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**WATER, SANITATION AND HYGIENE:
SUSTAINABLE DEVELOPMENT AND MULTISECTORAL APPROACHES**

**An evaluation of a household credit program for water
and sanitation in urban Dhaka**

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This paper examines the impacts of a household credit program for water and sanitation services in three slums in urban Dhaka, Bangladesh. The projects were funded by WaterPartners International (WPI) in the United States and implemented by Dustha Shasthya Kendra (DSK), a non-governmental organization based in Bangladesh. WPI and DSK have partnered to implement WaterCredit programs in Bangladesh for five years – making this project one of the longest-running credit programs of its kind. The study was conducted by independent researchers at the Bangladesh University of Engineering Technology (BUET) in 2008. Results indicate high use and satisfaction with improved water and sanitation supplies, strong loan repayment rates, and active participation among beneficiaries. The study recommended stronger local government involvement, small business development, and post-construction support to enhance program benefits and long-term sustainability.

Introduction

The concept of financing water and sanitation improvements through credit initiatives has begun to attract more attention as a viable method of expanding access to water and sanitation services during this decade. Historically, water and sanitation services have often been viewed as the responsibility of government or quasi-public entities – due in part to the “basic needs” nature of these services and the conditions of natural monopoly (e.g. high front-end costs) that especially characterize urban service provision. In developing countries, many of these service providers have invested in water and sanitation infrastructure. Yet in many places these investments have not kept paced with burgeoning demand. Moreover, public funds in urban areas are often geared more toward subsidizing low rates for existing users rather than expanding access for other households to connect to the system. As a result, poor households are often unable to receive the benefits of improved water and sanitation – relying instead on water vendors (who sometimes charge high prices for varying quality) and ramshackle community latrines if they are available.

Several factors have led to greater interest in alternative methods of financing watsan services. The water and sanitation sectors in development countries are incapable of meeting coverage targets with current existing and planned financial resources (for example, the United Nations’ Millennium Development Goals strive to halve the proportion of people without access to water and sanitation by 2015). Cost estimates from a range of studies place the value of additional investment needed at between \$10 billion and \$30 billion (Toubkiss 2006). In addition, prior studies suggest that some poor households are already paying a significant portion of their incomes on vended water (Asian Development Bank 1997) and through other means (e.g. health care costs). This indicates strong willingness to pay for new services among some segments of populations. Moreover, sector-wide policies that promote greater share of cost recovery are encouraging service providers to look for opportunities to leverage donor investments (Fonseca et al 2007). Finally, successes in micro-finance sector lending to poor households for income-generating purposes has led some entrepreneurs to test the market for non-income generating loans (such as watsan lending).

Several pilot projects have emerged during this decade, which have explored micro-loans for provision of water and sanitation investments (Fonseca et al 2007). For example, CREPA, a water and sanitation-based NGO, has utilized micro-finance mechanisms to extend water and sanitation connections to the urban poor in West Africa (Kouassi-Komlan and Foneseca, 2004). WaterPartners International (WPI), an NGO based in

the United States, has also pioneered the use of credit programs through its WaterCredit initiative. WPI has piloted several credit models since 2003 in Bangladesh, India, and Kenya.

While these are exciting endeavours, there have been few studies which have examined the impacts of these programs (Koussai-Komlan 2007, Arney et. al 2008). Recognizing the need to improve sector knowledge and its own activities, WaterPartners commissioned an independent impact evaluation of its WaterCredit initiative in Dhaka in 2008.

