

Economic and Health Effects of Public Drinking Water Supply in Rural Area of District Sheikhpura, Pakistan

Arfan Riasat

Dr. Ayesha Ch.

Department of Sociology
Government College University
Faisalabad

Muhammad Younis Afzal

Allama Iqbal Open University
Islamabad, Pakistan

Muhammad Qavi Irshad

Department of Agricultural Information
Punjab, Pakistan

Abstract

Clean and safe drinking water is vital component for human being. Water is second essential component after oxygen. Currently drinking water is an international concern which concurrently effect economic and health condition of people. This study was conducted to evaluate the economic and health influence of public drinking water supply schemes in rural area of District Sheikhpura. In this research, the researcher also tried to find out the issues with water supply schemes executed by Public Health Engineering Department (PHED). The universe of the present study was the rural areas of district Sheikhpura where PHED water supply schemes present. The total sample size was 150 respondents. For this purpose, total 15 rural drinking water supply schemes by PHED were selected. The respondents were the user of these water supply schemes and community based organization (CBO) selected through simple random sampling technique. The results showed that majority of respondent's views that underground water in their villages is contaminated; have to get water at the distance of ½ Km before the schemes. A large proportion of the respondents reported that there is reduction of water borne diseases and health expenses due to water supply schemes and power failure is main problem in their village scheme. There is great need to involve the CBOs in planning and designing of the schemes. Government should arrange extension of water supply network where population increased with passage time and without the extension of network community face problem to get house connections from water supply schemes.

Key Words: Economic, Health, Effect, Public Drinking, Water Supply

Introduction

Pakistan is a developing country like other of South Asian countries. Availability of fresh water for its inhabitant's one of the key tasks. Government of Pakistan is giving full devotion towards this problem because many problems like health and economic loss are linked with poor supply of drinking water. According to United Nations, declaration of Millennium Development Goal water and sanitation is at Number 7th. PHED is an executing drinking water supply scheme with the assistance of local communities to make available of safe drinking water at very low cost at door step. Quality of underground water in District Sheikhpura is not pleasing as per standard of WHO. Due to industrial units and the absence of wastewater treatment, the underground water quality is getting very poor. Public Health Engineering Department has been working for the execution of water and sanitation schemes since 1961. As per policy of Government of Punjab after completion of rural drinking water, supply schemes are handed over to the community based organizations for operation and maintenance. Sustainable rural water supply is a good sign of progress, specifically in the third world countries.

It means time saved for women and children who normally bear the burden of fetching water to participate in other activities, better health as well as good agricultural practices and appropriate harvest (Regt, 2002). Water and Sanitation Authorities (WASA) is liable for drinking water supply and sanitation in big cities.

In villages water supply services operated by the government of Punjab through Public Health Engineering Departments (PHED) (Ahmad and Zulfiqar, 2005). Arsenic in drinking water can cause skin diseases, lung, bladder, and kidney cancer. It also seems to have a harmful influence on reproductive processes, infant mortality, and weight of newborn babies (Hopenhayn, 2006). Since 1996 PHED is following the dogma of community involvement in many stages including construction O&M of scheme. There has been over 4000 schemes constructed by department and handed over to community called Community based Organizations CBOs for O&M (Ahmad, M, 2011). Community ownership is at the heart of the idea of Rural Water Supply Schemes for success of these schemes community must be engaged in every stage of the project, starting from planning of project up to post construction management of project to strengthen the sense of community ownership in such projects (Water.org, 2011). World Bank reported that unsafe drinking water caused 88% of disease in the developing world. Poor quality water supply cause of death about five million people, mostly children every year. Early childhood diarrhea decreased school performance; advocate that enhance the education standards in the developing world is reliant upon availability of clean drinking water. Burden of cost for treatment of water and related diseases is a hefty load on people throughout the developing world. Collecting safe drinking water is enormously time consuming in many parts of the world. This time could be safe and utilize in economic activity (Xinhua News Agency, 2015).

