Journal of Quality and Technology Management
Volume X, Issue II, December 2014, Page 125 – 137

COMMUNITY PARTICIPATION AND SUSTAINABILITY OF WATER SUPPLY PROGRAM IN DISTRICT FAISALABAD, PAKISTAN

M.A. Haq[1], S.M. Hassan[2], K. Ahmad[3]
[1]Govt. College Khurrianwala, Faisalabad.
[2]Department of Social Work, University of the Punjab, Lahore.
[3]Institute of Social & Cultural Studies, University of the Punjab, Lahore.

ABSTRACT

This study examined the relationship between the level of community participation and sustainability of the rural water supply programs in rural areas. A survey was carried out from the heads of the households of two villages, District Faisalabad. A sample of 100 respondents was selected from the households selected through systematic random sampling. The findings of the present study clearly demonstrated that community participation at all stages played a positive role in the ownership and sustainability of the rural water supply programs. Chi-square test was used to check the association between variables and to test the proposed hypothesis. The results supported the hypothesis that community participation was significantly related with sustainability of water supply programs in rural areas of District Faisalabad. The findings of the present study warranted the need for increased community participation in operations and maintenance of water supply programs. It may safely be concluded from the findings of the present study that quality assurance of water supply programs largely depend on community participation and ownership of the projects. The present study recommends that optimal participation of local people should be ensured before launching development projects in any community.

Keywords: *Community Participation, Ownership, Quality assurance, Satisfaction, Sustainability*

INTRODUCTION

The provision of clean drinking water and basic sanitation to half of the population by 2015 is among one of the targets set by United Nations in Millennium Development Goals. In developing countries, the governments and various organizations are struggling to improve access of drinking water to urban and rural population (UN, 2009). According to an estimate, 1.1 billion people of the world have no access to safe drinking water. In developing countries, 70% people belong to rural areas. Therefore, rural water supply has become the agenda of many governments to achieve the target of Millennium Development Goals by 2015 (ADB, 2010).

Full participation of the community, operation and maintenance (O&M) of the scheme, technical and financial management, cost sharing for execution and O&M, strategic decision making and ownership by the community are essential segments for sustainability of water supply schemes (Lockwood, 2004). Bah (1992) reported in a study on rural water supply in Sierra Leone that community participation in rural water supply is considered to be a useful strategy that plays a vital role in increasing and developing community awareness on safe drinking water and its related benefits. Community participation infuses a sense of responsibility and is achieved through well-conceived community involvement strategies. In this regard, self-help plays a vital role in promoting developmental schemes in developing countries (Bah, 1992).

Pakistan is one of the developing countries of South Asia. Provision of fresh water to the inhabitants is considered to be a major challenge in Pakistan. The government is trying to resolve this problem because so many issues are related with fresh water supply and sanitation system. Some of the problems are purification and filtration of drinking water, gradual decrease of groundwater level, installation of sewerage and drainage system with proper planning in congested areas to fulfill the needs of increasing population and allocation of funds for extension of the schemes (P&D, 2011).

This study examined the relationship between the level of community participation and sustainability of the rural water supply programs in rural areas. A survey was carried out from the heads of the households of

two villages, District Faisalabad. A sample was selected from the households selected through systematic random sampling. The findings of the present study clearly demonstrated that community participation at all stages played a positive role in the ownership and sustainability of the rural water supply programs. The results showed that community participation was significantly related with sustainability of water supply programs in rural areas of District Faisalabad. The findings of the present study warranted the need for increased community participation in operations and maintenance of water supply programs. The study concluded that quality assurance of water supply programs largely depend on community participation and ownership of the projects and recommended that optimal participation of local people should be ensured before launching development projects in any community.

