Citation: Nawaz, W., Batool, Z., & Ch., M. S. (2020). Perception and Satisfaction of Residents Regarding Services Provided Under Greater Faisalabad Water Supply, Sewerage and Drainage Project. *Global Regional Review, V*(I), 136-142. doi:10.31703/grr.2020(V-I).17

URL: http://dx.doi.org/10.31703/grr.2020(V-I).17 **DOI:** 10.31703/grr.2020(V-I).17

Perception and Satisfaction of Residents Regarding Services Provided Under Greater Faisalabad Water Supply, Sewerage and Drainage Project

Waseem Nawaz* | Zahira Batool† | Muhammad Shabbir Ch.‡

Vol. V, **No.** I (Winter 2020) | **Page:** 136 – 142

p- ISSN: 2616-955X | **e-ISSN:** 2663-7030 | **ISSN-L:** 2616-955X

Abstract

A project funded by Asian Development Bank was executed in 1996. This project included provision of potable water, sewerage and drainage services. A PhD level dissertation was conducted to assess the impacts of this project on target population. Faisalabad city is divided into four municipal zones. A multistage sampling method was adopted for selection of respondents. The data was collected by using a pre-coded interview schedule. Only Inferential techniques were applied for data analysis to explore the association among different variables. The results revealed that the beneficiaries perceived better about the environmental improvements as well as they are satisfied with services provided under this project. It has outcome from results that there is a strong association between improvements made in social, physical and economic aspects of the residents and perception and satisfaction level of people with services provided under this project. It can be concluded that the project has good and positive impact on all aspects of the life of dwellers.

Key Words: Perception, Predictor variable, Response Variable, Perception, Satisfaction level.

Introduction

Approximately 300 million urban people in developing countries of Asia, Latin America and Africa are living in slums-hazardous settlements and they have faced multiple health threats. These slums did not have most of the basic infrastructure and utility services like water supply, sewerage and drainage (World Bank, 2003).

The major challenge in recent decades for the whole world is shortage of potable drinking water, sewerage services and drainage facilities in metropolitan cities. Approximately, 1.8 billion people of the different regions in 2025 will be living with a complete water shortage and without proper sanitation facilities (Cohen, 2006).

The situation in Pakistan is not different and there are over 4000 urban slums in cities with a population approximating 8 million (EUAD, 1987) and this population was about 9 million in 2003 (Alam and Naveed, 2001) and at present, it might be about more than 20 million and most of the urban slums are in Punjab (largest province of Pakistan) having 54.6 percent of the total population of Pakistan (GOP, 2017).

The urban population of Pakistan rose from (30%) to (35%) (Tradingeconomics.com, 2013). It directly affects the demand for water supply, sanitation, sewerage and drainage services in cities. In addition, the rapid growth in population and continuous migration from rural to urban areas has totally changed overall fabrics in many cities of Asian countries. Consequently, the demand for clean drinking water and other related services in urban areas is greater than ever (Briscoe & Qamar, 2006).

Abundant installation of textile industries made Faisalabad an industrial hub and Manchester of Pakistan. Many other residential, commercial educational and other ventures have been swiftly established in this city in the last 15-20 years. The population of Faisalabad City was 70,000 in 1947 and it was 3.2 million in 2017 (GOP, 2017). The Water and Sanitation Agency, (WASA), was established in 1978, to provide services of water supply,

*PhD Scholar, Department of Sociology, Government College University Faisalabad, Punjab, Pakistan. Email: wnawazwasi@gmail.com
†Professor, Department of Sociology, Government College University Faisalabad, Punjab, Pakistan.
‡Assistant Professor, Department of Sociology, Government College University Faisalabad, Punjab, Pakistan.

sewerage and drainage in Faisalabad city. There are 113 urban union councils spread on 225 sq. km. The groundwater in Faisalabad is brackish and there was an acute shortage of clean drinking water and sewerage facilities in the early 1990s in Faisalabad city.

