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**ACCESS TO SANITATION AND SAFE WATER:
GLOBAL PARTNERSHIPS AND LOCAL ACTIONS**

Benefits distribution pattern of a WatSan program

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The overall goal of this paper is to evaluate the impact of the Water and Sanitation Extension Program of the Aga Khan Planning and Building Service, Pakistan's integrated package of interventions for alleviating poverty in the target population of Gilgit District in Pakistan. Largely, the water and sanitation program does help alleviate poverty, but whether these programs distribute the benefits equally among the households having varying wealth status has been a big question mark. Also, what are the perceptions of the beneficiary households about these benefits: do they perceive them as a help toward escaping from the vicious circle of poverty?

Preamble

The combination of safe drinking water and hygienic sanitation facilities is a precondition for health and for success in the fight against poverty, hunger, child deaths and gender inequality. Often, when these services are provided, they are done in a way that fails to adequately take into account the special needs and livelihoods of the poor. Poverty reduction strategies, therefore, must include effective water and sanitation if they are to achieve long-term success and equitable access. Whereas, various studies conducted around the world disclose that the accessibility to the development programs by the people from different economic levels differs significantly and the coverage of these programs among the poor is still inadequate.

The context

The Northern Areas of Pakistan are comprised of six districts (Gilgit, Ghizer, Diamer, Astore, Skardu, and Ghanche) covering an area of approximately 72,000 km² with a population of about 900,000. In the Northern Areas summers are pleasant, however, the temperatures in winters remain below freezing. Agriculture is the mainstay of the area. The area is traditionally male-dominated, women working primarily in the home or in agriculture.

In the Northern Areas, access to safe drinking water is much lower (16%) compared to Pakistan's average (60%). The access to sanitation in rural areas of Pakistan is estimated to be 19% and 30% in the Northern Areas (World Bank, 2000). In the area, water is obtained from sources, such as glacial melt streams and irrigation channels. Water is stored in traditional storage pits, which have faecal contamination. WASEP's water quality studies show that the average level of contamination at the point of ingestion is 5,000 E.coli per 100 ml that cause various abdominal diseases (Raza, 1997). In the winters, when nearby water sources freeze, women in some villages trek long distances in search of water, which they carry home in heavy containers along steep and dangerous icy paths.

The organization

The Water and Sanitation Extension Program (WASEP) of the Aga Khan Planning and Building Service, Pakistan was initiated in 1997. WASEP is making significant contributions in reducing environmental health problems through provision of potable water and sanitation infrastructure services to the rural areas through a community-based approach. The general purpose of WASEP is: a) to provide safe drinking water in adequate quantities; b) to hygienically dispose of human faeces and sewage; c) to improve the health and hygienic practices in the target population; and d) To build the capacity of the target population so that they could finance, manage and operate the interventions.

During its first phase (1997-2001), around 89,000 people were served. The WASEP, apart from reducing environmental health problems, has also helped reduce water-fetching time through providing water infra-

structure at the beneficiaries' doorsteps. Health and hygiene education and capacity-building campaigns have built the communities capacities (WASEP) 2002. Various studies confirm that the WASEP has a significant impact on improving the health and hygiene situation of the beneficiary households. However, its degree of impact on poverty alleviation is not known. This study, therefore, aims at assessing the impact of the WASEP-AKPBSP's interventions on poverty alleviation in the target area. The assessment of the impact in the light of the target population's perceptions is the salient feature of this study. Also, the study focuses on the individual households having varying economic status in poorer and richer villages rather than the whole community.

Objectives of the study

Objectives of the study is to determine the WASEP's impact on households having different wealth status in alleviating poverty through: a) reducing their medication cost; b) enhancing income generating opportunities; c) improving education, health, gender equity and empowerment of the households.

Literature review

The importance of water in improving health and reducing poverty has been well established for over 100 years, and yet many of the world's population still lack access to basic services and resources that would protect their health and improve their wealth. The improvement of water supplies and reduction of health burdens remain major objectives in the global fight against poverty as articulated in the United Nations Millennium Declaration Goals (Howard & Obika, 2003). Poor communities tend to suffer the greatest health burden from inadequate water supplies or poor water management, and as a result of ill-health are unable to move out of a cycle of poverty and disease. Poor households expend a disproportionate amount of their income and resources on medical treatment for easily preventable diseases. This income is then not available for investment in activities that would be more productive.

