

Assessment of Water Supply Challenges in Selected Communities of Owerri, Imo State, Nigeria

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Abstract

The challenges facing water supply in Orji, Nigeria were assessed in this study coupled with information from water officials, a survey of 100 households were carried out in the study area. For the fieldwork, a total of 12 communities was selected about 80 questionnaires were administered in each of the community. Also, statistical techniques were used for the analysis of the data obtained from the field. The data were presented in the form of frequency tables, histograms, bar graphs, pie charts and time series graph. About 95% of those interviewed mentioned 1 to 2 days in a week as the duration that water flows from the taps, while the households that indicated problems with the water supply system in the area were 95%. About 4% of them indicated absence of problems, but about 17% were indecisive. Those who mentioned 1 to 2 days as the main days that water flows from the taps were about 93%. 94% (14% + 29% + 28% + 23%) of the respondents gets access to water within 200 meters radius. The fast expansion of the township, which the little old existing pipelines could not support, was viewed as one of the major causes of the water scarcity in the area by 81% of the respondents. The water shortage in the area was reported by a large percentage (86%) of the households to retard progress in all domestic and commercial activities in many ways.

1. Introduction

Despite the fact that the rainfall is not scarce and several rivers do not cease to flow in Nigeria, clean water is still denied millions of people [1, 2]. Similarly, there are serious constraints to meeting the challenge of providing adequate water for all urban residents in the urban water sector in many developing countries [3]. Problems which require greater attention and action include water supply shortage and quality deterioration [4]. To make water accessible to all inhabitants, various strategies are always being developed, but to insufficiency of structures, urbanization and rapid growth in population, the gap between demand and supply of water continues to widen [5]. When Orji et al. [6] assessed water and excreta sanitation in Owerri municipal and Owerri north, the results showed that 80(40%) reported that source of water was far from their house in Owerri North compared to 144 (72%) in Owerri municipal. For storing water for future use, 145 (72.2%) agreed in Owerri North compared to 180 (90%) in Owerri municipal. In the treatment of water before use was higher in the Owerri North (45%) than Owerri municipal (10%). Also, 65% reported that water was connected to their household in Owerri municipal while 45% was reported in Owerri North.

Emmanuella et al. [7] studied the provision of water services in Owerri city and found out that though most residents of Owerri city relied heavily on commercial borehole owners and water tanker drivers/water peddlers for their daily supplies, and there was an absence of a popularly acceptable regulatory framework/water policy. A new regulatory framework that would carry out government ownership and control of water resources and recommended by Emmanuella et al. [7]. The coverage of urban water supply keeps diminishing as the investments needed keeps dwindling by the year. The major problems confronting Owerri metropolitan area include urbanization and increase in population growth. Serious environmental and economic impact on the economy of the metropolis is as a result of these problems. There has been an alarming increase in the rural-urban migration over the years and the current urban growth rate for Owerri is about 4.2 percent per annum [6]. Since the creation of Imo state in 1976, when urban pipe-borne water was constructed, the population of Owerri has multiplied several times. Despite the efforts made to resolve the perennial water scarcity in many sub-urban areas of the city of Owerri by the Imo government, the problem keeps unfolding and acute water shortages can still be found in areas such as Aladima, World bank housing, Ikenegbu among others. It was believed that about one-third of the low income population of Owerri lacks access to piped borne water from vendors [8].

With the failure of the state government to provide adequate water supply, people searched for alternative sources of supply. The local government, water vendors and other local entrepreneurs came into the scene and the evidence became the buying and selling of water in the open market across Nigeria. The urban poor became serious victims of the trade. In a study of water vending and willingness to pay for water in developing nations (Nigeria inclusive) by Njoku and Ubuoh [9], it was discovered that payments made for vended water were more than 20 times the payments made from water from the utility. The discharge of River Otamiri is sufficient and there are hardly any complaints of shortages of raw water even during the dry season. At the point of installation, the water facility was meant to generate 66,000 m³/d, but it is currently supplying 12,000 m³/d. Many of those served by the ISWC complain to the authorities of inadequacy in quantity. They do not consider the service good enough. The prevailing situation led to a proliferation of various other urban water supply providers in Owerri city, increase in water-borne diseases and the construction of several substandard commercial and private borehole in the city.

