

# Differentials in Public Perception of Urban Flood Control and Management Measures along Ogunpa River, Southwest, Nigeria

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**Abstract** The study determined the extent to which differences exist in the way residents living along the Ogunpa River in Ibadan perceive the flood management measures taken to forestall regular flood incidents in the area on the basis of some socio-economic and demographic factors such as gender, marital status and socio-economic background. The study involved 250 respondents (151 males and 99 females). It employed a questionnaire in obtaining information from the respondents and the data obtained was analyzed using frequency counts and t-test statistics. The result showed that there were no significant differences in the perception of respondents concerning measures taken in controlling flood along the Ogunpa river. Recommendations were made as to how the current measures can be more effective.

**Keywords** Flooding, Flood Management, Public Perception, Water Resources Management

## 1. Introduction

Flooding is a recurrent environmental problem in Ibadan. Preventing regular floods in the city has become an enormous task given the negative impact it has on the safety of lives and properties and the increasing risk of human displacement from their residences. Floods usually occur as a result of heavy rainfall during which soils become highly saturated and run-offs can no longer be contained in stream channels and as a result land surface becomes submerged, sweeping away its contents. Destruction emanating from flood are quite enormous and Ibadan had its share going by experiences of the disasters that occurred in 1964, 1978, 1980, 1985 and 1997 [1], [2], [3]. Several reasons abound to explain the regular occurrence of floods in Ibadan in the last three decades. Chief of these are the prevalence of torrential rainstorms, poor sewage management and disposal, poor urban planning control as shown by the unplanned layout and public apathy to environmental sanitation. All of these have combined together to make flooding a regular occurrence in Ibadan. In response to the increasing incidents of flooding and the negative effects it poses to the security of lives and properties, successive governments in Oyo State, for which Ibadan is the capital have devised several measures aimed at preventing and managing flooding in the

city particularly along the Ogunpa River. One of the remarkable measures adopted so far is the Ogunpa River Channelization Scheme which was started in 1999 in conjunction with the Federal Government of Nigeria. The scheme involved a collection of measures targeted at reducing flood incidents along the Ogunpa River. These measures include dredging of the river channels, clearing of human wastes and debris along the banks of the river, control of physical development along the banks, beautification of some sections of the river to discourage indiscriminate sewage disposal and the construction of modern drainage channels along the river to aid smooth flow of stream water. In view of the measures taken so far in combating the menace of flooding in Ibadan, this paper sought to determine the perception of people living in the city, (particularly along the river bank) as to the Channelization Scheme. Specifically, it sought to determine whether there are differences in the perception of respondents on the flood management measures taken on the Ogunpa River on the basis of some demographic variables such as gender, marital status and socio-economic background. This is because an examination of the way Nigerian public views the Channelisation scheme will serve as a feedback to the government as to the extent to which they as stakeholders are satisfied with the project. This is essential if it is appreciated that as stakeholders they constitute the target of the project and it will be proper if their views and assessment are captured and taken into consideration at least as an input whenever the project is being finetuned or evaluated in order to enhance better performance. Furthermore, as beneficiaries of the project,

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Published online at <http://journal.sapub.org/safety>

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the residents of the areas along the channelisation scheme constitute a force to be reckoned with and acknowledged to provide an objective assessment of the efficiency or otherwise of the project as it relates to the attainment of the project objectives.

### 1.1. Statement of Problem

This study sought to determine whether there were significant differences in the way residents living along Ogunpa River in Ibadan perceive the flood management procedures floated by the government on the basis of some socio-demographic factors such as marital status and socio-economic background. This is so because, Ibadan, the capital of Oyo state and the third largest city in Africa has experienced a lot of flood incidents in the last four decades. This has resulted in the loss of lives and properties. In response to this, the Federal Government of Nigeria in conjunction with the Oyo State Government in 1999 embarked on a wide-scale Channelisation programme which involved some measures such as dredging of the drainage channels along the Ogunpa River, public sensitization on river beautification and some sanitation exercises. This study considers it critical to assess the extent to which residents view these measures and how successful and far reaching it has been.

### 1.2. Research Question

To what extent do respondents differ in their perception of flood management measures taken along Ogunpa river on the basis of socio demographic factors such as gender, marital status and socio economic background?

## 2. Methodology

### 2.1. Sample and Sampling Procedure

The study involved 250 respondents (consisting of 151 males and 99 females) spread over residential buildings along the Ogunpa river. The river flows across three local government areas in Ibadan region. The respondents were selected using stratified random sampling on the basis of local government areas and wards.

### 2.2. Instrument

The instrument used in the study for the purpose of obtaining information from respondents was a questionnaire titled "Questionnaire public perception of flood management measures taken along Ogunpa River, Ibadan. It consists of three sections. Section A covered issues relating to the personal background information respondents such as age, sex, occupation, marital status, educational background, socio-economic background and family size. Section B covers issues relating to flood along Ogunpa river while section C dwells on respondents perception of flood management measures taken in respect of the Ogunpa river in Ibadan. Before final administration on respondents, the

instrument was tested for reliability and it yielded a Cronbach alpha value of 0.736.

### 2.3. Procedure

The data collection exercise was undertaken by the researcher with the assistance of two trained research assistants. Questionnaires were administered on the respondents and were retrieved immediately after they had been filled. The exercise lasted a month.

### 2.4. Data Analysis

Analysis of the collected data involved the comparison of the mean of responses from respondents using the t-test statistic for independent samples. The significance level was set at 0.05. Analyses were computed with the Statistical Packages for the Social Sciences (SPSS) software version 15.0 for windows.

## 3. Results

The t-test statistics was used in analyzing the data since the variable, under study, that is, gender, marital status and socio-economic background exist in two groups. The result are presented in table 1 to 3.