Recently conducted studies (Howard & Obika, 2003) confirm that there is a well established link between poverty and health. From the earliest development of the 'sanitary revolution, it has been recognized that poor households suffered the greatest health burden, and indeed a significant driver for the sanitary revolution was to address ill-health among the poor. Studies in both developed and developing countries continue to point to the greater health burden carried by poor households compared to their better-off neighbors (Howard & Obika, 2003). The impact of disease may in fact be much greater on poor households in developing countries. In developed countries, the costs of disease (both in terms of expenditure on medical care and in lost earnings) are compensated by the health insurance or social security; in developing countries no such safety nets exists. All these costs and loss of income are borne by poor households whose available assets are already very limited. Expenditures on medical treatment often therefore result in relinquished expenditure on other items, which often include essential items such as food and education. Ill health also leads to loss of time spent in income-generating activity, which may have further impacts on poverty. It has also been noticed that the effect in households engaged in agriculture who have sicknesses during the critical times of crop production suffer loss of crops and subsequent hardship (Howard & Obika, 2003)

As in many developing countries, women in the program area carry heavy loads of water on their heads and on their backs. This not only produces extreme fatigue, but can result in personal injuries, arthritis, and slipped discs. It can also contribute to miscarriage. ...the time spent by women in collecting water, which can sometimes be as long as six hours a day may be a barrier to education. Water carrying under normal circumstances can use up to 12 percent of a woman's daytime energy. In dry or mountainous regions this can reach as high as 25 percent. Children's education may also suffer as they are responsible for collecting water (Feuerstein, 1997 p. 45).

Feuerstein argues that there is a close link between lack of access to water and poverty. The well-off have water on tap, on demand, day and night, with the minimum of effort. They enjoy the convenience of a flush toilet, or more than one, inside the house. They send their children to school and they enjoy leisure time. An important component of wealth or well-being is ready access to water. The impoverished, on the other hand, collect their water from distant, contaminated sources. The journey can take several hours, and consume significant amounts of energy. The quantities collected are necessarily small, so little remains after cooking and drinking requirements and as a result personal hygiene suffers. Children are needed for the chores of water hauling and fetching firewood, so schooling suffers, and the cycle of poverty is perpetuated. Inadequate access to water contributes in many ways to poverty. As far as sanitation is concerned, they defecate where they can find some privacy, perhaps under cover of darkness.

World Bank (2000) sponsored recent studies conducted about inequalities in access to health, nutrition, and population services has revealed unacceptable disparities between better-off and disadvantaged groups. Ensuring that services reach disadvantaged groups is also central to ensuring that the poor participate fully in progress toward the Millennium Development Goals.

In January, 2003, in Johannesburg, leading international non-governmental organizations dealing in water resources convened a meeting of minds to share experience and ideas about how small-scale productive uses of water at the household level can help to fight poverty. The symposium brought together a multi-disciplinary group of practitioners, researchers, and policy-makers from 14 countries across Africa, Asia, South and North America, and Europe. Among the findings of the symposium was that “Sustainable livelihoods can be built on access to water that goes beyond current approaches to meeting both domestic (drinking, cooking, and washing) and irrigation needs” (Shord, Wijk & Bikke, 2004).

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Methodology of the study

48 households in six villages were selected for the study. Methodology for selecting villages and households is discussed in the following paragraphs. For the field study, a questionnaire was prepared with the intention of using it for the semi-structured interviews with the men and women of the selected households.

Village and household selection

WASEP, during the phase in question, has intervened in 100 villages in the area. This study, however focuses three districts (Gilgit, Ghizer and Diamer). In these districts, interventions were made in 44 villages. Of the 44, six villages were selected for the field studies. Of these six, three are poorer and the remaining three villages are richer ones. The classification of the villages as richer and poorer was made based on a wealth-ranking matrix (see Table 1). Based on the below matrix, of the 44 villages, Yangal, Mayoan and Cheermayoon got the highest ranks and were classified as the richer ones whereas Datuchi, Kanjukushal and Gairiky got lower rankings and were classified as the poorer villages.