The problem of the water system is beyond description at Orji, Owerri-North. For the past 20 years, the suburban area has been without any proper water facility [8]. The authorities have given assurances to rectify the situation year after year, but no change has been actualized so far. It is believed that most of the pipelines serving the township need to be replaced and are apparently old. Attempts have been made severely to reverse the situation, but to no avail. Therefore, this study was carried out to create awareness about the challenges facing water delivery to suburban communities in Orji, Owerri-North and to suggest possible ways of overcoming some of the challenges.

The study is restricted to the administration of structured questionnaires to the officials of Imo state water Cooperation (ISWC) and households in Orji, in addition to email data collection, informal interview, and telephone interview and field observation. The entire field data collection covered 100 households Orji. Figure 1 shows the location map of the study area.

2. Methodology

For the fieldwork, a total of 12 communities was selected and about 80 questionnaires were administered in each community. The list of the 12 communities is shown in Table 1. A systematic sampling method was used to select the households in each community which involved a random start, of which every 10th household in each of the communities was interviewed. For instance, if the first random start was the 5th, then the 15th, 25th, 35th, 45th etc. households were interviewed until the selected sample was exhausted.

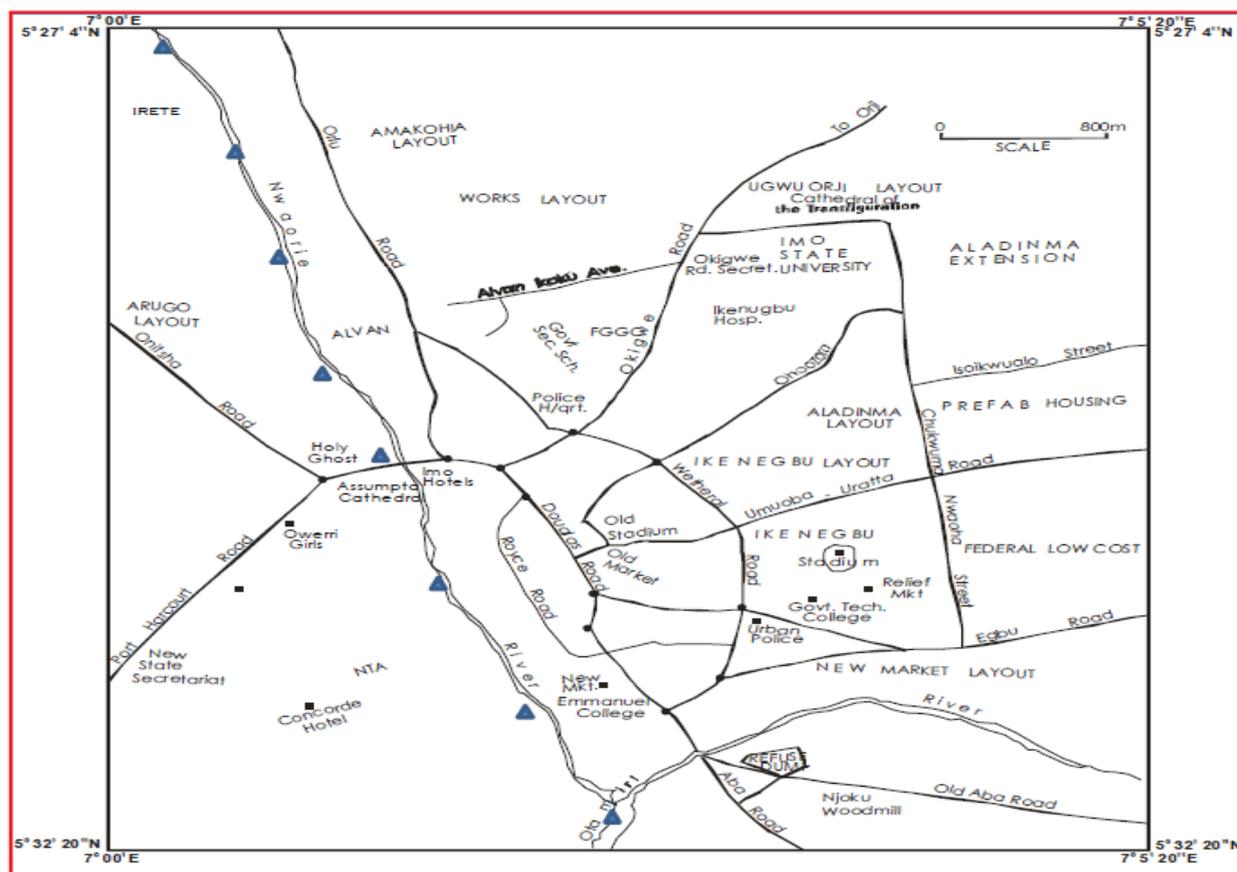


Figure 1. Location map of Orji