WaterPartners' WaterCredit program in Dhaka

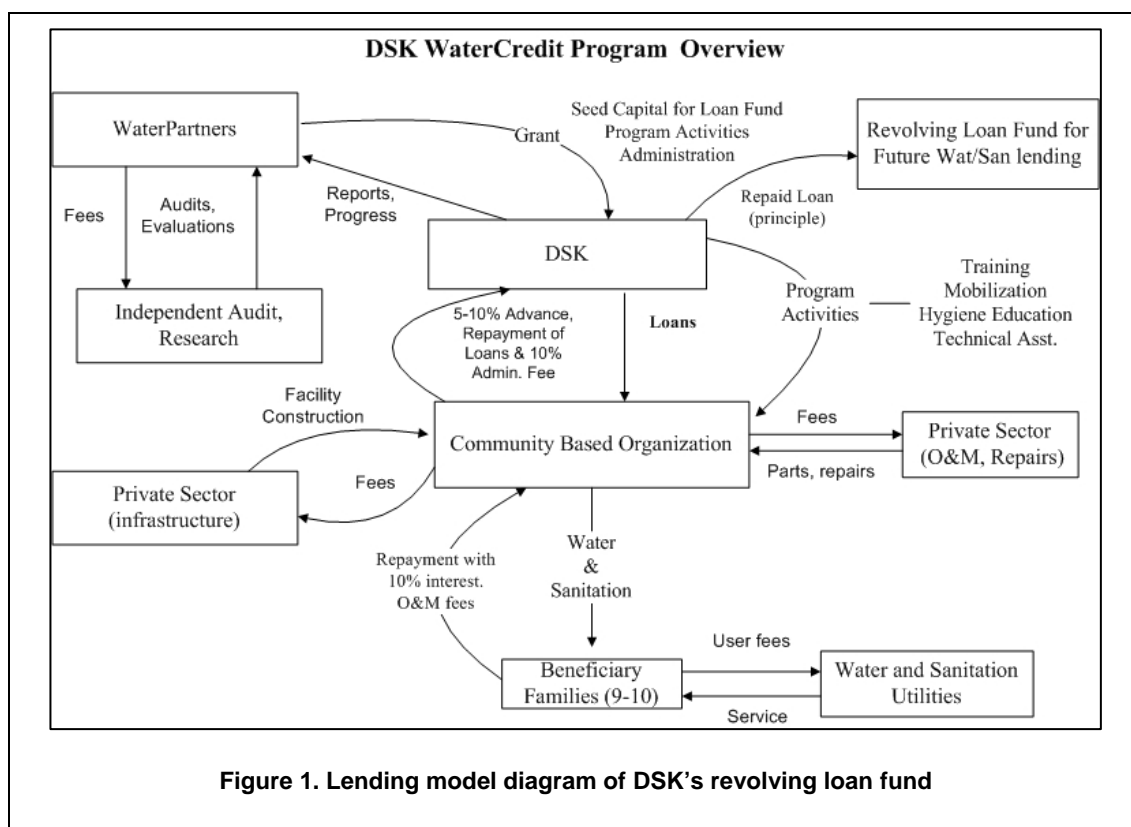
WaterPartners was founded in 1990 to help improve water, sanitation, and health outcomes in developing countries. The organization now works in South Asia, East and West Africa, and Central America. WPI's model involves partnerships with local organizations in developing countries, which are responsible for planning, executing, and sustaining effective and sustainable water and sanitation programs.

Since 2003, WaterPartners has developed and innovated the use of credit financing programs through its WaterCredit initiative. The organization began its first project with a local social service NGO, Dustha Shasthya Kendra (DSK) in 2003. DSK primarily works in dense urban slums of Dhaka, Chittagong, and other major Bangladeshi cities. Dhaka is a city of over ten million people. There are many slum areas throughout the city, some of which are recognized by the government and others which have no formal recognition. DSK helps improve the livelihood of people in these communities through a variety of programs, including the expansion of water and sanitation access.

The two WaterCredit programs between WPI and DSK occurred from August 2003 until January 2007. WaterPartners contributed a total of \$ 153,000 during this period for the programs. DSK provided safe water, sanitation, and hygiene education in three slum areas (Pallabi, Demra, and Kamrangir Char). DSK conducted baseline surveys, mobilized community members, conducted neighbourhood-wide education sessions, established and trained community based organizations (CBOs), provided loans to these groups, installed handpumps, tubewells, and latrines, and serves as a resource to these communities as issues arise. At least 5,000 families have benefited from the program during this period. The CBOs take out a loan for a water or sanitation product, in which several families share the product. Table 1 shows that since 2003, DSK has disbursed nearly \$69,000 directly in loans to CBOs, and have received an average of 93% repayment rate.

