Project Formulation Survey" under the Governmental Commission on the Projects for ODA Overseas Economic Cooperation in FY2013

Summary Report

Republic of Mozambique

Formulation Survey on Sustainable Water Supply with Nihon Genryo.

January, 2014

Joint Venture of Nihon Genryo Co., Ltd. / Japan

Techno Co.,Ltd /IC Net Limited

The content of this report is a summary of the project formulation survey, which was commissioned by the Ministry of Foreign Affairs Joint venture of of Japan in the FY 2013 and is carried out by the consortium (Nihon Genryo Co., Ltd. / Japan Techno Co.,Ltd /IC Net Limited.It does not represent the official view of the Ministry of Foreign Affairs.

Summary

This survey was conducted to formulate a development aid project, and in the longer term, to explore the possibility of establishing business with Nihon Genryo`s product in Mozambique. With the objective to improve on the access to safe water, information on local water service organizations and the current situation of rural water supply was collected; the feasibility to introduce“filter-exchange-free filtration system”was examined; and a proposal for an elaborate ODA project was drawn up during this survey.

I. Description of the current situation and development needs of the relevant country

Republic of Mozambique has rich mineral and energy resources as well as water resource for hydroelectric power. It also has potential for agricultural development, and for high economic growth. Recently, Japanese companies expanded into natural resource market and were also highly interested in agricultural development. This indicates that there is a room for developing bilateral relationship on economic matters. On the other hands, GDP per capita of Mozambique is as low as $ 650, and it remains one of the poorest countries in the world. In particular, in water and sanitation sector, the objective on safe water access in rural areas towards achievement of MDG is set to be 70% by 2015. However, the rate of access to safe water in rural areas remains at 29%, which is the lowest level compared to the neighboring countries. The expansion of water supply services funded by the donor is in progress in the main urban areas by introducing a private sector. Meanwhile, improvement of rural areas has not progressed. It is anticipated that the population will increase as economic development in targeted area proceeds. On the other hand, there is fear that the poorest group that cannot access safe water and sanitation facility could increase because the development of social services falls short. It is necessary to aim for better social services and water supply and sanitation in order to develop not only economy but also to alleviate poverty.

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

Nihon Genryo was founded in 1939 and has grown as a specialised manufacturer in filtermedia. Its filter media are used in eighty percent of water treatment plants. In 2002, it developed “Siphon washing” technology that allows old filter media to be washed to the same level as new sand just with water and physical action.Washed filter media are not broken and uniformity coefficient is maintained with this technology.

When entering Mozambique, the first main focus will be installation of small scale water supply and emergency water supply facilities in rural areas. In rural areas, “Siphon Tank” will be introduced in collaboration with DPOPH, the administrative unit of province in charge of water sector, as well as SDPI, District Government responsible for infrastructure including water sector. Further, “Non electric Siphon Tank” will be promoted in collaboration with NGO in areas without electricity. Promotion of these products will be based on Japanese ODA’s grant aid at the beginning, but by setting up multiple places, has eventual aims that sand filtration technology will become widespread in the area.

III. Verification of adaptability of the SME's products and technologies to the surveyed country(ies) (Demonstration and pilot survey)

For the purpose of assessing adaptability of the filtration facility to rural areas and demonstrating the performance of the facility to administrative personnel as well as beneficiaries, pilot and demonstration surveywas conducted at 4 sites in 3 districts. A workshop and demonstration on Siphon Series was also held at Lichinga city for administrative personnel, NGOs and FIPAG.

As a result of these activities, high performance of the Non electric Siphon Tank was proved to the participants. The result of questionnaires conducted at demonstrations indicates that many respondents are dissatisfied with the water quality of existing hand pumps and small water supplies. According to the questionnaires conducted at the workshops, the personnel involved in water sector do not have sufficient knowledge on filtrations. Therefore, when the product is introduced to the targeted area, thorough trainings on the basics of sand filtration, feeding chemical additives and jar testing will be necessary.

(1) Non-electric Siphon Tank

If the water is provided at the current price of small water supply in rural areas, the profitability of the service could not be expected and thus reducing the cost of chemicals etc., will become important. Moreover, from the viewpoint of durability and sustainability through the pilot survey, some improvement on the product and its

pricing will be required.

(2) Mobile Siphon Tank

If the mobile siphon tank is operated by diesel generator power, its operation cost will be higher than the current drinking water. On the other hand, if the commercial power line is available, it will be possible to provide water at the same price as the current one and the service will be more profitable. Therefore, when a business with mobile siphon tank is planned, it is desirable to choose areas with commercial electricity for small water supply, and when a disaster occurs, emergency water supply is provided with support by the local governments.

