Ministry of Water and Irrigation, TIB Development Bank Limited |
| Environment Category | B - Partial Assessment |
| Date PID Prepared | 13-Oct-2016 |
| Estimated Date of Approval | 16-Jan-2017 |
| Initiation Note Review Decision | The review did authorize the preparation to continue |

I. Introduction and Context

Country Context

Tanzania is on a strong economic growth trajectory but poverty rates are still high. Tanzania has experienced strong and rapid economic growth, with annual GDP growth averaging around seven percent in the last decade. It is expected that this growth trajectory will be sustained in the years to come and Tanzania is aiming to reach middle income status by 2025. However, over the past decade, the private sector has only played a limited role in the growth for the general economy. Economic studies have shown that growth in the 2000s has been mainly driven by consumption and current government spending and that private investment and growth has been largely concentrated in the extractive, communication, and transport sectors.

Despite the strong economic growth, Tanzania remains one of the poorest countries in Africa with approximately 43% of Tanzanians earning less than USD 1.25 per day and nine out of ten Tanzanians earning less than USD 3 per day. More than 80 percent of the poor and extreme poor Tanzanians live in rural areas. The population of Tanzania is about 45 million (Census 2012) of which 34 million (75%) is estimated to live in rural areas. Tanzania has a high population growth rate, at around three percent annually.

The water situation in Tanzania mirrors the growing urban-rural divide and underscores the increasing concern about equitable development in the country. Access to safe drinking water remains a major challenge for many Tanzanians, particularly those in rural communities. According to the Ministry of Water, around 67% of the rural population has access to an improved water source and the sustainability of rural water schemes remains a significant challenge. A national water point mapping exercise in June 2015 showed that out of 86,946 water points, 54% were functional, 7% need repair and 39% were non-functional.

Sectoral and Institutional Context

After various iterations of policy and strategy adaptation, the Government of Tanzania (GoT) adopted the Water Sector Development Program (WSDP), covering a period of 20 years (2006 to 2025). The WSDP is one of the largest programs in the region implemented under a Sector Wide Approach (SWAp) arrangement encompassing the broader water sector, implemented in phases (WSDP-I from 2007 to 2014; and WSDP-II from 2015-2019). The WSDP comprises community level WSS provision, urban WSS, water resources planning and management, large multipurpose infrastructure development, and policy and strategic level interventions.

The WSDP-I implemented from 2006 to 2015 brought improvements in the legal and institutional arrangement and provided access to water supply and sanitation (WSS) in many rural villages and municipal towns. At the end of the program (September 2015), the Ministry of Water and Irrigation (MOWI) reported that a total of 7.9 million people in the rural areas were provided with access to safe water. The GoT remains strongly committed to increase access to rural services, a commitment that also resonates with the Presidential Big Results Now (BRN) initiative launched in 2013 and its ambitious plan to accelerate development in six priority areas including rural water supply.

Institutional framework for rural water supply: The sector institutions are organized in line with the government Decentralization by Devolution (DbyD) policy, which devolved responsibilities and provision of WSS services to the decentralized administration tiers. The Local Government Authorities (LGAs) design and procure new water schemes and hand them over to the autonomous Community Water and Supply Organization (COWSO) through a community driven development approach as stipulated in The National Water Policy (NAWAPO) which also recognized that communities bear a portion of the financial responsibilities associated with water supply. The NAWAPO was revised in 2002 with both district and rural community water groups granted more power to manage their own water schemes.

Achieving sustainable water service delivery has been a challenge in the rural water sector for decades. Sustainable service delivery of rural water supply can be defined as the sufficient, affordable and continued access to clean water supply. Drawing from positive global as well as local experiences with community-managed small rural water points, the Tanzanian WSDP I (2007-2014) applied a community driven development (CDD) approach in the rural water sector. During the implementation of the WSDP I, available evidence shows that many communities opted for deep-well pumping schemes powered by diesel generators. Available evidence indicates that these schemes require a greater level of management capacity and have high running (operational and maintenance) costs compared to the simpler pumping systems originally envisaged under the WSDP design, such as hand pumps.

Water points fall non-functional for various reasons not uncommon for other similar public assets in rural districts. The most common causes of failure have been attributed to lack of ownership, poor community management, lack of affordability of O&M costs, weak capacity in tariff collection, high consumer tariff amounts, and revenue management, poor district level support, low technical capacity, poor choice of technology, low levels of accountability and external environmental factors. The diesel generator could be regarded as the Achilles heel as it demands continuous maintenance (every 250 hours) and technical capacity, and has high running cost which puts pressure on the price charged for water, and on the community management's ability to collect and manage revenues.