LITERATURE REVIEW

Pakistan is listed among low-income countries. More than 60% of the country's population lives below the poverty line (Economic Survey of Pakistan, 2013-14). Mostly these poor people live in urban slums or rural areas. They are deprived of financial resources, lack of access to basic needs, such as health, education, safe water supply and sanitation services. There was lack of proper pipe lined water supply and disposal of waste water services in Pakistan until late 1950s. In 1960s, Provincial Public Health Engineering Department (PHED) was established to provide safe water supply and sanitation services. The Public Health Engineering Department is responsible for designing, implementation and operation & maintenance of the water supply and sanitation schemes (P&D, 2011).

Punjab is the most populous province of the country, as 90 million out of total 185 million population of Pakistan lives in this province. More than 70% population lives in rural areas. 89% of the rural population has access to water supply, while piped network coverage is nearly about 48% in rural areas. PHED is responsible to extend water services in rural areas. Since 1996, the Department is following the policy of community participation in various stages including post construction O&M of the scheme. This Department has constructed and handed over 4000 schemes to community groups – called Community Based Organizations (CBOs) for O&M. Out of 4000 schemes, over 85% are pumping piped water

supply schemes, while remaining are gravity schemes, but all have house connections. Although PHED exists in remaining three provinces of the country, but there the Department takes full charge of O&M, leading to poor services being a typical public sector organization (Ahmad, 2011).

Community participation is considered one of the prerequisites for the improved performance of water sector by donors of the development projects. According to Therkildsen (1988:15):

> "Many projects start by involving community members in trench digging, system maintenance and water committees. However, it soon turned out that sustainable water supply and sanitation could not be achieved without involving the community, not just in manual work, but also in the planning of programmes and the selection of technology".

Community participation refers to the willingness of the users and their capabilities to take over the charge of the scheme. Schouten and Moriarty (2003) defined community participation as management of tasks related to operations & maintenance of development schemes. In other words, community participation refers to Community involvement that instills a sense of ownership (Beyene, 2012) and enhances sustainability of development projects (Kasiaka, 2004; Admassu et al., 2002; Bill, 2007; Morua *et al, 2007;* Harvey and Reed, 2006.). In other words, involvement of community members in terms of financial contribution, planning, execution, operation and maintenance ensure the sustainability of development projects, such as water supply schemes (Gebrehiwot, 2006; Davis and Liyer, 2002). Therefore, success of rural water supply schemes is largely linked with community participation (Hassan *et al., 2010).*

Against this backdrop, the present study was an attempt to investigate the extent of community participation in execution, operation and maintenance of rural water supply programs and their sustainability. The major objectives of the present study were:

1) To assess the level of Community Participation in the execution and operation & maintenance of the Rural Water Supply Programs;
2) To assess the satisfaction level of end users;

3) To see the relationship, if any, between community participation and sustainability of rural water supply programs.

METHODOLOGY

A survey was carried out from the heads of the households of two villages namely; 190/RB and 201/RB (where community based water supply was available) in District Faisalabad, Punjab, Pakistan. The village 190/RB comprised of 352 households and village 201/RB consisted of 650 households. 10% heads of households from both of the villages, 35 from village 190/RB and 65 from 201/RB, were taken as sample and systematic random sampling was used to select the final sampling units of the present study. Interview schedule was used as a tool of data collection. The interview schedule encompassed different parts, which were linked to the variables and their attributes, like, socio-demographic, community participation in planning, execution and operation & maintenance, community satisfaction and sustainability. After data collection, editing, coding and data entry was done in the computer for data analysis. SPSS (Version 19) was used for data analysis. Chi-square test was used for determining the association between the defined variables.

RESULTS

In the present study, a little more than one half of the respondents (53%) were between the age group of 21 to 40 years. 95% respondents were males, because males are considered to be head of the households in rural areas. One-third of the respondents (34%) were not educated, (32%) of the respondents had primary education and (18%) of the respondents were matriculates. Only 2% of the respondents had attained the graduation degree. The income of 40% of the respondents was between Rs. 5,001 to Rs. 10,000 and only 5% of the respondents had their income above Rs. 20,000 (Table 1). All the respondents (100%) knew that Community Based Organization (CBO) was operating and maintaining the water supply program in the study areas.

