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Demand Driven Approach to Water Supply and Effectiveness of Donor Assisted Water Facilities in Delta State, Nigeria.

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ABSTRACT

The study focuses on the Demand Driven Approach to Water Supply and Effectiveness of Donor Assisted Water Facilities in Delta State, Nigeria.Ten self-selected small towns in two pilot intervention local government areas (Ndokwa West and Isoko South LGAs) in Delta State, Nigeria were used for the study. The study relied on UNICEF (2013) baseline survey which estamates the population of the two LGAs at 110,583. A sample of 383 respondents were initally sampled using Epi Info sample calculator and confirmed with Surveymonkey sample calculator, out of which 350 were eventually used for the study.The reseach design adopted for the study is the survey design. One questionnaire was developed and validated from which copies were made and administered to 383 respondents out of which 350 were validly retrieved and formed basis for the study. Analysis of the questions was done majorly using simple percentages in contingency table format. One hypothesis was tested using Chi square (x^2_3) at 5% level of significance. The Chi square calculated is 8.12 while the critical value is 7.185. The result of the study shows that demand driven approach to water supply have significant positive effect on the effectiveness of donor assisted water facilities in Delta State. The study concludes that the demand driven approach guarantees the effectiveness of donor assisted and donor provided water facilities in Delta State.The study recommends as follows: (1) Donor agencies should first ascertain the need and secure the commitment of proposed benefiting communities before siting the project (2) That donors should encourage and practice participation and not patternalism in siting water projects to ensure sustainability of the facilities after construction.(3) The need for participatory Rural Appraisal (PRA) of communities to identify the water vulnerability areas of intervention and supported by active advocacy and sensitization of communites on management and sustainability of water infrastructure.

Keywords: Demand-driven, Effectiveness, Donor-assisted, Self-sellected, Patternalism

Aims Research Journal Reference Format:
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1. INTRODUCTION.

Water is life and life without water cannot be imagined, this probably explains why governments at different levels, corporate organisations as well as local and international donor agencies have tried to provide portable water to enhance the wellbeing of the populace. In spite of this global awareness and efforts to tackle the problem of water, portable water still remains a global challenge. Water is the millennium development goal (MDG) seven and according to WHO/UNICEF (2012) even though the water target of the MDG seven has been met, more than one tenth of the global population relied on unimproved drinking water sources. In access to safe water, there is huge disparity in coverage with only 61 per cent in sub-Saharan Africa while inequities existed within countries between the rich and poor and, between those living in rural and urban areas. WHO/UNICEF Joint Monitoring Mission (2013) further note that, water quality and safety parameters were not available for monitoring, which could have reduced access based on presence of less than 10CFU/100ml of water. By the end of 2011, 83% of the population without access to an improved drinking-water source lived in rural areas.

As noted earlier conscious and consistent multi-level efforts have been on to bridge the demand and supply gap for water globally and in Nigeria in particular. These efforts do not seem to have yielded the needed result to reduce the population without access to portable water. This nagging portable water problem in the Nigerian context in the opinion of the researchers may not be partly unconnected to the conventional supply driven approach to water facilities supply. This study therefore seek to find out if the paradigm shift from the conventional supply driven-to demand-driven approach to water facility provision have significant positive effect on the effectiveness of donor provided water facility.

1.1 Objective of the Study

This study seek to find out if the paradigm shift from the conventional supply driven-to demand-driven approach to water facility provision have significant positive effect on the effectiveness of donor provided water facility.

1.2 Research Question

Does the paradigm shift from the conventional supply driven-to demand-driven approach to water facility provision have significant positive effect on the effectiveness of donor provided water facility?

1.3 Research Hypothesis

The paradigm shift from the conventional supply driven-to demand-driven approach to water facility provision does not have significant positive effect on the effectiveness of donor provided water facility.

2. WATER SITUATION IN NIGERIA

Nigeria has an estimated population of 180 million (Vision, 20:2020, 2009) and the population with access to safe drinking water increased from 47% to 61% between 2008 and 2011, with a gap of 14% to meet the 75% target for Nigeria on the MDG target (WHO/UNICEF, 2013). On sanitation, Nigeria is 5th highest in hierarchy in Open Defecation practise, after India (626m), Indonesia (63m), Pakistan (40m) and Ethiopia (38m) despite the fact that about 12.37 million people gained access to improved sanitation between 1990 and 2008 (WHO/UNICEF, 2012). Based on available statistics, Nigeria did not achieve the MDGs sanitation target of 63% access to improved sanitation by 2015 as nearly 100 million people lacked access to improved sanitation, and a large portion of the population (34 million people) practice open defecation (WHO/UNICEF, 2013).