To strengthen the sustainability of rural water service delivery, the Water and Sanitation Program builds the capacity of the MOWI to introduce alternate energy sources to increase the affordability of operational and maintenance costs of rural water schemes especially solar energy. After 18 months of technical support, MOWI shifted its focus from diesel generators in off-grid areas to solar power water pumping realizing its recently reduced capital costs, broader pumping range and low life cycle costs. Unfortunately this change in technology preference will only benefit new water schemes. Those omitted include hundreds if not thousands of diesel powered water pumps currently in operation in rural villages in Tanzania, with associated high running costs which directly impact the price of water, with further related concerns on equity and sustainability.

Although the COWSOs would reduce their operational costs significantly by investing in solar water pumps they are often not aware of their potential. More importantly, the COWSOs do not have the financial capital needed for such investment, nor are they creditworthy to raise the capital in the financial market. The financial constraints are the main barriers to a full roll-out of solar water pumps in rural Tanzania. If COWSOs had access to a financing mechanism then a roll-out would be possible.

Investments in water infrastructure in Tanzania are currently financed by the government, donors and NGOs. Although COWSOs are technically small village-based independent organizations providing services for revenue, they largely have been unable to attract private sector banking services for loans due to lack of complete independence from local government, lack of collateral, lack of financial capacity to access loans from local banks, and lack of interest in lending to COWSOs by local banks or lending associations, as well as a higher demand for capital than what is typically funded by micro-finance institutions.

Relationship to CAS/CPS/CPF

The proposed operation is in line with the World Bank 2012-2016 Country Assistance Strategy (CAS) for Tanzania and directly supports the CAS strategic objective - 'Build Infrastructure and Deliver Services'. Under this objective, the proposed activities are directly relevant to the CAS outcomes: "increased access to and quality of water and sanitation services". The proposed operation is also consistent with the World Bank Group's twin goals of ending extreme poverty and promoting shared prosperity, sustainably. Improving access to safe water is key for improved livelihoods and better health. The proposed Project addresses three interlinked objectives: shared prosperity through support to economic growth by leveraging private sector financing, ending extreme poverty by reducing the cost of water production, and sustainability by availing a more resilience operation of rural water supply.

II. Project Development Objective(s)

Proposed Development Objective(s)

The Project Development Objective is to support sustainable access to water in selected rural communities in Tanzania.

Key Results

- i. Solar-powered water schemes installed (Target: 146 solar pumps)
- ii. Private financing leveraged (Target: USD 2.2 million)
- iii. Direct Project Beneficiaries (Number: 730,000)
- iv. CO2 emission offset (Tons of CO2)

Direct beneficiaries: The proposed Project will bring direct benefits to about 730,000 residents of 146 rural villages. After successful completion of the proposed pilot Project, the activities are expected to be scaled to cover an additional 230 villages supporting 1,150,000 residents in the second phase, and thereafter roll out to 1,500 villages serving a total of 7,500,000 Tanzanians in third phase of the program. There is interest from other donor partners to continue financing these interventions in phase two and three.

After the loan is repaid, the COWSO will not need to run or maintain a diesel generator for water pumping and therefore have significantly lower operational and maintenance (O&M) costs and enjoy higher ongoing net cash flows. Another long-term benefit from the lower O&M costs is the ability of the COWSO to reinvest this additional cash in expansion of service to unserved communities resulting in additional revenue and net cash to the COWSO. It is estimated that the expansion of service potentially would increase the coverage by 20% on average per village equivalent to 146,000 in the first 146 villages, 230,000 in the second phase, and as much as a total of 1,500,000 beneficiaries over the planned three phase of the program. This additional projected coverage is beyond the scope of this Project and should not be noted as a monitoring indicator but regarded as a positive externality.

An additional key long-term benefit of this Project is the reduction of carbon emissions from switching from diesel power generation to PV. Such carbon emission offset can easily be monitored and verified for carbon financing benefits. However, the initial enquiry found that the Project is currently too small to qualify as an economically viable operation as the transaction costs on carbon financing are substantial. The task team will continuously reevaluate the potential for carbon financing as the Project expands.

An important long-term benefit of the Project will be financial inclusion, as each COWSO, through participating in the Project and repaying the investment loan, will generate a 3-5 year credit history, and would be the first important step for the COWSOs towards creditworthiness.

Monitoring indicators, including the ones highlighted above, will be finalized during Project preparation and included in the Commitment Paper. These will focus on maximizing the efficiency and impact of subsidies.