Table 1: Communities for Field Data Collection in Orji

Serial Number	Smaller Communities In Orji	Latitude	Longitude	Number of households interviewed	Percentage
1	Umuasonye	5° 22' 45.1"	6° 46' 25.8"	9	9.0
2	Umundula	5° 22' 44.1"	6° 46' 26.2"	10	10.0
3	Umuodu	5° 22' 46.3"	6° 46' 25.6"	10	10.0
4	Umuogi	5° 22' 45.8"	6° 46' 24.6"	8	8.0
5	Umumeka	5° 22' 42.2"	6° 46' 23.8"	8	8.0
6	Umukaehi	5° 22' 43.1"	6° 46' 27.3"	8	8.0
7	Ndiaro	5° 22' 47.5"	6° 46' 22.5"	7	7.0
8	Umuoguerem	5° 22' 41.1"	6° 46' 26.4"	8	8.0
9	Umuaho	5° 22' 45.6"	6° 46' 28.7"	8	8.0
10	Umumeka ward 2	5° 22' 48.1"	6° 46' 25.8"	8	8.0
11	Umundula ward 2	5° 22' 44.6"	6° 46' 21.5"	8	8.0
12	Umuogi ward 2	5° 22' 47.5"	6° 46' 27.8"	8	8.0
TOTAL				100	100.0

Source: [10]

To observe what people go through when they clamor for water, field observation is carried out. Statistical techniques were used in the analysis of the data obtained from the field which included frequency tables, histograms, pie chart, bar graphs and time series graph, etc.

3.0 Results and Discussion

3.1 Levels of Scarcity of Water

A major concern for the inhabitants of Orji has been frequency of the flow of water from the mains. From the result, it was indicated that the most of the households water flows mainly on 1 day, or a maximum of 2 days in a week. From Figure 2, those who mentioned 1 to 2 days as the main days that water flows from the taps were about 93%. Unfortunately, people leave in frustration if for any of those 2 days; taps may flow for some few hours and stop. Therefore, households have to use these 2 particular days in the week to fetch water, which they store for the whole week.

