"Feasibility Survey and Pilot Project for Disseminating SME's Technologies to Developing Countries" under the Governmental Commission on the Projects for ODA Overseas Economic Cooperation in FY2012

Summary Report

Feasibility Survey and Pilot Project For Rural Water Supply in Small Village Community In United Republic of Tanzania

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This report is a summary of a feasibility survey and pilot project disseminating SME's technologies to developing countries conducted by the contractor, under the Governmental Commission on the Project for ODA Overseas Economic Cooperation, commissioned by the Ministry of Foreign Affairs of Japan in Fiscal Year 2012. It does not necessarily represent the official views of the Ministry of Foreign Affairs of Japan.

Summary

Introduction

This report is about the feasibility survey and the pilot project for the dissemination of small- and medium-size enterprise (hereafter, SME) technologies to the drinking water supply sector of Tanzania, one of the world's developing countries, under the Governmental Commission on Projects. The river water treatment was successfully implemented to supply safe and clean drinking water which meets the drinking water standards of Tanzania. The water treatment system makes use of equipment and a water treatment agent, the water treatment equipment is assembled with materials easily found in the village market, while the water treatment agent can be obtained from the SME. For this reason, with the simplicity and effectiveness of the water treatments system, the same system would be used when the nation desires for more clean and safe water for the community. It is expected that the price of water would not heavily cause burden to every households of the community. From the findings of the presented survey, the pilot project results in the substantial reduction of work burden of children, the improvement of home economics through reduction of waterborne diseases, and the increase of opportunities for livestock breeding among the community.

I. Description of the current situation and the development needs of the concerned development issues in the surveyed country

The Government of Tanzania (hereinafter, GoT) has created long-term development schemes called "Tanzania Development Vision 2025", and “National Strategy for Reduction of Poverty and Growth”. One of the aims of the schemes is to have an easy access to clean and safe drinking water for the whole nation, 400 meters from residential areas by 2025, as a major step for poverty reduction and socio-economic development.

In 1992, only 46% of the nation's rural areas have access to clean and safe water, this is due to the majority of the population having no choice but to use water acquired from hand-drilled shallow wells, rivers, or ponds for drinking and cooking purposes. Currently, there is a growing problem due to an increase in waterborne diseases from the usage of water acquired from these outdated water sources.

The GoT is currently planning to construct water treatment facilities nearby Lake Victoria, one of Africa's largest lakes, in order to supply safe and clean water, although, there is an issue with the construction costs of these water treatment facilities, due to the large amount of funds required.

Bukoba Water and Sewage Authority (hereafter, BUWASA) is located in Bukoba city, one of the surveyed areas of Tanzania. Currently, BUWASA cannot keep up with the demand of supply for clean and safe water in the area, and due to this, other areas are unable to have a steady supply of clean and safe water.

II. Possible applicability of the SME's products and technologies, and prospects for future business development

The products and technologies of the SME makes use of the river water located nearby the surveyed villages, in order to produce and supply clean and safe drinking water for the surveyed villages. The products and technologies offered includes a patented water treatment agent, which is used to excellently separate suspended solids from the river water, thereafter, chlorine is used to sterilize the clear water produced. All the water treatment process, from the separation of suspended solids to the sterilization, can easily be carried out using simple equipment and manual operation. The water treatment agent can only be acquired from the SME, other than that, the rest of the key materials needed to set up the water treatment system can be acquired from in the local market. The O&M skills used for the water treatment system can easily be taught to the local people the community. With other water supply businesses in operation, and with the simplicity and effectiveness of the water treatment system, the same water treatment system could be developed and implemented to the neighbouring villages and countries.

