

Sanitation and income improvement by local community as sustainable participatory development

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Abstract. Most people in low-income areas such as rural village in Africa and urban slum in Southeast Asia live with limited economic resources and poor sanitation conditions. In order to deal with the situation, many of the people have formed community-based organizations and joined the organization activities for the common purpose of improving these conditions as participatory development. This study attempts to examine and evaluate the impact of the activities in their respective local communities. From the case study in two villages of rural Senegal, self-help effort is considered essential to solve the people's income and hygiene problems through their community participation for sustainable development. For the implementation, the organizational solidarity, adequate water supply and water management are crucially needed. It is suggested to encourage community-based organizations effectively working for income improvement to also consider practicing for sanitation improvement.

1. Introduction

In general, many of low-income households in developing countries and emerging countries are settled in unstable economic conditions. Many of them are also not able to break away from the vicious circle of poverty: that is, low incomes force to keep low savings, low savings tend toward low investments, low investments result into low labor productivity, and low labor productivity results back to low incomes [1]. In addition, they are also typically living in poor sanitary environment. As the main reason, public hygiene control and management such as consistent water supply, sewage treatment and waste disposal are not adequately provided in their living areas.

However, many of the people in the spiral are making their self-help efforts for a better living environment in their local community on a daily basis. For example, most people in low-income areas such as rural village in Africa and urban slum in Southeast Asia form community-based organizations and participate in organization activities for their common purposes. The various purposes include income improvement, promoting economic activities, health maintenance, enhancement of child care and education, and even solving their personal problems [2,3,4]. These efforts can also be regarded as so-called participatory development or community initiative, which means a development implemented through participation of local residents. The participants incorporate the characteristics of their life environment, culture, customs, knowledge and wisdom into their development practice [5,6,7,8]. Learning



from the experiences and problems they face will provide us with a thought-provoking suggestion about the possibility to enable the acquisition of better life for people living in low-income areas in developing and emerging countries.

Based on the above background, the author has been conducting field research in rural area of Senegal and Burkina Faso, West Africa, and in urban slum of Indonesia, Southeast Asia. This paper focuses on the results of the field survey conducted in Senegal, and provides a case study of community-based organizations in the rural area. This case study seeks to provide a better understanding with respect to the effects and challenges encountered through the organizations' activities by the local residents. It is also considered to be a suitable way of participatory development for the low-income people in achieving their autonomous income improvement and sanitation management practice in their respective local communities.

2. Methodology

This study is based on field research in rural area of Senegal. The field surveys were conducted in two villages, named Fissel Deux and Tewrou Mbéyéne, located in Ouadiour county, in Fatick region. The surveys were carried out intermittently: July 2003-July 2005, February-March 2007, November 2009, and March 2016 respectively. The methods are interview and participant observation targeting adults aged 20 years or older who are the residents and members of community-based organizations in their villages. The contents of the surveys are about their standard of living, economic activities, infrastructure, sanitary condition, and group activities of the community-based organizations, including the awareness and evaluation of the residents about these matters. This paper deals with sanitation with particular focus on water supply and management.

3. Result and Discussion

3.1 Livestock breeding with microcredit in the village of Fissel Deux

The village of Fissel Deux is located about 4 km away from the national route, in rural area of Ouadiour county, in Fatick region. It belongs to the rural community of Patar Lia and this community was considered as the lowest standard of living and economic level among the total four communities in the county from the result of field research [9]. The population was 475 (232 men and 243 women) as of 2006. There is a community-based organization called Groupement d'Intérêt Économique (GIE) that works as an economic activity group. The GIE is composed of 36 members, 4 men and 32 women. In this village, livestock breeding project to improve income generation was carried out by the GIE with the support of Japan International Cooperation Agency (JICA) in July 2004 – July 2005. The Livestock breeding as a means of generating income was chosen by the GIE members and other villagers themselves after their group discussions and need investigation with a JICA volunteer. In the process of their practice for the project, firstly the residents decided the rules about the purchase, breeding and sale of livestock, specifically five cows on an autonomous basis. The 80% of the activity funds were contributed by a donation from Japanese general public, and the rest of 20% was funded by the GIE residents themselves which was loaned from JICA.

In this project, first, the GIE purchased five cows for a sum total of 500,000 CFA (about 1,000 USD), and in addition, spent 280,000 CFA (about 560 USD) for the tools and breeding. Thus a total of 780,000 CFA (about 1,560 USD) was spent at the start. After that, they bred the five cows for three months and sold them at a total price of 925,000 CFA (about 1,850 USD). They got a net profit of 120,000 CFA (240 USD) after deducting such extra expenses as transportation cost. The 20% part of the budget contributed by the GIE was made available through a microcredit scheme. In detail, the GIE received a loan of 160,000 CFA (about 320 USD) from JICA at the beginning, then every month they paid 500 CFA (about 1 USD) per each of total 36 members for 9 months. The repayment amount eventually was given as: 500

CFA \times 36 members \times 9 months = 162,000 CFA (about 324 USD), which amount was paid back to JICA. In addition, an interest of 10%, equivalent to 16,000 CFA (about 32 USD) on the amount was paid to JICA from the benefit of 120,000 CFA after selling the cows. This money that JICA received was used for the volunteer's work in support of the GIE activity in the village.

One and a half years later after the project completion, the first follow-up field work was conducted in February 2007. For the GIE in the village, the activity of livestock breeding project was not continued. However, it was confirmed that non-project-members in the village had imitated the project, and begun livestock breeding by themselves. Furthermore, about four years later after the project completion, the second follow-up field work was conducted in November 2009. The GIE had resumed livestock breeding project, and they had continued the project on a voluntary basis without original funders and any support by outsiders such as JICA.