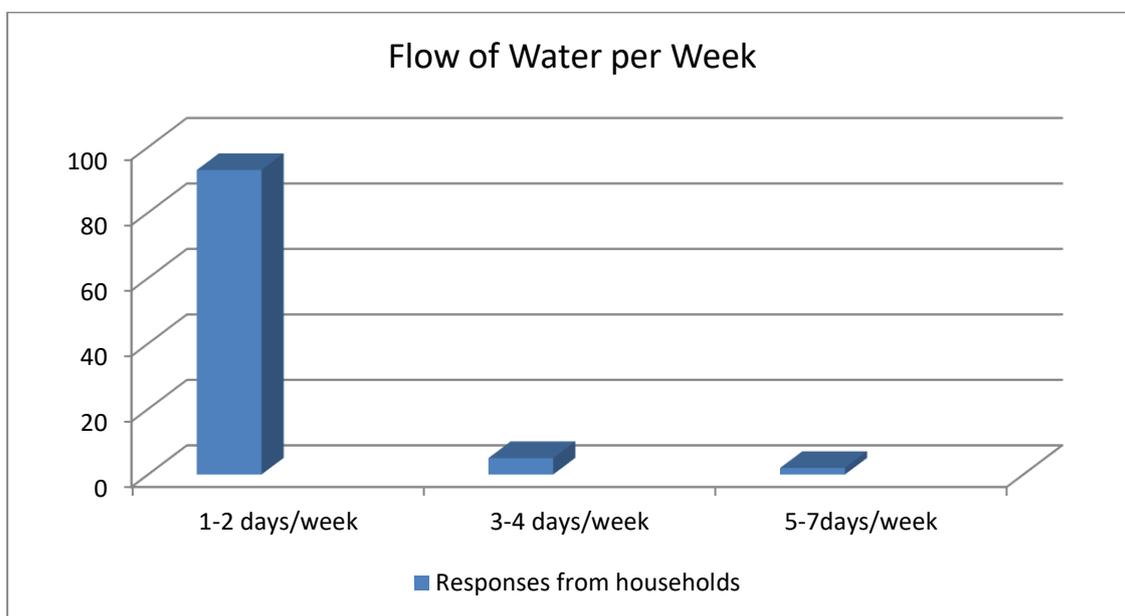


Figure 2. Flow of Water per Week

When they were asked about the average distance travelled to fetch water, 29% reported a maximum of 50 meters, 28% reported between 50 to 100 meters, while 23% reported 100 to 200 meters, while 14% had reservoirs in the form of poly tanks or concrete tanks which they used to store water for long periods of time, at least more than one week. This, however, does not agree with the results from Orji et al. [6], who reported that for storing water for future use, 145 (72.2%) agreed in Owerri North compared to 180(90%) in Owerri municipal. 94% (14% + 29% + 28% + 23%) of the respondents gets access to water within 200 meters radius as revealed in Figure 3. Normally, walking up to 200 meters wasn't beyond 30 minutes; therefore, it is acceptable to say that 94% of the household were within 30 minutes of the source of their water. It is impressive for an urban setting. Because, water is expected to be in people's homes or very close to their homes. This is consistent with the results from Orji et al. [6] who reported that 80(40%) of respondents reported that source of water was far from their house in Owerri North compared to 144(72%) in Owerri municipal. It appears that per day 28% of the household interviewed use more than 9 buckets (4 gallons/ size) for their drinking, washing and other things as revealed in Table 2.

Per day, 21% used 6 buckets (24 gallons or 91 liters), 18% used 8 buckets (32 gallons or 122 liters), while 12% was reported to have used 5 buckets (20 gallons or 76 liters). The responses of the households when they were asked about the sufficiency of the water they use per day were recorded in a pie chart in Figure 4. 35% reported negatively while 65% reported positively.