Sustainable developments in peoples' lives base on facility of safe drinking water that contributes in uplifting their health and education condition, for productive employment as well as for the elimination of extreme hunger and the empowerment of women. Use of unsafe drinking water impedes economic development, thwarts progress towards gender equality through putting the health in risk. Availability of water supply at household level creates positive impact in terms of saving of both time and costs. Drinking water supply will have a constructive effect on the individual of the beneficiary household in form of income and poverty condition. Provision of safe drinking water at door step will reduce the time and burden of water collection that will support household members to take part in other activities specially income generating. Improved water quality through public drinking water supply schemes will cause of reduction in health threats and also the costs of preventing and treating ill family members. Furthermore, the decrease of working days lost due to water related diseases will also cause of the positive influence on the household's economic position (Socio-economic Impacts of Water Supply and Sanitation Projects, 2015). Keeping all the above factors in view, the present study was therefore designed to assess the rural people's perception regarding economic and health effects of public drinking water supply in rural areas of Sheikhpura.

Materials and Methods

The universe of study was the rural areas where different government water supply schemes were functioning under Public Health Engineering Department (PHED). A sample size of 150 respondents was selected through simple random sampling technique from the beneficiary communities and community based organizations (CBOs) of these rural drinking water supply schemes which were responsible for proper functioning of these schemes in District Sheikhpura. Out of total sample of 150 respondents, the 105 respondents were selected from water users /beneficiary community and 45 respondents from the Community Based Organization (CBOs). Respondents were asked various questions related to the study. Data thus collected was entered in the computer software SPSS for statistical analysis. Simple

Results and Discussion

The sampled respondents were asked about the quality of underground water present in their villages. The answer was measured on three points i.e. sweet, Contaminated (containing impurities and toxic chemicals etc.) and the third option was saline. Following table shows the data collected in this regard.

Table 1: Distribution of the respondents according to quality of underground water in their villages

Category	Frequency	Percentage
Sweet	40	26.7
Contaminated	80	53.3
Saline	30	20.0
Total	150	100.0

Table 1 shows that slightly above one fourth (26.7%) of the respondents opted that they had sweet underground water in their villages while more than half (53.3%) told that underground water in their villages was contaminated. It might be due to the excessive use of pesticides to make underground water so poisonous or it might be due to the industrial waste getting mix with the underground water and making it poisonous. 20.0 percent of the respondents had saline underground water in their villages. The next question was related to the time that was consumed and distance the respondents had to travel before the installation of the schemes by PHED.

Table 2: Distribution of the respondents according to distance from where fetch the water and time spent in fetching water before the installation of the schemes

	Frequency	Percentage
Distance	½ Km	80
	1 Km	18
	2 Km	12
	Not Applicable	40
	Total	150
Time spend	½ Hour	91
	1 Hour	11
	2 Hours	8
	Not Applicable	40
	Total	150

Table 2 reveals that 53.3 percent of the respondents had to cover the distance of ½ Km to fetch fresh water, 12.0 percent had to travel a distance of 1 Km, on other hand 60.7 percent of the respondents had to spent time thirty minutes in fetching water before the initiation of schemes by PHED, 7.3 percent of the respondents had to spent time 1 hour in fetching water.

Table 3: Distribution of the respondents according to reduction of water borne diseases

Category	Frequency	Percentage
10%	22	14.7
20%	26	17.3
30%	33	22.0
40% +	69	46.0
Total	150	100.0

Table 3 indicates that 14.7 percent of the respondents viewed that about 10% reduction of water borne diseases due to water supply schemes, 17.3 percent viewed that about 20% reduction, 22.0 percent viewed that about 40% reduction and 46.0 percent of the respondents viewed that about 69% reduction of water borne diseases due to water supply schemes in their villages.