From the above case, certain efforts of the project can be discussed. The first is the creation of cash income and learning the new economic means for the participating residents. The second is encouraging activities of the community-based organization and the pro-activeness. The third is strengthening the continuity of practical participation by local people themselves. And the fourth is that the impact of a development project contribution to the participants can be spread to other residents of the village. It is also suggested that the project impact can be sustained despite changing the content of the activity among the residents in their community. This case study examined some positive factors of the project from the point of view of income, community motivation, and sanitation of water supply. One of the factors is that livestock breeding is an economic activity not much influenced by weather conditions, and local residents of the community can earn income from the activity in a relatively short period of time. Another factor is that livestock breeding does not face serious problems of water supply as it is used only for watering animals. Therefore, it was not difficult for the residents to understand and participate in the project, start working, continue their efforts, and maintain their high motivation to the implementation.

However, as previously described, it must not be forgotten that this village belongs to the rural community that has been regarded as the lowest standard of living in the county. Therefore, it can be proposed that the villagers need not only to make efforts for improvement of cash income but also to consider sanitation such as hygiene and agricultural water management. In terms of circumstances of toilet and bathroom, for example, most households have one small place just surrounded by crop fences for common use for both urinating and bathing. There is no pit for excretion in the place, and in general the villagers go in the fields for excretion. Agricultural water use almost relies on only rainwater, and little is done other than rainy season cultivation. If the residents have a motivation to make the situation better or change, this challenge may also be addressed by the residents by taking advantage of the organizational solidarity and practical skills enhanced through the experience of the livestock breeding project.

3.2 Dry-season gardening in the village of Tewrou Mbéyéne

The village of Tewrou Mbéyéne is located 15 km away from the village of Fissel Deux in the county. It belongs to the rural community of Ouadiour which is a county seat and considered as the second standard of living and economic level in the county from the same research. The population was 207 (125 men and 82 women) as of 2007. Same as the village of Fissel Deux, there is a GIE organization and it is composed of 40 members, 17 men and 23 women.

In this village, dry-season gardening project to improve the villagers' nutrition and cash income was carried out for the community mainly targeting the GIE with the support of a Non-Governmental Organization (NGO) called Agence National de Conseiller Agricole et Rurale (ANCAR) in December 2003 – May 2005. The NGO local staff gave a seminar to the resident participants on the basic knowledge and technical guidance of vegetable cultivation at the beginning of the project. After the seminar, the staff demonstrated how to plant a garden practically making a pilot field with the participants. The practice was

proceeded by expanding the area of the field gradually, and increasing the type of crops grown such as tomato, eggplant, okra, and so on. The management and operation of the field were left up to the participants. The local staff visited the village regularly after the seminar to continue the observation and guidance of the field progress made by the participants themselves. Tools, seeds and fertilizer were provided by the NGO, while the other expenses and labor force were provided by residents of the village.

To summarize the results of the project implementation, some effects and challenges are discussed. First, many of the crops withered even before reaching maturity stage. It was caused by insufficient water supply to the vegetable garden due to undeveloped deep well in the village. Second, the residents who positively participated in the activity and worked hard for the project were limited to few people such as the family of the village headman who is the president of the GIE. During the project, only a few participants' efforts were noticeable, and group activities as a community-based organization could not be seen as very functional. The necessity of organizational solidarity, and of the role of human resources who have leadership skills and who are key persons in the community, were considered to be of great importance. Third, the vegetable crops were harvested by the participants, and utilized as both food crops and cash crops for the residents of the village. It can be one-sidedly regarded that the efforts for the project implementation effect to some extent led to improvement of the residents' cash income and nutrition through their participatory development.

Fourth and finally, as described above, there is a serious problem with the deep well which is a crucial source of agricultural water in the village. In order to pump water from the well with the depth of 45m, the residents usually use a donkey connecting a long rope to the well, and they have the donkey walk until the bucket with water gets to the top of the well from the bottom. This traditional mechanism has been maintained in the village for a long time. However, it has been confirmed that the residents have had opportunities to plan and discuss the repair or replacement of a motor pump with engine power generator even before the project commenced. The motor pump used to be utilized, but from the time it broke down, it has never been repaired. Attempts to repair or replace have not been realized due to prohibitive purchase, repair and maintenance costs for the villagers.

It can be considered that the water supply and acquisition in the village increase the burden of time and labor force on the residents. By implication, this life situation suffers from a lack of water management for residents and can constitute a limiting factor for improvement of their income and sanitation. This situation can also hinder their motivation to the positive activity through their community-based organizations. On the other hand, the latest field research has reviewed that the president of the GIE has installed and started utilizing another motor pump with solar power engine. This latest finding can indicate the possibility of solving the water supply and management problem of the village in the near future.

4. Conclusion

For low-income people in developing and emerging countries, the suitable way to make their lives better will not always be by means of a great development assistance such as revolutionary program and modernization. It will be more important for the people to achieve sanitation and income improvement by means of a sustainable practice by themselves at the level of their life standard and economic resources. It can be examined that the point of view which can lead us to the direction of making progress on the goal is not the idea of breaking away from the vicious circle of poverty, but instead, the idea should be the quality of life even in their low-income life cycle. In order to improve the people's economy, sanitation, and water supply through their community participation, self-help effort is essential for sustainable development.

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