III. Verification of the adaptability of the products and technologies of the SME within the surveyed country

Based from the water treatment equipment set up and demonstrated in a village near Kagera river, nearby a primary school and the village yard, it is found that the water treatment equipment has a water treatment capacity of $3m^3$ per day; all the required materials for the water treatment equipment were purchased from the village market. Based from the water quality tests conducted by BUWASA, the treated water meets the drinking water standards of Tanzania, and is proven safe for distribution to the community. All the other materials required, except for the water treatment agent supplied by the SME, are proven to be easily acquired and inexpensive; therefore, it is expected that the price of the treated water would not cause a heavy burden to the people of the community. In the water treatment process, the water treatment agent supplied by the SME has been proven to effectively separate suspended solids from the river water. With the broad versatility of the water treatment of the proposed water treatment system, the people of the community can easily assemble larger water treatment equipment capable of producing more safe and clean drinking water.

IV. Expected development impact and effect on business development of the proposing SME in the surveyed country through the proposed ODA projects

The proposed ODA projects are expected to have a chain of positive impacts and effects that are beneficial to Tanzania's long-term development scheme. In a where the community is able to effectively manage the water treatment equipment, and is able to produce a stable supply of safe and clean drinking water. The major results to the household due to improved water supply would be: children taking less time doing the errand of obtaining water for their home, reduced case of waterborne diseases, improved hygiene, and improved livestock breeding.

Due to the simplicity and effectiveness of the water treatment agent and the water treatment equipment, water supply businesses would adapt the same system, expand the reaches of their products and services, and create more employment opportunities for the people of the community.

V. Proposals for formulating the ODA projects

The water treatment agent proposed in this survey has been successfully used for the purpose of water treatment in areas containing a large amount of suspended solids, areas such as Somalia and Bangladesh under the ODA scheme. With the use of the water treatment agent, even highly turbid water can be treated to be supplied as a safe and clean drinking water. This survey has been conducted with the goal of supplying safe and clean drinking water to the whole community with the use of the water treatment equipment. Therefore, the proper management and the administration are required to promote technology transfer of hardware and software aspects relevant to the drinking water supply, within the initial stage of the technology transfer. Accordingly, the survey team discussed with the Governor of the Bukoba district and the president of BUWASA regarding the dissemination and the demonstration of the proposed drinking water supply system, through five alternatives of ODA schemes including (i) private sector proposal, (ii) Japan’s grassroots grant, (iii) JICA volunteer private cooperation, (iv) JICA grassroots technical cooperation, (v) JICA nonprofessional Grant-in Aid to SME by Ministry of Foreign Affairs.

Feasibility Survey and Pilot Project for Rural Water Supply in a Small Village Community
The United Republic of Tanzania

SMEs and Counterpart Organization

- Name of SME: Poly-Glu Social Business Co., Ltd. (Cooperating Companies.:O.P.C. Corporation, Ltd./Toyota Tsusho Co., Ltd.)
- Location of SME: 4-Chome, 2-9, Uchikyuhoji-machi, Chuo-ku, Osaka, JAPAN
- Survey Site & Counterpart Organization: Bukoba Urban areas, Bukoba Water and Sewage Authority, Village Water Board, and Ministry of Water.

Development Proposal for Tanzania

- By the year 2025, clean and safe water will accessible within 400 meters of every residential areas of the whole nation.
- Reduction of poverty and a lower rate of sickness caused by waterborne diseases.

Products and Technologies of SMEs

- Provide water treatment agent which would be used to separate suspended solids (hereafter, SS) from the river water.
- Provide water treatment equipment in order to supply safe and clean drinking water sterilized by chlorine after the removal of SS.

Proposed ODA Projects and Expected Impact

- There should be a substantial reduction of time spent in errands for children and more time for studing, improvement of hygiene, and improvement of livestock breeding.
- There should be an increase in employment of the people of the community.

Future Business Development of SMEs

- The whole process, from the separation of SS to the sterilization of water, can easily and effectively be carried out with the use of simple equipment sold in local markets; therefore, other water supply businesses are expected to adapt and extend the reaches of their products and services to neighboring villages and countries.

Attachment: Outline of the survey