Table 1: Socio-Demographic Characteristics

Particulars		Numbers	Percent
Age	Less than 20	1	1.0
	21 – 40	53	53.0
	Above 40	46	46.0
	Total	100	100.0
Sex	Male	95	95.0
	Female	5	5.0
	Total	100	100.0
Educational level	Not Educated	34	34.0
	Primary	32	32.0
	Middle	7	7.0
	Matriculation	18	18.0
	Intermediate	7	7.0
	Graduation and Above	2	2.0
	Total	100	100.0
Level of income	Less Than 5001	27	27.0
	5001-10000	40	40.0
	10001-15000	16	16.0
	15001 – 20000	12	12.0
	Above 20000	5	5.0
	Total	100	100.0

It was found in the study that 47% of the respondents participated 'to some extent' in pre-planning meetings and 32% of the respondents participated 'to a great extent'. 83% of the respondents reported that community itself gave the idea of water supply program in the respective villages. It was found that 86% of the respondents knew that meetings were being conducted for the planning of the water supply program in their villages. It was also found that 49% of the respondents participated to some extent at planning stage and 27% of the respondents participated to a great extent. Out of the remaining 24% respondents who did not participate, 11% reported that they were not asked to participate at the planning stage.

In the execution stage, 55% of the respondents participated 'to some extent' and 32% of the respondents participated to a great extent. Out of 87 respondents, 41 (47.13%) respondents gave suggestions during planning stage, and 30 (34.48%) respondents attended meetings during execution stage, 9 (34.48%) respondents provided the services of labour and remaining 7 (8.05%) respondents gave land for installation of main pipeline.

It was found that out of 100 respondents, 90% were paying monthly water supply bill. It was also found that 51% of the respondents were contributing 'to some extent' in operation & maintenance cost other than monthly water supply bill. It was also found that 37 (90.20%) of the respondents, who were not paying additional cost of operation & maintenance, did not have the ability to pay. Majority of the respondents (76%) reported that user committee was managing the finance very well. Majority of the respondents (84%) agreed 'to great extent' that community participation played a vital role in sustainability of the water supply program (Table 2).

Table 2: Community Participation in Pre-Planning, Planning, Execution and Operation & Maintenance Stage

Particulars		**Numbers**	**Percent**
Extent of participation in pre planning meetings	To Great Extent	32	32.0
	To Some Extent	47	47.0
	Not at all	21	21.0
	Total	100	100.0
Views about idea of water supply program	Community	83	83.0
	Local Leader	3	3.0
	Government	11	11.0
	Don't Know	3	3.0
	Total	100	100.0
Extent of participation in meetings during planning stage	To Great Extent	27	27.0
	To Some Extent	49	49.0
	Not at all	24	24.0
	Total	100	100.0

Particulars		Numbers	Percent
Reason for not participating at planning stage	Was not asked	11	45.8
	Women considered not good	4	16.7
	Have no time	5	20.8
	Low reliability of program	4	16.7
	Total	24	100.0
Extent of participation during execution stage	To Great Extent	32	32.0
	To Some Extent	55	55.0
	Not at all	13	13.0
	Total	100	100.0
Kind of participation during execution stage	Attended Meetings	30	34.48
	Labour	9	10.34
	Give Suggestion Land for Main Pipeline	41 7	47.13 8.05
	Total	87	100.0
Contribution of the water supply bill	Yes	90	90.0
	No	10	10.0
	Total	100	100.0

It was reported by 92% of the respondents that they were satisfied with the quality of water 'to a great extent'. 81% of the respondents were satisfied to great extent with the quantity of the water. 93% of the respondents were satisfied to great extent with the color of the water. 91% of the respondents were satisfied to a great extent with the taste of the water. 83% of the respondents were satisfied to a great extent with the water pressure. 82% of the respondents were satisfied to a great extent with the water management by user committee.

More than half of the respondents (57%) reported that non-availability of sewerage system is the only problem in the village. It was found that 54% of the respondents had the sense of ownership of water supply program 'to some extent' and 45% of the respondents had the sense of ownership to great extent.