2.1 Sources of Water in Delta State

The WHO/UNICEF (2013) opine that the population with access to safe drinking water increased from 47% to 61% between 2008 and 2011, with a gap of 14% to meet the 75% target for Nigeria on the MDG target, this may not have translated to a significant difference in Delta State as many semi-urban and urban dweller even rural dwellers still depend on sachet water (*pure water*) as their source of portable water while water from other sources are used for other domestic and hygiene purposes. In Isoko South and Ndokwa West LGAs, different sources of water like in other Niger Delta States exist; ranging from government, corporate organisations, individual, and donor provided boreholes. Preliminary investigation by the researchers shows that a very significant proportion of these water sources are not functional. Others are hand pumps, river water, stream water, rainwater harvesting, hand dug well and water vendors. The quality of water from these sources like other Niger Delta States are not good due to a number of reasons; gas flaring and other emissions from hydrocarbon exploration and exploitation activities, salt water intrusion, presence of iron and heavy metals in underground water (NDSP-3 SEA Report 2016) .

2.2 Donor Assisted Water Projects in Delta State

Delta State is major recipient of donor assisted water projects particularly from international donors like the Word Bank and European Union. The EU for instance through their micro projects Scheme of MPP-3, MPP-6, MPP-9 and the small town water intervention of 2005 has futured prominently in the provision of Water facilities in Delta State. Delta State is also a beneficiary of the EU-Assisted Niger Delta Support Programme which started in 2013 and rounded off the first phase in 2017 and an extension phase from 2018-2019 tentatively. It is not clear whether there was proper needs assessment before the location of these projects particularly some of the MPP-3 water schemes which in most places are either completely abandoned or moribund.

2.3 The Paradigm Shift from Supply to Demand-Driven Approach to Water Supply

Water supplies to communities in Delta State aside from the natural sources have often been supply driven. Water facility provision is said to be supply-driven when the provider provides the water facility or scheme without the demand of the benefiting communities. The decision to provide the facility under a supply driven approach is centered on paternalism and not participation. When an individual, corporate organization, government, donor agencies (CSOs, NGOs and CBOs) provides a water scheme or facility not on request and without the consultation of the benefiting community before construction, such projects are said to be supply driven. One of the major reasons for supply driven projects is to spring surprises on the benefiting communities and other stakeholders. Other reasons are: to score political goal, ignorance on the needs of the people particularly the hierarchy, unencumbered and speedy delivery, parochial interest and personal gain. This approach is not completely bad and condemnable, but it has one major and inherent disadvantage and that is the recipients or supposedly benefiting communities will continue to see the project as that of the provider if it does not serve the immediate or future need of the people and if the utility derived from it is marginal. This will obviously lead to non-sustainability and subsequent abandonment of such facilities.

Under the demand-driven approach, the decision to provide the facility is centered on participation and not paternalism. Here an individual, corporate organization, government, donor agencies (CSOs, NGOs and CBOs) provides a water scheme or facility on request and with the consultation of the benefiting community before construction. Projects of this nature are said to be demand-driven. This approach gives the recipients or benefiting community a high sense of belonging and ownership. Water facilities and schemes arising from this approach have the community's input and participation and are more likely to be welcome and sustained. This approach is very recent in the Niger Delta with the EU-Assisted Niger Delta Support Programme as one of the forerunner to this paradigm shift (NDSP SEA Report, 2016).

2.4 Steps in the Demand Driven Approach and Self Selection Process

The steps in the selection of a benefiting community under the demand-driven approach may vary from one individual, corporate organization, government, donor agencies (CSOs, NGOs and CBOs) to another but at the end the emerging community is such that actually have a need for the project. The process begins with publication of expression of interest through different media. Interested communities are directed on how to obtain and complete the EOI form. Different criteria and requirements are set in the EOI form on the basis of which the applicant communities are assessed. For instance under the EU-NDSP-3 which selection of the pilot LGAs was done by UNICEF, two of the major criteria for the selection of the small towns was evidence of self-help project by the small towns and willingness to pay for counterpart fund contribution (UNICEF, 2013). Communities that did not apply were not considered in the selection process. The process of this selection is called the self-selection process.

3. METHODOLOGY.

The methodology applied is a mixed one and it was carried out in three stages to elicit valid data used for the study (both qualitative and quantitative data). Stage one was mainly pre-field activities and focuses on developing the survey instrument (questionnaire construction), validity and reliability tests of the instrument and logistic arrangement for mobilisation to field. There was also sensitization and awareness creation among WCA executives / members and other stakeholders on the purpose for which this survey was carried. Stage two focused mainly on the actual data collection activities / field work. Questionnaire and interview administration, coding of interview responses, editing and retrieval of completed questionnaire were done in this stage. The third stage comprises of post-field activities; this stage involves data presentation, analysis, interpretation, findings and conclusions.