**Table 1.** T-test Comparison of the Mean Perception of Respondents on the Basis of Gender.

Gender	Sample (N)	Mean	Standard Deviation	T.cal	T.cri	P
Male	151	1.1987	0.40033	1.380	1.96	0.169
Female	99	1.1313	0.33946			*ns

\*not significant at 0.05 as  $p > 0.05$ .

**Table 2.** T-test Comparison of Mean Perception of Respondents on the Basis of Marital Status.

Marital Status	Sample (N)	Mean	Standard Deviation	T.cal	T.cri	P
Single	124	1.1290	0.33660	1.790	1.96	0.75
Married	126	1.2143	0.41196			Ns*

\*not significant at 0.05 as  $P > 0.05$ .

**Table 3.** T-test comparison of the mean perception of respondents on the basis of socio-economic background

Socio-Economic Background	Sample (N)	Mean	Standard Deviation	T.cal	T.cri	P
Low	133	1.16541	0.37296	2.93	1.96	0.770
High	117	1.1795	0.38541			Ns*

Not significant at as  $P < 0.05$ .

From table 1, it is evident that respondents do not differ in their perception of flood management measures taken along Ogunpa River in Ibadan on the basis of gender. This is so because the t value obtained (1.380) is less than the t value observed from the statistical table, that is 1.96. Furthermore, the p value of 0.770 obtained is greater than the significance level set at 0.05. In other words, it can be said that respondents whether male or female do not differ in their perception as they tend to see it the same way.

Table 2 shows that respondents do not differ in their perception of flood management measures taken along Ogunpa river on the basis of marital status because the  $t$  value obtained (1.790) is less than the  $t$  value observed from the statistical table, that is 1.96. In addition the  $p$  value of 0.75 obtained is greater than 0.05 and is therefore not significant at 5% confidence level. Hence it can be safely concluded that there exists no differences in the perception of flood management measures taken along Ogunpa River in Ibadan on the basis of marital status as both married and single respondents see or view it the same way.

Table 3 reveals that there is no significant difference in respondents perception of flood management measures on the basis of socio-economic background. This is because the  $t$  value calculated (2.93) is less than the  $t$  value observed from the statistical table that is 1.96. In addition, the test is not significant at 5% confidence level (0.05 level) since the  $p$  value calculated which is 0.770 is greater than 0.05. Hence, it is clear that respondents do not differ in their perception of flood management measures on the basis of socio-economic background. In simple terms, the rich and the poor sees the measures in the same way.

## 4. Discussion

The above results show that there were no significant differences in the respondents perception of flood management measures taken in forestalling flooding along the Ogunpa river, Ibadan on the basis of gender, marital status and socio-economic background. This seems to suggest that generally, respondents view the issue of flooding the same way since they are all affected by it in one way or the other. On the basis of gender, it was not surprising to note that both male and female respondents' sees it the same way in that if and whenever flood occurs it affects all whether male or female. In addition, both male and females tender to view flood management measures in the same way in the sense that they all benefit from it, as not only does it seek to protect them and their properties, but also guarantee their residences, enhance their access to certain public utilities which they would have been denied of if flooding occurred regularly in their various localities unabated. The survey established that , respondents are quite satisfied with the Ogunpa channelisation scheme, the major flood protection measure taken to forestall flooding in Ibadan . Hence it is not surprising to note that respondents are favourably disposed to various flood protection measures taken so far.

Perhaps if there is any misgiving the respondents may have as it concerns the flood management project, it centres on the will and capability of the Oyo State government to sustain the project. The issue of sustainability has often been a critical issue in environmental management, including the issue of flood management and protection. Indeed it has been the subject of most works in the subject of flood management. [4], [5], [1], [6], [7], [8], [9], [10], [11], [12] have all

examined the issue of sustainability as it relates to flood protection and management. A perusal of these works shows that four criteria are critical to enhancing sustainability of flood management projects. They are: fairness, reversibility risk and consensus. Fairness or equity refers to a situation where every resident in an area prone to flooding is protected from the menace. In other words, all residents in areas prone to flooding must be protected from the effects of flooding. Hence, any project aimed at flood management should first seek to protect every resident from the hazards of flooding by incorporating practical strategies for evacuating them during and after the incident. Reversibility connotes that flood management projects should be reversible in order to accommodate changes in the nature of the beneficiaries. This may not be particularly possible for large structural defences such as drainage channels, reservoirs etc, however, measures should be taken to militate against such. Risk criteria demands that flood management projects should not constitute risk to inhabitants of flood prone areas. Consensus on the hand mean, that all stakeholders to a flood protection project must agree to the relevance and benefits of the project. This aspect is that which the paper sought to address. Indeed, the study has established the fact that beneficiaries of the Ogunpa Chananisation Scheme are agreed on its relevance and benefits. What remains to be done and seen is to ensure that the maintenance of the project is carried out regularly and the beneficiaries carried along in every stage in order to create a sense of belonging and instill peoples' confidence in the project. In line with this view, this paper strongly recommends that existing flood management projects and measures in Ibadan ought to be reviewed regularly and the stakeholders adequately involved in the evaluation and monitoring stages for it to be effective and result-oriented.

## 5. Conclusions

Flooding for a long time to come will continue to be a topical issue that will command a lot of attention in view of the dangers it poses to mankind. This paper has examined the issue of differences in public perception on the flood management measures taken to combat incidents of flooding along Ogunpa River in Ibadan, Nigeria. It showed that there were no significant differences in public perception based on socio-demographic variables such as gender, marital status and socio-economic background. Whether rich or poor, married or single, male or female, respondents agree on the measures taken so far in combating flooding along Ogunpa River.

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