Table 3: Satisfaction Level and Sense of Ownership

Particulars		Numbers	Percent
Satisfaction with quality of water	To Great Extent	92	92.0
	To Some Extent	6	6.0
	Not at all	2	2.0
	Total	100	100.0
Satisfaction with quantity of water	To Great Extent	81	81.0
	To Some Extent	13	13.0
	Not at all	6	6.0
	Total	100	100.0
Satisfaction with color of water	To Great Extent	93	93.0
	To Some Extent	5	5.0
	Not at all	2	2.0
	Total	100	100.0
Satisfaction with the taste of water	To Great Extent	91	91.0
	To Some Extent	6	6.0
	Not at all	3	3.0
	Total	100	100.0
Sense of ownership	To Great Extent	45	45.0
	To Some Extent	54	54.0
	Not at all	1	1.0
	Total	100	100.0

Through inferential analysis (Chi-Square Test), it was found that there is an association between community participation in O&M of the program and sense of ownership in the community (Table 4). The Chi-Square value of 21.382 with P-value (<0.01) depicted that there is a significant relationship between community participation in O&M of the program and sense of ownership in the community.

Table 4: Association between Community Participation in O&M of the Program and Sense of Ownership

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	21.382	4	.000
Likelihood Ratio	25.358	4	.000
Linear-by-Linear Association	20.559	1	.000
No. of Valid Cases	100		

DISCUSSION

This study assessed the community participation in planning, execution and operation & maintenance tasks of rural water supply programs of the District Faisalabad. The majority of the respondents apprised that community itself had given the idea of water supply program, which shows their need for safe drinking water. The study also illustrated that about half of the respondents participated in planning stage and about one fourth of the respondents participated to a great extent and gave suggestions to make their water supply program successful, which showed their interest in the program. Therkildsen (1988) also reported that sustainability of water supply program cannot be achieved without the involvement of the community at the planning stage.

The study indicated that respondents also participated in the execution stage in the form of manual labour and giving land for main pipeline. Davis and Liyer (2002) illustrated that contribution of the community in the form of money, labor and material are the general ways of community participation, which leads to the sustainability of rural water supply programs. Majority of the respondents were paying bills which shows their ownership. The study also depicted that respondents participated in operation & maintenance other than monthly bill. This finding is concomitant with Lockwood (2004) that sharing of cost for operation & maintenance is very necessary for the sustainability of the rural water supply schemes.

This study illustrated that respondents were satisfied with the user committee regarding financial management of the program. Gebrehiwot (2006) reported that financial management is the factor of sustainability of any water supply program. This shows that community participation had built trust among community members and the management committee. This study revealed that majority of the respondents was satisfied with the quality, quantity, color, taste and pressure of the water. Water quantity and quality are the main factors, which play a vital role in the water supply project's performance and due to these elements consumers become willing to pay for the supply of water. Bhandari and Grant (2007) reported that satisfaction of consumers with the service quality increases the funds collection for operation & maintenance and extension of water supply program. In other words, willingness of

consumers to pay for service charges of water depends upon their level of satisfaction.

The respondents were also satisfied with the water management of user committee. Beyene (2012) illustrated that management of the water supply by community is the indicator for sustainability of rural water supply programs. The study revealed that majority of the respondents showed their response to sustain the water supply program. Bill (2007) also reported that when community owns the water supply program, this feeling of ownership will sustain the water supply projects.

It is recommended that Government should support the user committees for extension of the existing water supply program to fulfill the need of increasing population. Awareness campaigns, strategies and training programs should be launched for user committees and operators by different organizations. Government should also plan and execute sewerage schemes along with water supply programs.

CONCLUSION

The core objective of the present research study was to assess the extent of community participation in rural water supply programs and their sustainability. It may safely be concluded from the findings of the present study that community involvement in planning, execution, operation and maintenance largely contributes towards sustenance of water supply programs in rural area. It may be concluded from the findings of this study that empowerment of local people in operation and maintenance tasks of development projects enhances ownership of these projects, in turn sustainability. It is also concluded that satisfaction with development schemes largely results from the active involvement of local people. The findings of the present study clearly warrant the need for increased rural water supply programs and active engagement of people in quality assurance such schemes.