Program Areas	Loan start date	Administration fee (%)	Loan amount disbursed (USD)	Amount due to date (USD)	Actual realized to date (USD)	Re-payment rate (%)	Water loans	Sanitation loans
Pallabi	2003	10	32,561	26,994	24,333	90	71	148
Demra & Kamrangir Char	2004	10	36,364	36,030	34,362	95	129	82
Total		---	68,925	63,024	58,695	93 (Avg)	200	230

DSK established a revolving loan fund to provide loan capital for households for improvements. In Pallabi, DSK applied these some funds toward the construction of water points and standposts which were connected to the Dhaka Water Supply and Sewerage Authority (DWSSA) system. In other areas of Pallabi and the two other slums which DWSSA did not serve, DSK installed tubewells and handpumps. CBOs consist of between 9-12 members, mostly women. Households were charged a flat 10% "administrative fee" (DSK does not refer to this as interest, given their social service mission and Muslim heritage) which they were required to pay in addition to principal. Each loan is repaid within a two year period. Figure 1 provides an overview of the WaterCredit program.



Study overview

WaterPartners hired a four-member research team headed by Dr. M.M. Rahman of the Bureau of Research and Testing Consultation of the Bangladesh University of Engineering Technology (BUET) to conduct an independent evaluation of both the DSK projects and another partner's (Village Education Resource Centre) activities funded by WPI. The BRTC team all hold doctorate degrees and specialize in water supply, sanitation, hygiene, and economics. WPI selected this team because of their vast evaluation experience and understanding of the water and sanitation context in Dhaka and Bangladesh at large.

The evaluation was carried out from January until August 2008. The BRTC team reviewed project documents and interviewed DSK staff. They conducted initial site visits to gain an understanding of basic conditions on the ground. BRTC developed a household survey and a focus group survey and pilot tested these instruments. Ten enumerators were also hired and trained for survey work. Per agreement with WaterPartners, BRTC staff selected all fifteen communities where DSK had implemented the programs. They conducted twenty-five surveys of randomly-selected households (N=375) and a focus group survey in each community. Brief technical assessments of the facilities were also conducted in each community. Finally, the BRTC team entered and analyzed data, and prepared final reports of their findings.

WaterPartners and BRTC agreed to evaluate the following aspects of DSK's programs:

1. Water Supply
 - System operation and assessment
 - Household use of facilities (pre and post-intervention)
 - Time spend collecting water
 - Household satisfaction
 - Improvements mentioned by households
2. Hygiene/Sanitation
 - Defecation and disposal practices
 - Improvements mentioned by households
 - Other hygiene behaviour changes

3. Loan Management

- Loan uptake vs. costs
- Repayment rates
- Satisfaction with loan management

Findings

Water supply

All of the water facilities which the BRTC team visited were found to be in working order with no major problems. DSK tested all of the tubewells (which are not connected to the system) for arsenic concentration. None of their tubewells contained water that exceeded the Bangladeshi national standard for contamination. DSK had constructed slightly more water supplies than originally projected in the program. In addition, DSK’s program had also motivated others to construct their own tubewells (although it is unclear how safe these are due to the potential for arsenic contamination).

Table 2 indicates household water use from different sources before the project (all households) and after the project (by slum area). Generally, people in these three areas are moving away from sources of unknown quality (e.g. neighbours and private sources and pond/river water) and variable quantity (e.g. rainwater) toward legal household piped connections (in Pallabi and Demra) and nearby community water points (Pallabi and Kamrangir). Results from Demra are somewhat surprising, as more people have been motivated to establish their own personal water sources rather than entering into the program. Illegal connections also remain a slight concern in Pallabi.