3.1 Research Design

Given the nature of this study, which requires collecting primary data from respondents through the use of questionnaire, the researchers adopted the survey design. This survey method facilitates a systematic study of the population of interest through the use of questionnaire and interview to generate valid and reliable data for analysis. Secondary data was also relied on in the study.

3.2 Population of the Study
The population of this study comprises of all the adult water consumers in the self-selected Ten (10) small towns in the two (2) self-selected LGAs: Irri, Idheze, Owodokpokpo, Olomoro & Uzere in Isoko South LGA and Ogo-Ikilibi, Ike-Onicha, OOlieogo-Umuseti, Ogbole/Igbe and Emu-Unor in Ndokwa West LGA .The population of the two LGAs according to UNICEF(2013) base line survey is estimated at 110,583.

3.3 Sample Size Determination
A sample size of 383 respondents was decided using Epi Info sample calculator and confirmed with Surveymonkey sample calculator, out of which 350 were validly returned and eventually formed basis for the study. Both sample size calculators are computer aided and obtainable online .

3.4 Sampling Technique
Quota sampling technique was applied in the selection of samples for questionnaire administration. The towns were broken down into different units in line with the existing compound, village or quarter structure in the small town. The copies of the questionnaire were carefully administered such that there is adequate representation of the different groups in the small town.

3.5 Sources of Data
The data for this study were drawn mainly from both primary and secondary sources. Data relating to the population and sampling frame were from secondary sources (UNICEF, 2013) while those elicited from the respondents through the use of questionnaire were from primary sources. The primary data particularly the ones elicited from the respondents through the use of questionnaire formed basis for the analysis.

3.7 Description of Research Instrument
The survey design was adopted for this study thus necessitating the construction and use of questionnaire and unstructured interview. The questionnaire for the survey is a mix of closed ended and open ended questions. The questionnaire is split into three sections; personal characteristics, Social characteristics and sources of water. The questionnaire was subjected to validity and reliability tests as described herein below.

3.10 Validity
The questionnaire was subjected to validity test to ensure that the instruments (the questionnaire) measures what it is designed to measure. Content validity test was adopted for this study to ensure the questions contained therein are adequate both in content and scope.

3.11. Reliability
The survey instrument was also subjected to validity test to ascertain the degree of consistency of the measurement instruments if applied in the same circumstance and environment repeatedly overtime. The test retest method was applied and a correlation of 0.83 was obtained implying a strong measure of reliability.

3.12 Questionnaire Administration
The final copies of the questionnaire was made ready after the pilot testing of the instrument since the measure of consistency obtained (0.83) from the test is acceptable. The questionnaire was deemed ready for distribution thus 383 (Three hundred and eighty three) copies were made in line with sample size for the survey and administered to the respondents. The mode of distribution was by hand through the researchers and adhoc survey assistants that were trained by the researchers for the purpose. All completed questionnaire were retrieved by hand as well. A retrieval rate of 91.3% was achieved and a total of 350 copies of the questionnaire were retrieved and eventually became the actual sample size that formed basis for the analysis in this survey.

4. PROCEDURE FOR DATA ANALYSES

One hypothesis was tested using Chi square (x^2_3) at 5% level of significance**.**The Chi square calculated is 8.12 while the critical value is 7.185. The result of the study shows that demand driven approach to water supply affects the effectiveness of donor assisted water facilities Delta State.

Table 1.1 Calculated Value of X^2_3 at 5% level of significance

Observed Frequency (fo)					
	SA	A	D	SD	Total
Isoko South	78	65	27	2	172
Ndokwa West	87	53	31	7	178
Total	**165**	**118**	**58**	**9**	**350**
Expected Frequency (fe)					
	SA	A	D	SD	Total
Isoko South	81.08	57.98	28.5	4.42	172
Ndokwa West	83.91	60.01	29.5	4.57	178
Total	**165**	**118**	**58**	**9**	**350**
$(fo-fe)^2$					
	SA	A	D	SD	
	14.44	247.11	2.25	5.85	
	9.54	49.14	2.25	5.90	
$(fo-fe)^2/fe$					
	SA	A	D	SD	
	0.17	4.27	0.08	1.32	
	0.11	0.81	0.07	1.29	
$X^2_3=\sum(fo-fe)^2/fe=8.12$					

Source: Survey Data 2018

5. CONCLUSSION.

The study concludes that the demand driven approach guarantees the effectiveness of donor assisted and donor provided water facilities in Delta State.

6. RECOMMENDATIONS

The study recommends as follows: (1) Donor agencies should first ascertain the need and secure the commitment of proposed benefiting communities before siting the project (2) That donors should encourage and practice participation and not patternalism in siting water projects to ensure sustainability of the facilities after construction and (3) The need for participatory Rural Appraisal (PRA) of communities to identify the water vulnerability areas of intervention and supported by active advocacy and sensitization of communites on management and sustainability of water infrastructure.

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