REFERENCES

Admassu, M., Kumie, A., & Fantahun, M. (2002). Sustainability of Drinking Water Supply Projects in Rural of North Gondar, Ethiopia*, Ethiopian J.Health Dev*. (3) pp 221-229.

Ahmad, M. (2011). *Rural Water Supply in the 21st Century; Myths of the Past, Vision for the Future*. Water and Sanitation Program, Pakistan.

Asian Development Bank (ADB). (2010). Impact Evaluation study: *Impact of Rural Water Supply and Sanitation in Punjab, Pakistan*. Retrieved from http://www.adb.org /Documents /Evaluation/Learning-Curves/IES/LC-ruralwater- sanitation.pdf.

Bah, O.M. (1992). Community Participation and Rural Water Supply Development in Sierra Leone. *Community Development Journal*, *27* (1). pp 30 – 41.

Beyene, H.A. (2012). *Factors Affecting The Sustainability Of Rural Water Supply Systems: The Case Of Mecha Woreda, Amhara Region.* Ethiopia.

Bhandari, B., & Grant, M. (2007). User satisfaction and sustainability of drinking water schemes in rural communities of Nepal. *Sustainability: Science, Practice, and Policy*, *3* (1). pp 12-20.

Bill, B. (2007). *Participatory planning approaches to community interventions*. The World Bank Participation Source book. Retrieved from http://www.plannersweb.comorg/socialanalysissourcebook.

Davis, J., & Lyer, P. (2002). *Taking Sustainable Rural Water Supply Services to Scale: A Discussion Paper.* Washington, DC.

Gebrehiwot, M. (2006). *An Assessment of Challenges of Sustainable Rural Water Supply: The Case of Ofla Woreda in Tigray Region.* Regional and Local Development Study (RLDS). A.A.U. Ethiopia.

Government of Tanzania (2002). *The National Water Policy*. Retrieved from http://www.tanzania.go.tz/policiesf.html

Harvey, P., & Reed, R. (2006). *Sustainable supply chains for rural water supplies in Africa.* Proceedings, Institution of Civil Engineers & Engineering Sustainability.

Hassan, T., & Majid, R. (2010). *Community participation: Alternative approach to water supply in Nigerian rural communities.*

IRC (2008). Retrieved from http://www2.irc.nl

Kasiaka, K. (2004). *Participatory Planning and Sustainability of Water TASAF Water Project.* UDSM Press, Tanzania.

Liyer, P., Davis, J., Yavuz, E., & Evans, B. (2002). *Rural Water Supply, Sanitation and Hygiene: A Review of 25 Years of World Bank Lending(1978–2003).* Water Supply & Sanitation Working Notes, World Bank.

Lockwood, H. (2004). *Scaling-up Community Management of Rural Water Supply*. Delft. IRC

Lombardo, J.H. (1998). *The Effect of Public Participation on Two Dissimilar Case Studies of Watershed Management*, Thesis, Colorado State University Fort Collins, CO.

Morua, A.R., Mayer, A.S., & Durfee, M.H. (2007). *Community Partnered Projects*. A Case study of Collaborative Efforts to Improve Sanitation in Marginalized Community in Northwest Mexico.

Narayan, D. (1995). *The Contribution of People's Participation*. Evidence from 121 Rural Water Supply Projects. Environmentally Sustainable Development Occasional Paper Series No. 1 World Bank, Washington, D.C.

Planning & Development (2011). *Evaluation Report on Project Establishment of PHED staff at Provincial level*. Govt. of the Punjab. Pakistan.

Schouten, T., & Moriarty, P. (2003). *Community Water, Community Management*, London, UK.

UN (2009). *The Millennium Development Goals Report 2009*. New York, United Nations.