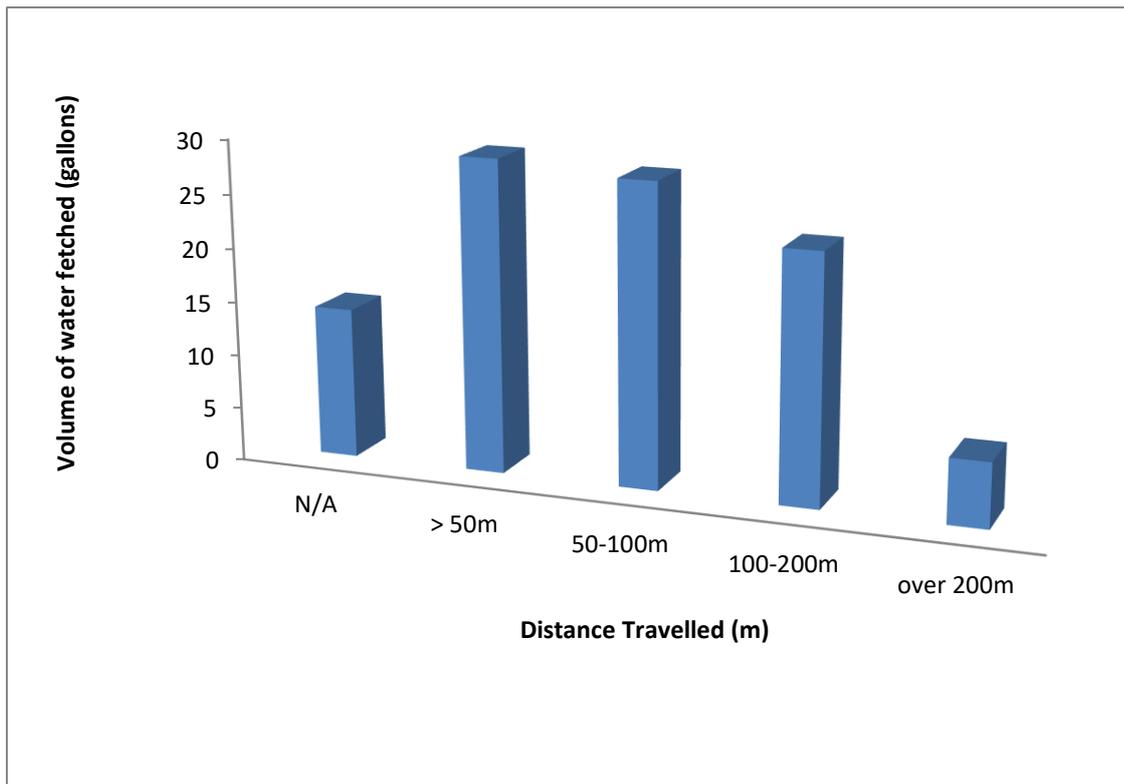


Figure 3. Distance Travelled to Fetch Water

*>50m= distance is greater than 50m, N/A= Not Available

Table 2: Numbers of Buckets of Water Needed for a Household per Day

Numbers of buckets needed	Equivalent In gallons	Equivalent In liters	% of household
1	4	15	1
2	8	30	1
3	12	46	4
4	15	61	6
5	20	76	12
6	24	91	21
7	28	106	9
8	33	122	18
9+	36+	137+	28
Total			100

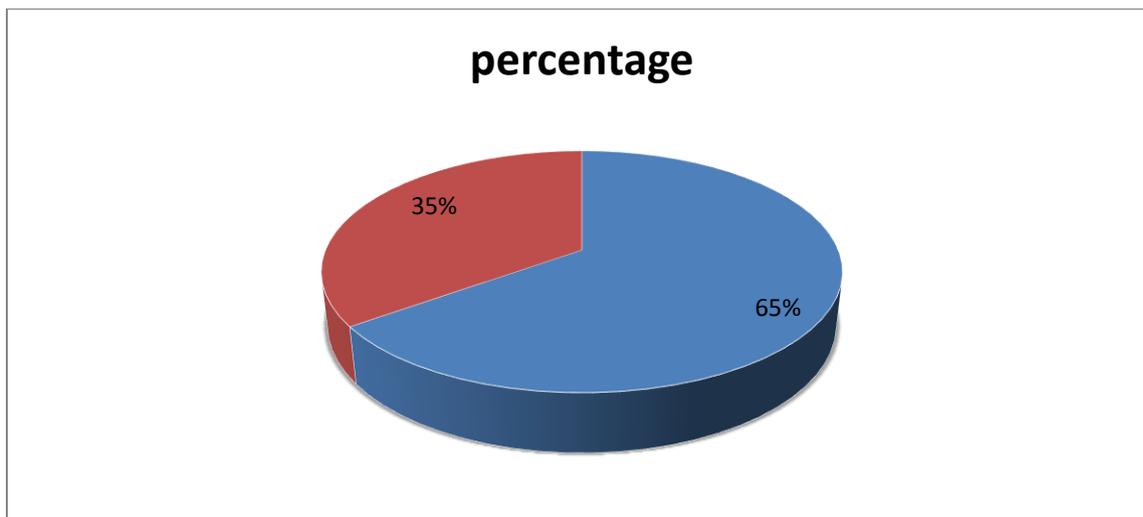


Figure 4. Sufficiency of Water for Households

3.2 Cause of Water Problems and Impacts

There was absolute agreement by both categories of respondents (household water consumer and ISWC officials) that there were problems associated with the water supply system in the area. 95% of the households indicated problems with the water supply system in their area, 4% of them said there were no problems but 1% was indecisive as revealed from Figure 5.