The 'Greater Faisalabad Water Supply, Sewerage and Drainage Project (GFWSDP)' envisionedd in 1987 and designed in 1992 in order to cater the needs of clean drinking water, sewerage and drainage facilities for citizens of Faisalabad city. The project was funded by the Asian Development Bank (ADB) and implemented by WASA. However, the implementation was delayed a long and completed in the late 1990s. The Project included installation of 29 deep tube wells having design capacity of extracting groundwater about 56 Million Gallons per day (MGD). The terminal reservoir was proposed about 27 Kilometers from this water field. A transmission line of about 48" diameter was constructed by laying imported ductile iron pipes. The ductile iron pipes and other the installing equipment were imported from Japan.

It is found from different surveys that currently over 65 percent of Pakistan's population is considered to have access to safe drinking water. The situation of drinking water coverage between provinces and regions and between rural and urban areas is quite different. Moreover, the quality of drinking water supplies is also poor, with bacterial contamination and other hazardous elements are a major concern. Sustainability of the existing water supply systems is also a major issue in the sector. The deficient water supply, inadequate sewerage facilities, poor sanitation and imperfect hygiene services result in a high incidence of water and sanitation related diseases in Pakistan. Therefore, a National Dirking Water Policy has been framed by the Ministry of Environment in 2009. The overall goal of this Policy is to improve the quality of life of people of Pakistan by reducing incidence of death and illness caused by water-borne diseases through ensuring provision of adequate quantity of safe drinking water to the entire population at an affordable cost (GOP, 2009).

The evaluation or impact assessment of any project mainly consists of: First, how community perceives about benefits of this project and Second, whether community is satisfied with the benefits? Many demographic, social, physical, environmental and economic factors formulate community satisfaction (Schule, Artis and Beegle, 1963).

According to another model, the foundation of community satisfaction is based on personal characteristics of individuals in a particular environment. It was revealed from their study that personal characteristics have a tremendous effect on community satisfaction (Marans & Rodgers, (1975).

It has been described in an article on "Community Satisfaction" that satisfaction level of residents about any project depends on services provided under that particular project. The services include sewerage, water supply, electricity, gas, and solid waste management, etc. (Rojek, Clement, & Summers, 1975).

This research paper is about investigating the relationship of different predictor variables like social, economic, and physical factors and response variables like thinking of respondents about improvement made in their localities as well as and satisfaction of residents regarding services provided under this project. Measuring the degree of dependence and relationship among the predictor and response variables will further axiom the success or failure of this project.

Material and Methods

The methodology of any research is just like a system, as all parts or organs of a system operate under defined rules and procedures; hence methodology is also formulated keeping in view certain rules and well-defined procedure (Nachmias & Nachmias, 1992).

A well-organized modus operandi was adapted for evolving the methodology of this study. A simple principle "*as the size of the population increases the sample size decreases*" was kept in mind for finalizing the sample size. It has been also supported by many researchers like Fitzgibbon & Morris (1987:163). Multistage sampling method was used for selecting appropriate respondents and starting from Faisalabad city to municipal towns, union councils, settlements and lastly 25 respondents having homogeneous characteristics (from those settlements where this project was implemented) were randomly selected. Dixon & Marry (1957) have also supported for selection of respondents having homogeneous attributes. Primary data from field was collected by using well-structured 'Interview Schedule'. It was said by one of social sciences researchers that simple words must be used during interview to minimize confusion (Peterson, 1984). Hence, the wording of the questions was

kept simple. Similarly, in another research, it was found that if simple wording is not used then less than 50 percent interviewees could interpret with its proper meaning (Foddy, 1993).

First, individual variables were indexed, confirmed through the '*Cronbach Alpha Test*' and then categories were made. Mostly the inferential statistics were used to find out the association between two variables. The Chi-square test for significance was applied to test whether the significance between variables could have occurred by chance or it is real association. Moreover, the correlation analysis was also used for further examination of the degree of association between variables. The triangulation of different techniques for data analysis of the same phenomenon has been also recommended by Denzin (1978b).

Results and Discussion

i. Relationship of Social Indicators versus Perception about Environmental Aspect and Satisfaction level of Respondents with Services provided under this Project.

The visual situation of any locality effects on thinking, idea, attitude, behavior, and satisfaction level of the community members. Table: 1 reveal that 73.7 percent interviewee, who obtained higher frequency on social aspects and also obtained high frequency on perception index variable, was more than interviewees having a lower frequency on social variable and had frequency on perception index variable. It emerges from the findings that respondents who felt that the social changes were occurred in the settlements due to implementation of GFWSDP had a better perception about the improvement made in environmental conditions as compared to the respondents who did not feel any change or improvement in the social set up of the community.