Table 4: Distribution of the respondents according to reduction in days of school absenteeism of children and observation of socio-economic progress in village

	Frequency	Percentage
Reductions in days of school absenteeism of children	Yes	133
	No	9
	Don't Know	8
	Total	150
Observation of socio-economic progress	Yes	81
	No	48
	Don't Know	21
	Total	150

Table 4 indicates that 88.7 percent of the respondents found that there is reduction in days of school absenteeism of children due to use of water supply schemes, out of total 54.0 percent of the respondents observed that there is socio-economic progress in their villages after installation of water supply schemes.

Table 5: Distribution of the respondents according to effects of water supply schemes

Category	Yes	Percentage	No	Percentage	Total	Percentage
Have knowledge of drinking water standard	81	54.0	69	46.0	100	100.0
Have education of personal health & hygiene	129	86.0	21	14.0	100	100.0
Community improved health & hygiene practice	118	78.7	32	21.3	100	100.0
Increase living standard	126	84.0	24	16.0	100	100.0
Increase value of property	109	72.7	41	27.3	100	100.0

Table 5 shows that out of total respondents 54.0 percent have knowledge of drinking water standard and remaining 46.0 percent have not, out of total respondents 86.0 percent have education of personal health & hygiene and remaining 14.0 percent have not, 78.7 percent agreed community improved health & hygiene practice and remaining 21.3 percent not agreed, 84.0 percent believed that living standard increased due to water supply scheme and remaining 16.0 percent not believed and out of total respondents 72.7 percent viewed that there is increased in value of property and remaining 27.3 percent do not so after installation of water supply scheme.

Table 6: Distribution of the respondents according to delivery of water supply satisfactory

Category	Frequency	Percentage
Agree	123	82.0
Disagree	8	5.3
Don't Know	19	12.7
Total	150	100.0

Table 6 indicates that 80.0 percent of the respondents agreed that delivery of water supply was satisfactory, 5.3 percent disagreed, and 12.7 percent of the respondents have no opinion at delivery of water supply satisfactory.

Table 7: Distribution of the respondents according to reductions in health expenses and electric bill

	Frequency	Percentage
Reductions in health expenses	Yes	142
	No	6
	Don't Know	2
	Total	150
Reduction in electric bill	Yes	98
	No	21
	Don't Know	31
	Total	150

Table 7 describe that 94.7 percent of the respondents agreed that there is reduction of health expenses due to water supply schemes, out of total 65.3 percent of the respondents agreed that considerable reduction in electric bill after using water supply.

Table 8: Distribution of the respondents according to availability of water enough for their village requirement

Category	Frequency	Percentage
Yes	87	58.0
No	53	35.3
Don't Know	10	6.7
Total	150	100.0

Table 8 indicates that 58.0 percent of the respondents views that availability of water enough for their village requirement, 35.3 percent views not enough and 06.7 percent of the respondents don't know regarding availability of water for their village requirement.

Table 9: Distribution of the respondents according to responsibility to get water before the schemes

Category	Frequency	Percentage
Children	29	19.3
Male	38	25.4
Female	43	28.6
Not Applicable	40	26.7
Total	150	100.0

Table 9 shows that 19.3 percent of the respondents said children were responsible to fetch water before the schemes, 25.4 percent said male were responsible to fetch water, 28.6 percent of the respondents said female were responsible to fetch water and 26.7 percent of the respondents not applicable due to the sweet underground water.

Conclusions and Recommendations

The study concluded that Quality of water being supplied through PHED schemes was rated good. Contaminated water affected public health at large before the installation of water supply schemes. Great cut down of water borne diseases was observed which has ultimately led to decrease in the monthly health expenditures. These schemes have definitely made availability of water to the people more easier than before. Water supply schemes should be installed on need & deserving based without political interference. Government should also involve the CBOs in planning and designing of the schemes. Government should also assist the CBOs of the schemes both technically and financially after handing over the schemes. Government should arrange extension of water supply network where population would increase with passage time and without the extension of network community will face problem to get house connections from water supply schemes. Media should be used to create awareness among people regarding benefits of clean drinking water as well as water supply schemes.

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