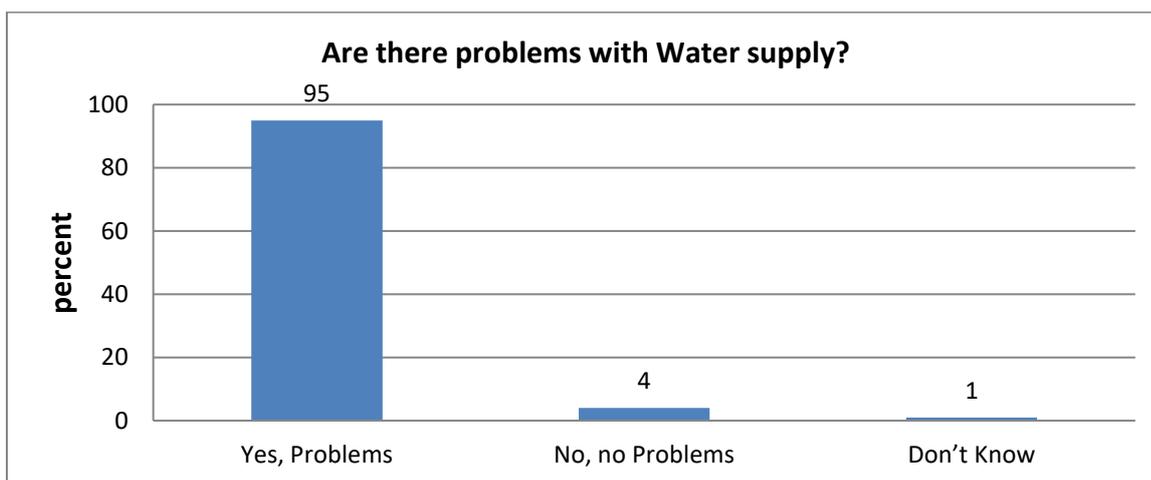


Figure 5. Problems with Water Supply

There are many causes of water supply problems in the area. The list in Table 3 was presented to the households to indicate their ranking. The causes of the problems were ranked by the respondents in terms of major cause, minor cause, not a cause or don't not know (cannot tell). The fast expansion of the township, which the little old existing pipelines could not support, was viewed as one of the major causes of the water scarcity in the area by 81% of the respondents. Broken downpipes of the ISWC were suggested by 73% of them as the cause. 53% argued that one of the main causes might be the continuous unplanned developments of the various springing communities while lack of technical expertise from the ISWC to handle the pumps were believed to be part of the main causes by 43% of the respondents. Apart from the major causes, illegal connections being a minor cause of water problem were of the opinion of 37% of the respondents and 30% of them agreed in terms of

landowners refusing to allow pipelines pass through their lands. In another ranking 47% said they weren't sure if the cause to water problems was the allegation of the arrangement between tanker owners and the officials of the ISWC to limit the supply of water in order to put money into the pockets of the tanker owners while about 37% refused to accept that illegal connections, lack of financial support from the company to carry out maintenance and expansion work on their system, fast expansion of the township and the springing up of industries in the area that use a lot of water. Frequent broken down of the pipelines and electric outage problems were believed to be the possible minor causes by the ISWC officials. According to them, some issues like lack of expertise of the company to handle the pumps and the refusal of the landowners to allow pipelines to pass through their lands could not be causes of the water problems.

Table 3: Possible Causes of Water Problems in Percentages (%)

Possible Causes of Water Problems	Major Causes (%)	Minor Causes (%)	Not a Cause (%)	Don't Know (%)	Total (%)
Illegal Connections	23	37	11	29	100
ISWC lack technical expertise to handle the pumps	43	27	6	24	100
Tanker owner arranged with the ISWC to limit Water supply	23	17	13	47	100
Frequent broken down of pipe lines	73	12	8	7	100
Few pipes, lines cannot support a fast expansion of ownership	81	9	3	7	100
Land Owner do not want new pipe, lines to pass their lands.	22	30	25	23	100
Unplanned township/community	53	25	15	7	100
Electricity power outage problems	19	30	37	14	100