Moreover, it flashes from the same table that 71.6 percent respondents who had better feelings about the improvement made in the social set up of the community and achieved a high score on index variable of satisfaction level with services were more in number as compared with the respondents who had not better feelings about improvement made in the social set up of the community and had the same score on index variable of satisfaction level with services.

Table 1. Relationship of Social Indicators versus Perception about Environmental Aspects and Satisfaction Level with Services Provided under the Project

Social Index Variable		Perception about Environmental Aspects, Percentage (%)			Satisfaction level with utility Services, Percentage (%)			Total
		worst	No Change	better	dissatisfied	No Opinion	satisfied	
Low		27.8	28.3	43.9	49.5	9.8	40.7	100.0 (76)
Medium		2.7	35.6	61.7	15.3	25.5	59.2	100.0 (140)
High		21.6	4.7	73.7	20.7	7.7	71.6	100.0 (184)
Total	Count	53	99	248	82	95	223	400
	%	13.25	24.75	62.0	20.4	23.8	55.8	100.0

Chi-square Value 182.35** 333.1** ** Significant at 0.01.

The Chi-Square values, which are 182.35 and 333.1 respectively, are significant at 1% level, indicating the relationship of social index variable with perception and satisfaction with utility services.

Relationship of Physical Changes versus Perception and Satisfaction Level with Services provided under this Project

The physical improvement made in the area like, improvement of facet of buildings, addition of new rooms and pours flushed toilets in houses, installation of sewers, sewage cleaning and garbage disposal contribute towards the overall physical outlook of the settlements. This improvement ultimately has better effects on the feelings of the dwellers. Data of Table 2 shows that 77.6 percent of interviewees who noticed higher level physical improvement made in their settlements and acquired high frequency for perception were more in number as compared to those who noticed low level physical improvement made in their settlements and secured high frequency for indexed perception variable. It shows that the respondents who observed good physical

improvement made in the settlements had a better perception of the environmental improvement made under this project as compared to the respondents who did not notice physical improvement made in the settlements.

Table 2. Relationship of Physical Changes versus Perception and Satisfaction with Services provided under this Project

Physical Index Variable		Perception about Environmental Aspects, Percentage (%)			Satisfaction with services, Percentage (%)			Total
		Low	Medium	High	Low	Medium	High	
Low		21.7	48.2	30.1	36.5	36.8	26.7	100.0 (116)
Medium		16.0	16.5	67.5	19.8	15.7	64.5	100.0 (60)
High		16.3	6.1	77.6	21.4	9.5	69.1	100.0 (224)
Total	Count	53	99	248	82	95	223	400
	%	13.25	24.75	62.0	20.4	23.8	55.8	100.0

Chi-square Value 174.51** 112.59** ** Significant at 0.01.

In addition, it also appears from the same table that 69.1 percent who observed that physical improvement is made in localities due to implementation of GFWSDP and obtained high level on index variable of satisfaction with services were more in number as compared with those who had the same score on index variable of satisfaction and observed low physical improvement in their settlements. It reflects from these results that the change in physical improvement and the view of respondents about the improvement made in situation, and satisfaction with services are associated. The Chi-Square values, which are 174.51 and 112.59 respectively, are significant at 1% level, showing the association of physical index variable with perception and satisfaction with utility services provided under GFWASDP by WASA.

Exploring Relationship of Economic Indicators versus Perception and Satisfaction Level with Services Provided under this Project

The study of economic features of the dwellers facilitates to know the level of poverty. The study of proper relationship between the increase in land value and perception of improvement of the respondents about environmental aspects and the satisfaction level with different services guarantees the community stabilization and healthy atmosphere of any area.

The relationship between present land values in the settlements where GFWSDP was implemented and the thinking of interviewees about improvement made in locality's environment is explored. It reveals from Table: 3 that 69.3 percent of the respondents who had lower scores for land value in the settlements and obtained high frequency in perception were more in number than the respondents who had higher scores for land value as well as a high score on perception index variable. It appears from these results that respondents who noted less increase in land values had a better perception about the environmental improvements made in these settlements where GFWSDP was implemented as compared to those residents who observed a high increase in land values. It emerges that there is a negative association between the increase in land values and the perception of the respondents about the improvement made in the environmental aspects of the settlements.