Intervention / Area	Legal Piped Connection	Illegal Piped Connection	Community Water Point	Personal Tubewell	Neighbour / Private	Pond/ River	Rainwater
Pre-Project (All areas)	0%	1.2%	18.9%	1.5%	43.8%	1.8%	29.1%
Post-Project (Pallabi)	38.4%	8%	37.6%	12.8%	3.2%	0%	0%
Post-Project (Kamrangir)	0.8%	0%	67.5%	15.9%	15.9%	0%	0%
Post-Project (Demra)	17.7%	0%	0%	68.7%	13.6%	0%	0%

Source: BRTC study (2008). N=375 households

Many households have enjoyed time savings as a result of the water facilities. 84% of respondents now spend less than ½ hour per day fetching water. About 60% of respondents complained of long wait times, far distances of water points, and irregular water availability before the program.

Figure 2 depicts household satisfaction among all respondents with various attributes of their new water facilities. Results show high satisfaction rates (at least 90% in nearly every category). However, there were some regional differences on these responses. Some residents of Kamrangir Char complained of inadequate water use. This appears to be related to the fact that landlords sometimes control the amount of water available to their tenants. In Demra, lower groundwater tables are contributing to some dissatisfaction with water quantity (since many rely on their own tubewells). Overall, though, greater water availability (45%) and water quality (42%) were mentioned most often by respondents as the most important program benefits.

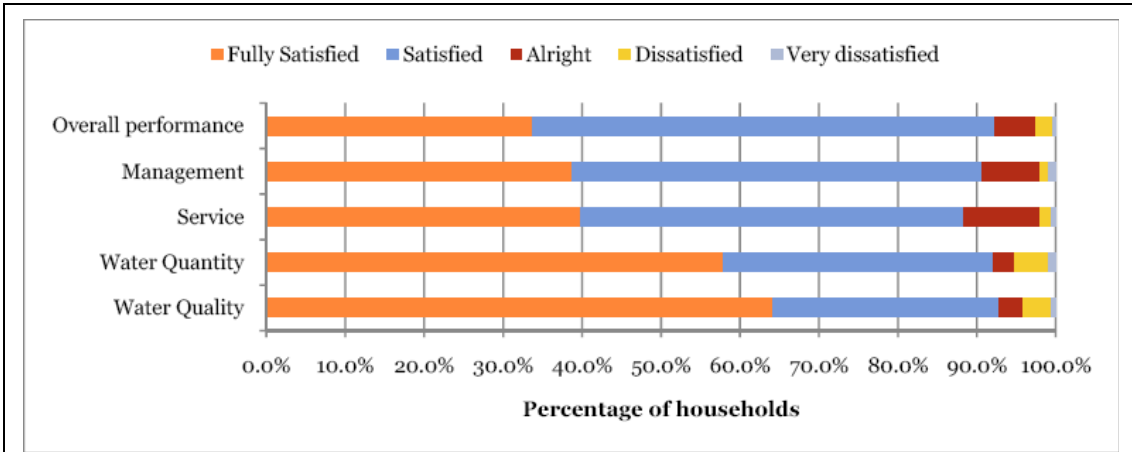


Figure 2. Household satisfaction with water improvements

Source: BRTC study (2008). N=375 households

Hygiene/sanitation

According to focus group surveys, latrine use was very rare prior to the program. Open defecation was a common practice. DSK constructed nearly all of the projected latrines in the Pallabi slum, while the Demra and Kamrangir Char areas fell short by 23% of original projections. Nevertheless, approximately 89% of surveyed respondents indicated that they regularly used either their own sanitary latrine or a cluster latrine. About 80% of respondents also reported that children used sanitary latrines; while another 15% reported that feces were deposited in a fixed placed and removed safely. Focus group discussions revealed high satisfaction with the latrines and their ongoing maintenance.

A minority of households (18%) were using latrines that were constructed less than ten meters from a water point. Groundwater contamination is a possible risk, although it should be noted that these are very dense living quarters. The focus group discussions also revealed some concern that the management committees had become less active over time, which may put long-term health benefits and sustainability at risk.