The possible impacts of the water problems for ranking as listed in Table 3 were presented to the respondents. The water shortage in the area was reported by a large percentage (86%) of the households to retard progress in all domestic and commercial activities in many ways. The irregular pipe flow and the slowing down of domestic and commercial activities were confirmed by the official of the ISWC as the overall main impact of the water shortage situation in the study area. In the other ranking, high water prices from water vendors was noted as a severe impact by 70% of the respondents, 61% also had the same view of children risking their lives when walking across streets to search for water being usually either late or absent from school as a severe impact was augured by 38%. Another severe impact revealed by 57% of the households was the workload of women in the households becoming extra heavy. They believed it because women are already overburdened with a lot of domestic unpaid activities, and that the water problem have aggravated their situation and in order to make sure water is available in the home to the spouse and the children, they have to use extra energy. The risk of drinking untreated water from open wells or surface waters in some cases were thought by 55% of the households as a severe impact, the view that too much time is being wasted in the search of water was reported by 49%. The incidence of some water related diseases in the area might be the main risk of the use of untreated water.

Minor impacts, including long queues in fetching water, resulting in quarrels were considered by 42% of the respondents, while the increase in the price of food due to shortage of water was considered by 38% of them. Minor problems in the water problem liberation, according to the

judgment of the ISWC officials includes certain assertions like high water prices from vendors, too much time wasted in search of water, children usually are either late or absent from school and risking their lives when crossing the roads to fetch water. They also disagreed with the fact that long queues in fetching water, an increase in the price of food items and risk of drinking untreated water were impacts of the water problem. They advised that in order not to be taken unawares; it could be helpful if many households start acquiring larger storage facilities in case the problem persists for some days.

Currently, the ISWC's control of Owerri city's water and sanitation service provision is not in doubt, but its shortcomings which undermine its powers have to be highlighted. From field observation, it was discovered that ISWC does not collaborate with Owerri Municipal Council (OMC) in water and sanitation service provision. It is due to ISWC's non-provision of technical assistance to the Municipal Council water supply unit that resulted in OMC's engagement of engineering construction firms for construction of its facilities. ISWC does not have a popularly acceptable regulatory framework and does not monitor other providers nor does it provide them licenses with which to operate. ISWC ought to regulate the activities of other providers and ensure that the quality of water provided is high and their charges will not exclude the poor from being served. Since the National Water Policy (NWP) mandates SWAs to encourage private ownership of water supply and sanitation facilities, regulating them is imperative [11]. ISWC has not yet adopted the National Water Policy in 2004, nor has it adopted the policy to suit local needs and peculiarities as it is expected. Though the edict establishing ISWC stipulated that it performs certain specific functions.

Table 4: Possible Impact of Water Problems in Percentages (%)

Possible impact of Water problems	Severe impact	Minor impact	Not an Impact	Don't Know	Total
Slowdown of domestic & commercial activities	86	13	1	0	100
High Water prices from local water vendors	70	16	0	14	100
Too much time is wasted in search of the water	49	3	9	7	100
Long queues in fetching Water, resulting in quarrels	30	42	18	10	100
Children usually are either late to or absent from school	38	31	20	11	100
Children risk their lives crossing roads in search of water	61	16	17	6	100
Prices of food items increase due to shortage of water	19	38	26	17	100
Risk in drinking of untreated water from open wells or surface waters	55	29	11	5	100
The workloads of Women in the households become very heavy	57	29	11	5	100

4.0 Conclusion

Generally speaking, one can argue that the water crisis and its associated negative impacts on the Orji residential communities can be explained by the nature of development projects combined with the lack of support for the ISWC. Useful information has been yielded by this survey, which is expected to help improve water supply delivery in the area. The officials are to address these urgent

issues faced by their valued customers with the help of the consumer's perception To make sure the private partners are committed to the affordability, sustainability and to improve performance of water service provision, an independent body should be set up to monitor the activities of the private partners.

The solution to the water crisis is closely linked to how cities are governed and managed. There is need for urban residents to have a larger stake in the planning, development, management and protection of water resources for their benefit. This calls for an urgent paradigm shift in urban water governance. Improved governance would also lead to democratization of water usage with acceptable regulations, a view shared by many international actors and governments e.g. the World Bank. One of the lessons learnt during the water supply and sanitation decade is that government alone at all tiers cannot provide water adequately in a sustainable way. According to Iwuala [12], the policies are national and the scene is local, water governance institutions, regulations and rules often apply to people in their own setting and may be limited to a particular ethnic or language group or associated with certain political regimes and may even be used only for certain kinds of water resources.

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