Table 3. Relationship of Economic Indicators versus Perception and Satisfaction with Services

Land Value at Present		Perception about Environmental Aspects Percentage (%)			Satisfaction with Utility Services Percentage (%)			Total
		Low	Medium	High	Low	Medium	High	
Low		14.2	16.5	69.3	20.4	14.2	65.4	100.00 (182)
Medium		20.2	23.1	56.7	24.3	32.6	43.1	100.0 (81)
High		22.8	23.7	53.5	36.2	16.3	47.5	100.0 (137)
	Count	53	99	248	82	95	223	400
Total	%	13.25	24.75	62.0	20.4	23.8	55.8	100.00

Chi-square Values 14.29** 43.03** ** Significant at 0.01.

Moreover, when the relationship of present land value was checked with the satisfaction level of the respondents about services, provided in settlements under GFWSDP, it appeared that 65.4 percent of the respondents (Table: 3) who had lower score for land value at present in these settlements and obtained high frequency for satisfaction with utility services were more in number than the respondents who had higher frequency for land value at present and had high frequency on satisfaction with utility services.

It emerges from the findings that there is a negative association between the increase in land values and the satisfaction level of the residents with the provision of services through GFWSDP. The Chi-Square values, which are 14.29 and 43.034 respectively, are significant at 1% level, showing the negative association of land value variable with perception and satisfaction with utility services.

The above findings initially do not seem to be logical. Because if the land value increases then the dwellers shall have a better perception about the improvements made in the settlements. Therefore, the dwellers shall be satisfied with the utility services. The factual position is that residents are low-income and their main source of income is daily wages. Their settlements are near to the city Centre and they can easily commute to city for search of daily laborer works. Hence, they do not want to sell their houses. It may be concluded from these results that the enhancement in land values does not make any difference for the dwellers' perception and satisfaction because they do not want to sell the houses and earn the money from it. On the other hand, if they sell the house then they will find new land or house that may be too away from the city Centre and it will cost more on transport to commute to city for search of daily wage jobs.

Assessing Relationship of Perception level versus Satisfaction level with Services

It is reported by Marans and Rodgers (1975) that the objective feelings are connected with subjective knowledge. In this study association between perception level of the respondents and the satisfaction level with services provided under GFWSDP is investigated. Table: 4 illustrates that 83.2 percent of the respondents who had higher frequency for perception and also obtained high frequency for satisfaction variable with services were many as compared with those who had lower frequency for perception index variable and also had frequency for index variable of satisfaction with utility services. It comes out from the results that respondents who had a better perception about the environmental situation enhanced in the settlements that occurred due to implementation of GFWSD had a high level of satisfaction about the utility services provided under this project as compared to the respondents who had a poor perception of the environmental situation improved in the settlements due to implementation of GFWSDP.

Table 4. Relationship of Perception Level versus Satisfaction Level with Services

Perception about Environmental Aspects, percentage (%)		Satisfaction level with Services, percentage (%)			Total
		Low	Medium	High	
Low		88.4	2.4	9.2	100.0 (82)
Medium		23.5	66.5	10.0	100.0 (79)
High		7.2	9.6	83.2	100.0 (239)
Total	Count	82	95	223	400
	%	20.4	23.8	55.8	100.0

Chi-square Values 719.70** ** Significant at 0.01.

It reveals from the above results that the change in perception level of the respondents about environmental situation is associated with the satisfaction level of the respondents with utility services. Value of Chi-Square (719.7) at 1% level, also confirmed the relationship of the perception index variable with satisfaction level with utility services.

Exploring Pair wise Correlation of Predictors and outcome Variables

The exploring of relationship between independent variables and dependent variables through bivariate analysis

only tells the existence of association between predictors and outcome variables and the Chi-square test for significance is carried out to test whether the significance between variables could have occurred by chance or it is real association. Both analyses did not indicate what the degree of association between both variables is. Therefore, Pearson's correlations were determined to further assess the degree of association or strength of association between variables in order to further strengthen the results.

