

"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

Ethiopia/Kenya

**Feasibility Survey and Pilot Project for
Disseminating Manual Water
Purification Device and FRP Water
Storage Tank**

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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.

I . Description of the current situation and development needs of the concerned development issues in the surveyed country(ies)''

The rate of water supply in Ethiopia and Kenya are one of the lowest among countries in the world, and the rate of access to safe drinking water in both countries are also lower than the average of Sub-Saharan African countries of 61%. As the result, both countries have the following development challenges:

- 1) Low access to safe drinking water (Ethiopia: 45%, Kenya: 57%)
- 2) Diseases and death cases of children and babies caused by the utilization of bacterially contaminated water
- 3) Oppressive workload of women and children for fetching drinking water from remote are

In order to improve the situation, there are urgent needs to develop and secure more water resources, and also to improve the quality of accessible water. However, especially in rural areas, because of the lack of financial resources to set up and operate water supply system and also lack of electricity and fuels to operate those facilities, people in the areas, especially low income people still have to depend on the contaminated water from rivers, lakes, ponds etc. for drinking water.

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

By applying the technologies of manual water purification device and FRP water storage tank, we believe that the issues mentioned above are partly solved, especially in rural areas that cannot depend on the large-scale water supply system. Moreover, by applying such pretreatment technology as natural purification system, and also technologies for removing detrimental substance like fluorine, depending on the current water quantity/quality, access environment, utilization needs, etc., the problems can be solved more efficiently and effectively.

Regarding the prospects for future business development, there are mainly two target groups for introducing the proposed products:

- 1) Public schools, medical institutions, public organizations, rural communities
- 2) Hotels, commercial facilities, restaurant, private companies, water companies

For the first target group, disseminating proposed products mainly through governmental procurement like ODA seems to be most appropriate, whereas for the second

target group, selling the products through business partners seems to be the right option. In either case, promotion strategy for improving the awareness and evaluation of people toward the introduced safe water are indispensable, so we are planning to conduct test marketing of the proposed products, through juice stand business, café restaurant business and laundry business in the next phase of the project.

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

Through the field survey and experiment of the proposed products in both countries, mainly by processing sample water taken from various resources, it is confirmed that in any case turbidity and water quality were significantly improved, and the product operated well. People living in the tested areas and those who attended the experiment and demonstration, including governmental officials and executives from private companies, are surprised and welcomed by the fact that the contaminated water from various sources can be processed to safe drinking water so easily.

However, there are some technical issues that should be improved. First issue is the clogging of membrane of the water purifier, because of the more turbidity than expected, leading to the deterioration of processing ability in some cases. In order to deal with the issue, not only the durability of the product should be improved but also some other pre and after treatments should be combined for the product to operate more smoothly.

Regarding the manual pump, people who attended the experiment and demonstration understood that it is useful when there is no electricity or in time of disaster, and it can make the cost for purifying water much lower. On the other hand, we realized that it is useful to integrate solar electricity generation system for operating the product continuously, and are now considering the best way and products to do so.

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

By introducing the proposed products through ODA, we can contribute to the realization of more and continuous provision of safe drinking water, decrease of diseases and

death cases caused by intake of contaminated water, and the alleviation of work load of women and children for fetching water.

On the other hand, in order to have more lasting and comprehensive development impact and effect, introducing not only proposed products but also small scale water circulation system (from water intake, processing/control, to discharging water) through ODA is crucial.

Regarding the business development aspect, as the proposed product and technologies is kind of new thing that doesn't exist in both countries, so we believe that by doing business, implementing the promotion strategy mentioned above appropriately, various new markets could be created. Moreover, we believe we can contribute to the development such industries as agriculture, food processing and tourism that necessitate the usage of safe drinking water, improvement of such facilities as educational/medical institutions, and the increase of employment involved in those sectors.

V. Proposals for formulating ODA projects

[Ethiopia]

We think that it is to soon to start doing regular business in Ethiopia, and that it is appropriate to focus on utilizing ODA to solve the issues.

Specifically, we would like to propose a technical cooperation project titled "Project for securing/providing safe water around Beseka lake", that is to conduct the removal of turbidity, germs and bacteria, detrimental substance through the introduction of proposed products and technical transfer. For the realization of the project, we are planning to conduct follow up study and consultation in Ethiopia in the follow up feasibility study and pilot project from the middle of this year.

[Kenya]

At the first stage, we will focus on the formulation of water circulation system for securing/providing safe water continuously, implementation of various pilot business utilizing processed safe water mentioned above, and training involved personnel, in the follow up feasibility study and pilot project funded by JICA from the middle of this year.

In the mid term, based on the results of the project, we would like to propose a program approach that combines the improvement of water quality of Lake Victoria, conducting ODA in incremental steps.

We have selected the area around Lake Victoria, especially Kisumu County as the main project site.

Regarding the specific ODA schemes, we will firstly focus on project ①, and in the implementation process we will consider the necessity and relevance of project

② ~ ④, and formulate them if necessary:

- ① Propose based technical cooperation
- ② Non project type grant aid
- ③ Private Public Partnership (Development investment loan, utilization of development fund, etc.)
- ④ Grant aid

Feasibility Survey and Pilot Project Ethiopia/Kenya, Feasibility Study and Pilot Project for Manual Water Purifier and Water Storage Tank

SMEs and Counterpart Organization

- Name of SME: JV of Sinyo Giken Kogyo Inc. , Development Ex.com, INC. and Grant Thornton Taiyo ASG LLC
- Location of SME: Minami-ku, Niigata-ken, Japan
- Survey Site ▪ Counterpart Organization : Kisumu County, Lake Victoria South Water Service Board (LVSWB)

Concerned Development Issues

- Low access to safe drinking water
- Disease and death caused by drinking contaminated water
- Oppressive workload for women and children for fetching water from remote area

Products and Technologies of SMEs

- Light weight, high durability, easy to set up and maintain
- No electricity/fuel necessary to operate. Usable in time of disaster
- Ultrafiltration module is able to remove bacteria
- Water Storage tank made of FRP which is light and hard to rust

Proposed ODA Projects and Expected Impact

- **【ODA scheme】** Pilot Survey for Disseminating Small and Medium Enterprises Technologies, Grassroots Technical Cooperation, Technical cooperation, SMEs Non-Project Grant Aid, Grant Aid
- Formulation of water cycle system and dissemination of the value of safe water, based on the proposed products
- Higher access to safe water, decrease of diseases and deaths, alleviation of heavy work load for women and children, contribution to the creation of various businesses utilizing safe water.

Future Business Development of SMEs

- Business for dissemination/sales of proposed products, business of utilizing safe water produced by the proposed products
- Introduction to (1) Schools/medical institutions, public facilities and (2) Hotel, Commercial facilities, private companies