(3) Siphon Tank

The business would be feasible if water tariff is set similar to the current price. Because importing chemicals would be relatively expensive, it will be recommended to seek for good suppliers and develop a supply chain for chemicals.

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

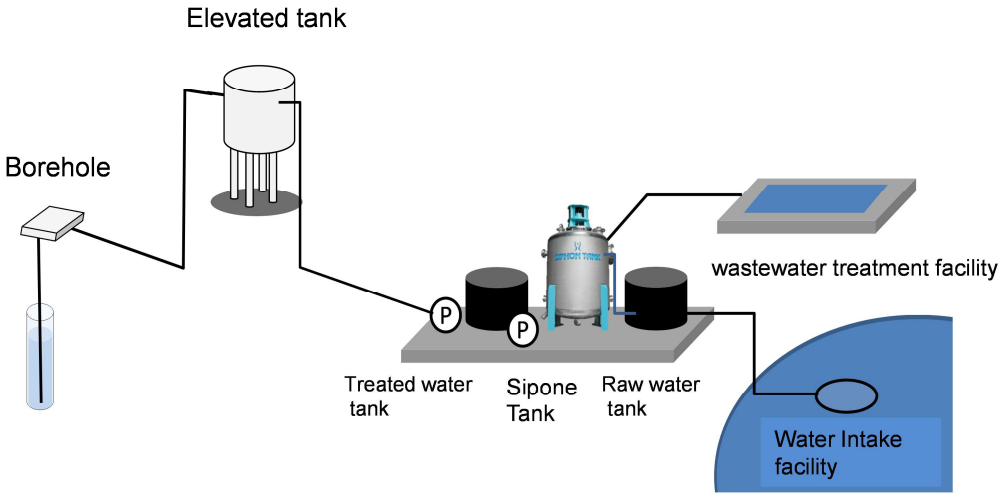
Water supply with small treatment facility using Siphon Series could be recommended as one of the solutions for the water problems in rural areas and could bring positive impacts. However, to have the service develop into real business, obtained information is insufficient regarding the number of financially feasible site and size of potential customer group and existing market among others. Therefore, in order to establish a business model, a further survey that looks into market size, potential customer groups, possible business partners, as well as the feasibility on productivity at the targeted locations will be necessary.

To this end, it is proposed that a pilot ODA project be implemented using the SME's products first, and after certain feasibility on sustainable operation and maintenance is assured, effectiveness of adopting the product and technology could be illustrated and then the business activities could be started.

V. Proposals for formulating ODA projects

When the SME's start business in the country, the remaining issue is initial investment. Furthermore, it is still difficult to judge whether the sustainable operation and management of the facility is achievable by the survey already carried out. For this

reason, it is desirable to carry out a trial operation management of Siphon Series for 2-3 years during which evaluation of product performance, verification of profitability, promotion of the product to other sites will be carried out. If these could be done under the ODA scheme, the SME's initial investment cost could be somewhat reduced, and smooth preparation will be made possible by advance networking with governmental agencies as well as partner organizations etc. in Mozambique. In conclusion, a small water supply project using SME's Siphon Series under the scheme of "Feasibility Survey and Pilot Project" is recommended.



Attachment: Outline of the survey

“Formulation Survey on Sustainable Water Supply with Nihon Genryo”

SMEs and Counterpart Organization

- Proposing Corporations : Nihon Genryo Co., Ltd.
- Location of the corporations : Kanagawa Pref., Japan.
- Survey Site, C/P Organization: Nacala Corridor (Niassa, Zambezia and Nampula province), ,Direcção Provincial das Obras Públicas e Habitação do Niassa

Concerned Development Issues

- Aiming at 70% of accessing to safe water in rural areas in Mozambique by 2015; however, the current rate is 25% in the state of Niassa which is lower rate, compared to neighboring countries.
- Infrastructure improvement is one of serious issues to be solved, because it has been devastated by the civil war in Mozambique.

Products and Technologies of SMEs

- The filter media replacement is not necessary by "Siphon washing" technology. This technology can also contribute to realize sustainable drinking water.
- Enabling to provide drinking water in Non-electrification areas through "Non-Electric Source Siphon Tank“.
- "Truck mounted Siphon tank" with a water tanker can provide drinking water for small villages in rural community areas and also supply water in emergency circumstances is possible.

Proposed ODA Projects and Expected Impact

- Improving rate of accessibility to safe water through disseminating “Siphon Tank”, “Mobile Siphon Tank” and “Non-Electric Source Siphon Tank”.
- Reducing working hours to get drinking water for ladies and children by providing safe and hygienic water.

Future Business Development of SMEs

- Expanding a business in Mozambique to select a dealer which can deal in our products, Siphon series.
- Expanding a sales network for private companies and other countries as a model case of the business in Mozambique.