Figure 3 demonstrates that a high percentage of households changed various health behaviours once the programs were put into effect.

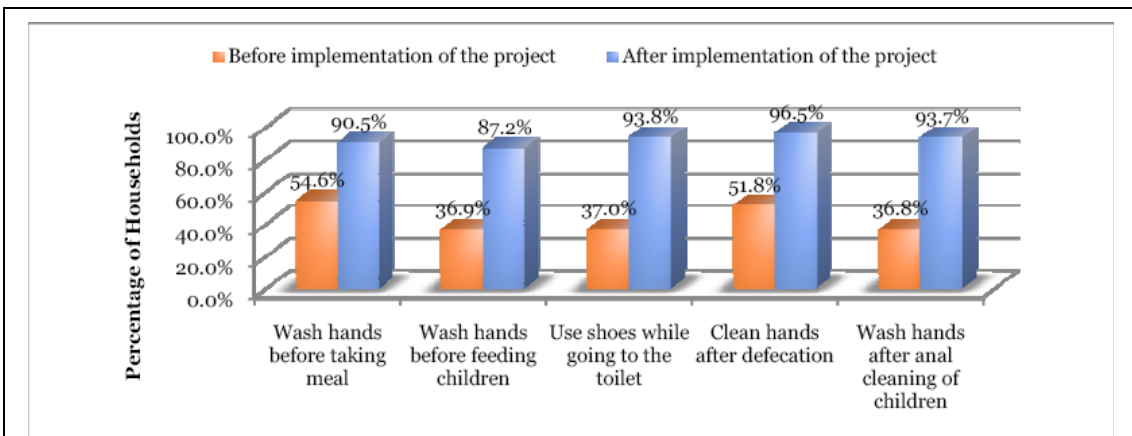


Figure 3. Household Behaviour Changes Before and After Program

Source: BRTC study (2008). N=375 households

Loan management

Overall demand for water and sanitation loans was very strong. DSK was able to exceed its targeted number of facilities and customers for water and meet projections for sanitation in Pallabi. One of the fascinating elements of this program is that these communities are not formally recognized settlements. The government has the right to condemn these properties (and did so in five of the original ten Pallabi communities). Nevertheless, DSK successfully met the demand of women who live in these areas and were willing to take out loans to obtain improved services.

Overall loan repayment rates have averaged about 93%. The focus group discussions in Pallabi revealed some discontent among borrowers who paid the administrative fee, yet many recognized its value to DSK's ongoing operation. In Kamrangir Char, most customers are tenants who are charged a fixed amount for water use.

Since the beginning of the WaterCredit program, DSK has been able to redeploy capital from loan repayments to serve new customers. DSK provided \$125,000 toward a new program with WaterPartners, which began this summer.

Conclusion

The BRTC study indicates that WaterPartners and DSK have effectively met demand for water and sanitation improvements through an urban WaterCredit program. Use of and satisfaction with improved water and sanitation facilities are high. The programs have made important gains in changing household health practices and in organizing empowered groups of women who now have better facilities and opportunities for future development.

DSK's loan program has reached its intended audience and recycled user payments for future customers. It should be noted that this revolving loan fund works well for DSK, a large social service agency which may avoid charging interest rates that cover the full cost of their operations. Other institutions, such as micro-finance institutions or local banks, may be unable and/or unwilling to operate in this manner.

Finally, the BRTC study did recommend WaterPartners and DSK to examine some additional improvements to their ongoing programs. DSK should plan to continue to assist these communities as they maintain their investments and positive program impacts. The evaluation encouraged DSK to more fully involve local government institutions (which are charged with providing such services) to build long-term relationships between the self-help groups and government officials and sustain the program as DSK exits. BRTC also encouraged DSK to examine a wider range of technological choices. Finally, small-scale enterprise development, while not the intention of this program, may be promoted as a way to assist self-help groups looking for other development ventures and to expand coverage in adjacent areas until they can be reached with a similar revolving credit program.

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