III. Preliminary Description

Concept Description

The overarching goal of the Project is to ensure sustainable access to rural water supply which has been a key challenge for the sector for decades. The diesel generator has been one of the main impediment to sustainability, both because of its high operational costs but also its frequent maintenance requirements not to mention its carbon emission offset. These O&M requirements leads to severe monetary constraints for the COWSOs and a recent study funded by the World Bank (2015) found that approximately 30% of the Community Owned Water Supply Organizations (COWSOs) are not economically sustainable; a majority of these COWSOs rely on diesel generators. This financial constraint significantly limits the COWSOs ability to investment in

maintenance and repair but also their ability to invest in coverage expansion to cover unserved populations surrounding sub-villages.

This Project intends to support sustainable access to water in selected rural communities of Tanzania by replacing the existing old inefficient diesel electric pumps with clean and climate friendly solar (PV) pumping systems and strengthen the sustainability of rural water supply. The proposed interventions are expected to result in reduced operations and maintenance costs for the COWSOs thus providing them with financial resources to extend water pumping facilities to presently unserved communities.

Through a blended finance approach, combining 50% debt finance and 50% output-based subsidies, the Project will reach poor communities in rural Tanzania. In addition, the proposed Project will pilot an innovative mobile-banking payment platform to collect user COWSO fees. Lastly, the Project is the first attempt to leverage private sector financing in Tanzania's water sector.

The donor subsidy is an essential part of the Project design. PV, blended financing and mobile payment are all novelties in the Tanzania rural water sub-sector and combined with the high Tanzanian interest rate (18%) there is a risk that both the COWSOs and the financial sector will not buy-in to this Project. To ensure the Project is attractive to all stakeholders the 50% subsidy is important as it will reduce the total capital costs repayable by the COWSOs and to make repayment terms, rates, and durations feasible for repayment under Tanzanian banking standards and regulations.

A comprehensive database containing 335 eligible villages has already been established of which 146 villages will be selected for the proposed pilot Project. An ongoing pilot in two villages in the Arusha region will inform the design of the proposed Project in term of the overall interest in the financing services for PVP investments. To facilitate and coordinate the project activities, a COWSO Renewable Energy Fund (CREF) will be established under a trust structure administered by the Tanzania Investment Bank (TIB) with board members consisting of MOWI, World Bank, and other Development Partners and Stakeholders.

Component 1: Subsidies for loans for the replacement of diesel pumps (US\$ 2.2 million). This component will facilitate a loan to 146 COWSOs to replace their diesel generators with solar-powered pumping systems, benefiting 730,000 beneficiaries. The US\$ 2.2 million GPOBA grant will facilitate a 50% subsidy to each COWSO's investment in solar system, which will significantly reduce the COWSOs' cost of water extraction.

Component 2: Technical Assistance and Independent Verification Agent (US\$ 300,000). This component will support technical assistance, establishment of mobile money payment mechanisms, program roll out expenditures, and training and sensitization of COWSOs to increase confidence in repayment of loans. This component will build the institutional capacity of the CREF as well as provide support for Project administration. The COWSO sensitization component would sensitize the COWSO about the CREF services and conditions and further train the COWSO to ensure they meet the basic requirements for the intervention. This component will finance IVA, either a firm or individual consultants, to independently verify outputs and recommend release of subsidy funds. The Bank will provide its no objection for the selection of IVAs and the disbursement of funds.

IV. Safeguard Policies that Might Apply

| Safeguard Policies Triggered by the Project | Yes | No | TBD |
|--|-----|----|-----|
| Environmental Assessment OP/BP 4.01 | x | | |
| Natural Habitats OP/BP 4.04 | | x | |
| Forests OP/BP 4.36 | | x | |
| Pest Management OP 4.09 | | x | |
| Physical Cultural Resources OP/BP 4.11 | | x | |
| Indigenous Peoples OP/BP 4.10 | | x | |
| Involuntary Resettlement OP/BP 4.12 | | x | |
| Safety of Dams OP/BP 4.37 | | x | |
| Projects on International Waterways OP/BP 7.50 | | x | |
| Projects in Disputed Areas OP/BP 7.60 | | x | |

V. Financing (in USD Million)

| | | | |
|--|-----|-----------------------|---------------|
| Total Project Cost: | 2.5 | Total Bank Financing: | 0 |
| Financing Gap: | 0 | | |
| Financing Source | | | Amount |
| Global Partnership on Output-based Aid | | | 2.5 |

VI. Contact point

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