S	Description of the indicator	Quantity	Ranking
1	Average arable land/household (Double-cropping Zone)	Below 10 Kanals	5
		10 to 17 Kanals	10
		More than 17 Kanals	15
2	Average arable land/Household (Single-cropping Zone)	Below 20 Kanals	5
		20 to 34 Kanals	10
		More than 34 Kanals	15
3	Average no. of livestock/household in the village	Below 10	5
		10 to 15	10
		More than 15	15
4	Percentage of the households one or more than member in the family employed in a permanent job	Below 5% of the households	0
		5 – 10 % of the households	5
		More than 10 % of the households	10
5	Availability of Social Sector Facilities within the village or within 2 km	No facility at all	0
		1 facility available	5
		2 Facilities available	10
6	Access of the village to the nearest market/town	Jeep able	0
		Truck able un –asphalted	5
		Truck able asphalted	10

Note: The village scoring 40 or above is a richer village.

Household selection

In each selected village, to carryout wealth ranking exercise and to identify the richest; richer; poorer; and poorest households, three to four key informants were identified who have extensive knowledge of the village.

These key informants belonged to the various occupations that include traditional leaders (Numberdars), office bearers, the members of the village organization (VOs) and women’s organizations (WOs), school-teachers, and common villagers. Each informant was discussed separately, and asked for his own ideas of wealth, and what makes one person better off than another and to come up with three to four names of the richest households in the village without discussing with each other. Each key informant identified richest households. Surprisingly, each key informant branded the same households as the richest ones. Once the richest households were identified, they were asked to describe what characteristics they used to classify these households as the richest. The same exercise was repeated to identify (two each) the richer, poorer and the poorest households in the village. Matrix 2 exhibits the characteristics and the scales that the key informants came up with for identifying the households as the richest, richer, poorer and the poorest.

Determinants of wealth	Richest household	Richer household	Poorer household	Poorest household
Dependency (in communal issues)	Not dependent at all	Somewhat dependent	Dependent	Dependent
Arable land (Kanals)	30 or more	30 –10	10 – 5	5 or less
Cattle (large + small)	20 or more	20 - 10	10 – 5	5 or less
Employment (persons)	2 or more persons	1 employed person	Daily waged skilled worker	Unskilled labour or unemployed
Income from agri products (Rs./year)	25,000 or more	25,000 – 15,000	15, 000 – 5,000	5,000 or less
House type	Stone masonry, GI sheet roofing, 4 rooms or more	Stone masonry, GI sheet roofing, 3 - 2 rooms	Mud thatched 2 rooms	Mud thatched 1 room only
Availability of latrine	2 or more latrines attached	1 for family 1 for guests	At least 1 latrine	No latrine facility
Savings	200,000 or more	200,000 – 50,000	No savings	No savings
Physical and mental health (able to work)	Good physical and mental health	Good physical and mental health	Good physical and mental health	Physically or mentally sick
Educated Persons	2 or more grads/under grads.	1 grad/under grad.	1 person SSC*	No educated person

*Secondary School Certificate

Selection of the evaluation techniques

Impact evaluation is intended to determine whether the program had any additional benefits distribution pattern and also to explore unexpected consequences, whether positive or negative, on beneficiaries. In order to assess the impact , qualitative techniques are used because these techniques often provide critical insights into beneficiaries’ perspectives, the value of programs to beneficiaries, the processes that may have affected outcomes, and a deeper interpretation of results observed in quantitative analysis. Qualitative techniques also help to determine impact by relying on something other than the counterfactual to make a causal inference. Also, the qualitative assessments are flexible, and can be tailored to the needs of the evaluation using open-ended approaches and can be carried out quickly using rapid techniques (Grandin B) 1988.

The data was in the form of the transcripts of individual interviews with men and women. The conversation took place in three different local languages. Neither of these local languages has a recognized script. Therefore, the researcher had two options to record the conversation; the ideal option was to take notes in English language so that transcripts could be used for coding directly. The researcher started with this option, very soon it was realized that it is harder to record verbatim as the researcher had first to translate the responses in his own mother tongue to grasp the content, then translate into English and then record. Therefore, the conversation was recorded in Urdu language and translated into English later. After the familiarization with the transcripts, the most important phase of the qualitative analysis: “coding” was done.

