

The reconstruction of water supply in a post-conflict country

-In case of Dili, Timor-Leste-

47116789 Linya YAMAMOTO

Supervisor: Professor Mikiyasu NAKAYAMA

Department of International Studies

Keywords: Post-conflict, Reconstruction, Water supply, Aid

1. Background

Despite water is indispensable for all people, still millions of people lack access to safe drinking water. The UN advocated MDGs and encouraged international organizations to provide access to safe water. Consequently, a number of people got access to safe water in last 10 years. However, in most of developing countries, people cannot get drinkable water from the taps.

Timor-Leste has one of the countries which experienced conflict. After the conflict, aid agencies put a lot of money to her. Despite the support, the situation was not improved significantly even in Dili, the capital of Timor-Leste. Consumers cannot get drinkable water from the taps and the service is not stable. What is the reason?

People in developed countries take it for granted to use good quality and enough amount of water from the taps. However, do people in developing countries think the same way? If the idea is true, is there a gap between the recipients and aid agencies in the way of reconstruction? This study was inspired by this idea.

2. Objective

The objective of this study is to figure out the optimal way of reconstruction of water supply system in Dili in emergency and reconstruction phase¹. In this study, it is assumed that aid policy of aid agencies especially JICA and ADB was not appropriate for Dili, in that focused on improving the quantity had the utmost importance. This

study contributes to improve water supply water in Dili and post-conflict countries.

3. Structure

First, compare water supply service between developed countries and other developing countries which charge consumers USD0.2/m³. This charge is approximately equal to the one planned for Dili. Then, find out acceptable level of water supply service for USD0.2/m³. Second, apply the acceptable level on other countries to Dili. The goal of water supply in Dili is re-considered. Finally, suggest how aid agencies which aid for reconstruction facilitated aid projects.

4. Literature review

4.1. Reconstructing infrastructures in post-conflict societies

Development of infrastructures in post-conflict countries contributes both to poverty reduction² and to peace building³. However, lack of capacity is one of the commonly observed features in post-conflict countries. This is because skillful elite workers, who should play important role, often immigrate to other countries⁴ for evacuation or to look for jobs. Aid agencies should take the situation into account in developing aid projects.

4.2. Optimal level of infrastructure

Because of very limited capacity in developing countries, it is not effective to build same level of infrastructure as developed countries. The concept of "Appropriate Technology" emerged as a solution. One of the

¹ In this study, it is defined as 13 years from the end of conflict (1999) to withdrawal of UN (2012).

² Calderon & Serven (2004).

³ Yoshida & Yamamoto (2007).

⁴ Hauton (2002).

definitions of this term is the technology which (1) must be sustainable and (2) must be locally adapted and acceptable. As one interpretation, it is said that destruction probability of infrastructures should be higher than developed countries⁵. It is not necessarily good to build same infrastructure as developed countries.

5. Overview of Dili water supply

Water supply system is diffused in the whole Dili city. However, the ratio of formal connection to tap water is estimated less than 30%. This is much lower than the optimal⁶. High tariff for new connection prevents from improvement of the ratio and accelerate illegal connections. Moreover, the facilities are not managed sufficiently. Therefore, the ratio of Non Revenue Water (NRW) is considered about 80%⁷. The high ratio of NRW is in part due to outages. In Dili, consumers can use tap water only for three hours per day on average.

Consumers are not satisfied with the presently offered service. Consumers complained to DNSAS and told that they would not pay tariff until the water supply becomes stable. Table 1 shows the complaints from the consumers. According to this, the number of complaints about water quantity is seven times more than that of quality.

Table 1 Consumers' complaints (Jan-Jul, 2012)

Outage	Low pressure	Contamination
126	16	21

(Source: DNSAS, 2012)

6. Findings

In general, the more tariff consumers are charged, the better quality of water they can get from the taps. In developed countries, consumers pay more than USD0.5/m³ and get drinkable water. On the other hand, most of the countries which charge about USD0.2/m³ do not supply drinkable water supply. However, these countries supply “undrinkable without boiling” water more than optimal amount and satisfy consumers. These

countries are a little more developed than Timor-Leste and the offered service are ones to be attained in future in Dili.

From the technical point of view, it was difficult to improve both quantity and quality at the same time. Present conditions of facilities such as pipes are not enough for 24 hours supply. Unless 24 hours supply is achieved, drinkable water supply is impossible. In case of Dili, where NRW is 80%, much money and time was needed to significantly reduce this figure. Thus, there was a tradeoff between quantity and quality in the short run.

In post-conflict countries, rapid reconstruction is needed. However, the way of reconstruction by aid agencies tends to aim at development in the long run. The prevailing aid policy resulted in the current situation in Dili. A different paradigm should be explored to develop an alternative and realistic scheme.

7. Conclusion

Aid agencies should facilitate aid project with short term perspective. As for water supply system, they should offer an option which focus on improving quantity with compromising quality to aim at satisfying consumers and collecting tariff.

Reference

Calderon, C. and Servén, L. (2004). The effects of infrastructure development on growth and income distribution. *Central Bank of Chile Working Papers*.

Haughton, J. (2002). The reconstruction of war-torn economies and peace-building operation. *Development Assistance Strategies in the 21st Century: Global and Regional Issues*.

Kobayashi, Y. (2012). Personal communication, August 8, 2012.

Tsunokawa, K. & Nisino, F. (1999). A consideration of infrastructure development in developing countries. *Journal of international development and cooperation, Vol. 15, No.1*, 9-18.

Yoshida, Y. & Yamamoto, Y. (2007). Funsou shuuketsu koku no heiwa kouchiku ni shisuru infura seibi ni kansuru kenkyu [Study on implementing infrastructure which contribute to peace building in post-conflict countries]. *Kyakuin kenkyu-in houkokusho [Visiting researcher report], JICA Research Institute*.

⁵ Tsunokawa & Nisino (1999).

⁶ 100L/person/day (Howard & Bartram, 2003)

⁷ Kobayashi (2012).