Table 5. Pair wise (Pearson's) Correlation Matrix of Predictors and Outcome Variables

Predictor Variables	Perception of Environmental Aspects	Satisfaction with Utility Services
Type of Family	0.187**	0.208*
Social Index Variable	0.166*	0.267*
Mobility Index Variable	0.307**	0.356**
Physical Index Variable	0.281**	0.275**
Health Index Variable	-0.255**	-0.353**
Land Value at present	-0.150**	0.148**

** Correlation significant at 0.01 levels (2- tailed). * Correlation significant at 0.05 levels (2- tailed).

The zero order correlation coefficients matrix representing the correlation among predictor variables and outcome variables is presented in Table: 5. Correlation coefficients help to confirm the relationships already found through Chi-square test. The results show that relationship between the independent variables and dependent variables is major. The triangulation of association through two methods further confirmed the relationship between these variables.

Conclusion

The findings of research discovered that implementation of 'Greater Faisalabad Water Supply, Sewerage and Drainage Project' in Faisalabad city brought positive impacts on social like reduction in community conflicts, increase in mobility of women, children and vendors, physical like the addition of rooms in houses, improvement of facets of houses and addition of pour flushed washrooms, and economic aspects like the generation of employment opportunities and increase in value of houses of dwellers. It also revealed from the analysis that there is an association between social, physical and economics changes occurred and the perception and satisfaction of the residents with services. The same association was also confirmed from the pair-wise correlation results as well. Moreover, a positive and good association between perception of people (consumers of WASA) about environmental improvement made in settlements under this project and satisfaction level of residents regarding services like potable water supply, sewerage and drainage provided under Greater Faisalabad Water Supply, Sewerage and Drainage Project was also found. It may be concluded that the provision of good quality drinking water supply, efficient sewerage facility and good drainage service has an impact on the residents of settlements. Hence, this project may be said comparatively successful one.

References

Alam, S. M. K; and Naveed, A. (2001). Faisalabad Area Upgrading Project, Community Lead approach to The Delivery of Quality of Basic Education, Faisalabad, Pakistan. Faiz Bakht Printers, the Mall Jhang

Anonymous, (2009), National Drinking Water Policy, Government of Pakistan, Ministry of Environment, Islamabad

Anonymous. (2017). Pakistan Census Report, Pakistan Statistical Division, Government of Pakistan, Islamabad

Brisco, J. and Qamar, U. (2006). Pakistan's Water Economy; running dry, Karachi: Oxford University Press.

Cohen; B. (2006). Urbanization in developing countries: Current trends, future projections and Key challenges for Sustainability. *Technology in Society, 28*(1), 63-80

Denzin, N. (1978b). The Research Act: A Theoretical Introduction to Sociological Methods, New York: McGraw-Hill.

Dixon and F. Marry. (1957). An Introduction to Statistical Analysis, McGraw Hill Book Co; New York, USA.

Environment and Urban Affairs Division. (1987). "Shelter for Homeless", Pakistan Canvas, Environment and Urban Affairs Division, Government of Pakistan.

Fitzgibbon, C. T. and Morris, L. Lyons. (1987). How to Design a Programme Evaluation, Newbury Park, CA: Sage.

Foddy, W. (1993). Constructing questions for interviews and questionnaires: Theory and practice in social research. New York, Cambridge University Press.

Marans, R. W. and W. Rodgers (1975). Towards Understanding of Community Satisfaction in a Hawley and V. Rock (ed), Metropolitan America in Contemporary Perspective, New York, pp 299-352.

NACHMIAS, C. F and NACHMIAS, D. (1992). Research method in social science. Published by Edward Arnold. A division of Hooder and Stoughtous, London.

Peterson, R. A. (1984). Asking the age question: A research not. Public Opinion Quarterly, 48, 379-383.

Rojek, D. G., Clemente, F., & Summers, G. F. (1975). Community satisfaction: A study of contentment with local services. *Rural Sociology*, *40*(2), 177.

Schulze, R.T., Arts and J. A. Beegle. (1963). The Measurement of Community Satisfaction and Decision to Migrate, *Rural Sociology, 28*(3), 279-83.

Tradingeconomics.com. (2013). Urban Population in Pakistan. http://www.tradingeconomicscom/pakistan/urban/population-wb-data.heml

World Bank. (2003). The World Bank Group. http://web.mit.edu/Urban upgrading/doing urban upgrading/index.html.