The words that represent the respondent’s priority concepts like income, savings, gender equity, empowerment, health education, access to water and sanitation infrastructure, etc., were identified and used. These principal codes were then divided into main themes, i.e., social, economic and socio-economic benefits. These themes emerged from the wealth ranking exercise carried out in the selected villages. In order to identify the key words that contribute to the above main and sub-themes (e.g. kitchen gardening, reduction in diarrhea, women’s access to family’s income, etc.) highlighters of different color were used. Subsequently, a flow chart was prepared as below:

Keywords ⇒ Sub-themes ⇒ Main-themes ⇒ Interpretation

The findings

The findings of the study are analyzed in light of the responses of the interviewees, their perceptions and the relevant literature. In addition, the researcher has reflected upon his knowledge and experience while discussing the findings.

A change in the core areas i.e. social, economic and socio-economic conditions, explains the impact. These core themes emerged from the field research and are divided into sub-themes. Social benefits are divided into health, education, gender equity and the empowerment of the household. Economic benefits are divided into income and savings. Similarly, under the socio-economic benefits, the household’s access to water and sanitation infrastructure, their effects and impacts are discussed. Effects and impacts of the socio-economic benefits are evaluated as a change in personal, domestic and environmental hygiene. The emphasis, however, was on assessing the program’s trend for distributing benefits among the households having varying wealth status and to find out the reasons for unequal delivery of benefits. Table 3 exhibits the salient findings of the study.

Village and household classification		Richer village				Poorer villages			
		Richest	Richer	Poorer	Poorest	Richest	Richer	Poorer	Poorest
Social benefits									
Health	Reduction in diarrhea	5	5	5	5	5	5	5	4
	Reduction in skin infections	5	5	5	3	5	5	3	2
	Reduction in cold / cough episodes	4	4	3	2	4	4	2	2
	Reduction in limb injuries	--	--	--	--	--	3	3	--
Education	Regular attendance	5	5	3	2	5	5	2	1
	More time for studies	5	5	3	2	5	5	2	1
	Learning new things	5	5	3	3	5	3	3	2
	More money for education	3	3	3	--	3	3	--	--
Gender equity	More time for leisure	5	5	3	3	5	3	2	1
	Enhanced access to education	5	5	4	3	5	4	2	1
	Reduced workload	5	5	5	3	5	5	3	3
	Enhanced self respect	5	4	3	2	5	3	2	1
	Control over household's income	3	3	--	--	3	3	--	--

Empower	Involvement in the community level issues	5	4	2	1	5	4	2	1
Economic benefits									
Income	Kitchen gardening	5	5	3	2	5	5	2	1
	Poultry	3	3	--	--	3	--	--	--
	Enhanced crop yield	4	4	2	1	4	3	2	1
	Plantation	2	2	--	--	--	--	--	--
	Regular wages	--	4	3	--	3	3	2	--
Saving	Saving on medication	5	5	5	5	5	5	5	3
	Saving on cereals	5	4	3	2	5	3	2	1
	Saving on vegetables	5	5	3	3	5	3	1	1
Socio-economic									
Miscellaneous benefits	Access to potable water	5	5	5	5	5	5	5	3
	Access to improved latrines	5	4	3	2	5	3	2	1
	House is cleaner	5	5	3	3	5	3	1	1
	Surroundings are cleaner	5	5	2	2	5	2	1	1
	No smell nuisance	5	3	2	2	5	2	2	1
<p>Key</p> <p>5 Almost all beneficiary households draw benefits and the impact is as envisaged</p> <p>4 Overwhelming majority of the beneficiary households are drawing benefits and the impact is as envisaged</p> <p>3 About half of the beneficiary households are drawing benefits and the degree of impact is acceptable</p> <p>2 Less than half of the beneficiary households are getting benefits and the impact is not in acceptable limits</p> <p>1 Very few or no households are getting benefits and the degree of impact is negligible</p>									

Summary of the findings

The analyses reveal that the program's impact on reducing diarrhoeal incidences is as envisaged, except in poorest households regardless of the village classification. Nevertheless, the poorest households in the poorer villages termed the reduction in incidences of diarrhoeal disease as very good. There is an agreement across the board that all households regardless of their classification are saving on their medication costs. However, the amount of saving varies significantly from Pak Rupees 3000 for the richest households per year to Pak Rupees 600 a year for poorest households. All households under study agree that skin and eye infection and cold and cough disease have also reduced. However, the degree of impact is varying from as envisaged for the richest households to nominal for the poorest households.

The WASEP interventions have enhanced the opportunities for education in many ways. It has helped enhance attendance at schools. Children concentrate more on their studies, as they do not need to spend time on water fetching. People invest their savings for educating their children. However, the degree of impact varies with varying wealth status of the households from excellent for the richest households to nominal and no impact for poorest households in poorer villages.

The gender equity in the target population has also been enhanced. Availability of water and sanitation facilities has reduced women's workload significantly. They have more time for leisure. It has enhanced the girls' opportunities for education. Women are taking part in the program issues. Their feedback is given due attention, which has enhanced their confidence. Women are getting control over family's additional income-generated through income generating activities. The level of impact, however, varies substantially and to a greater extent corresponding to the household's wealth status.

The program interventions have empowered the beneficiary households through involving them in all phases of the program. However, the degree of empowerment varies significantly and corresponds to the degree of participation. Largely, the richest and richer households regardless of their village classification

have control over the program issues. The poorer and poorest households did not perceive any significant difference in the empowerment of their households. Due to the poorer and poorest households' low rate of literacy, less exposure to outside, and incapability to handle issues, they are excluded from active participation in the program. Therefore, these households did not see any noticeable change in their household empowerment. The savings in water-fetching time has helped beneficiaries to enhance their income through involving them in a range of income-generating activities. In addition, almost all the beneficiary households agree that they are saving on medication costs substantially. The enhancement in income and savings is parallel to the wealth status of the beneficiary households.

The analyses confirm that the program has a positive impact on enhancing the socio-economic benefits of the beneficiary households substantially through making water and sanitation facilities available at their doorsteps. The accessibility to these facilities, especially to improved latrines, corresponds with the wealth status of the households. Women of the richer and richest households attend health and hygiene sessions more regularly, and women of poorer, and the poorest households seldom. Therefore, the richer and richest households regardless of their village classification have adopted more health and hygiene messages than the poorer and poorest households did.

Conclusions and recommendations

Most of the recommendations are based on the findings of the field research, but some are based on the literature that I reviewed during the course of writing of this paper.

Conclusions

Poverty consists of interlocked dimensions. Water, health and poverty are closely linked. Reducing water and sanitation-related health burdens is achievable and can contribute to reducing poverty. However, a great deal of care needs to be taken in order to make the program distribute benefits more equitably.

The households in the target communities are drawing multiple benefits from the WASEP interventions. In addition to attaining the goal of the program, i.e., "improving the quality of life through reducing the diarrhoeal incidences in the target population," the program has an appreciable impact on poverty. However, the program has been less successful in equal distribution of the benefits among the households having varying wealth status

Recommendations

To make the distribution of the benefits more equitable, the researcher recommends the following points:

- Increase access to sanitation facilities for those poorer and poorest households who were unable to build the latrine because they were lacking their monetary share. Do this by enhancing the subsidy level proportionately.
- Community Health Intervention Program and School Health Intervention Program (CHIP and SHIP) campaigns should be more focused towards involving the poorer and the poorest households. WASEP staff should visit poorer households and villages more frequently. In order to achieve this, the strength and the capacity of the health and hygiene section should be enhanced significantly.
- The health and hygiene messages should emphasize the benefits of adapting and practicing the messages for enhancing the opportunities for education. In order to further strengthen the program, the schoolteacher should be included in the program wherever possible.
- As women are important users of the water infrastructure, they should therefore be included in local decision-making bodies. It is imperative that the women from the poorer and the poorest households be given equal opportunities. Their incapability can be overcome by building their capabilities through formal and informal trainings.
- The health and hygiene sessions, apart from giving awareness have been helpful in providing women opportunities for leisure and enhancing their confidence. Therefore, women of poorer and the poorest households should be encouraged to attend the health and hygiene sessions.
- The current capacity-building initiatives are centered on the sustainability of the program interventions. In order to move forward on the front of poverty alleviation, it is essential that capacity-building activities are focused on education and the development of human and social capital and increased connectedness.
- As the underprivileged households of the population are equally important users of the water infrastructure, they should therefore be given equal opportunities to be part of the decision-making bodies.

- WASEP, by facilitating the poorest households who could not get water and sanitation facilities because of their deep impoverishment can help them gain equitable benefits by reviewing the village and household selection criteria —making the criteria easier for the impoverished.
 - WASEP's current policies limit the beneficiary households to use tap water for other domestic purposes. In future, while designing the scheme, potential of productive uses should be taken into account.
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