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## Assessment of participation in conception and adoption response to UNDP aquaculture projects in Lagos State Nigeria

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**E.D. Mohhamed\* and O.A. Lanre <sup>2</sup>**

<sup>1</sup>Department of General Studies, Federal College of Fisheries and Marine Technology, Victoria Island, Lagos. Nigeria

<sup>2</sup>Department of Sociology University of Ibadan, Ibadan. Nigeria

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This study elucidated the hypothesis that participation in the conception of the aquaculture projects that was not significantly associated with the adoption of the projects. The study accepted the null hypothesis, which stated that the participation in the conception of the aquaculture projects was not significantly associated with the adoption of the projects. Rather, factors not related to participation such as cost of the technology, mortality of the stocks donated by UNDP, predators and the belief in the river deities were noted to have influenced the non-adoption. The study recommends that the project donor should work with the people by allowing them to have a say in the conception of projects that touches their well-being. Also, projects should be sensitively handled to reinforce the interest of the people to adopt the project.

**Key Words:** Participation in conception, Adoption, UNDP, Aquaculture Projects

### Introduction

The 1943 adoption study conducted by Ryan and Gross, Professors of rural sociology at Iowa State University, provided basis for implications that have influenced the appreciable number of adoption studies (Stephenson, 2003). What some adoption studies have in common is that technology is frequently cited as determinant of adoption. Surry (1997) synthesized the dominant paradigm and essential ingredients common with different positions of some adoption studies to develop two paradigms: The developer - based and adopter-based paradigms. The goal of developer-based paradigm is to explain the technology diffusion by emphasising the superiority, efficiency and effectiveness of the technology as the determinant of adoption. The underlying assumption of this paradigm is that when superior technology is diffused, this

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\* Corresponding author: Mohhamed D. Enaikele; e-mail: enamohdau@yahoo.com

superior technology will by virtue of its superiority replace the inferior technology. This suggests that technology superiority is a sufficient condition that will lead directly to adoption of the new technology. The adopter-based paradigm explains technology diffusion by stating that factors mostly unrelated to technology superiority, influences the decision to adopt a new technology. In this context, the adopter-based paradigm seeks to understand the social context in which the diffused technology will be used. By this, the adopter-based paradigm focuses on the human aspect of technology diffusion by socially viewing the end-users (the people) who will ultimately adopt the technology. In this situation, the end-users participation in conception of technology is considered as one of the important social factors that influence adoption of a new technology and not necessarily the superiority of the technology. The end-users participation in conception of technology involves the donor finding out what the people want or need through a base-line study before the intervention of the technology. The need of the people expressed through the base-line study practically explains the end-users participation in the conception and diffusion of a new technology.

Participation is a rich concept that means different thing to different authors. Though, there is unanimity in the importance and purpose of participation but there is less unanimity in the definitions and interpretations of the concept (Oakley and Marsden, 1990). This is because various modifications and applications have been pressed into the interpretations of the concept. This is largely as a result of increasing emphasizes placed on the end-users in technology conception. The popular interests that participation has enjoyed in the recent time have its root in the thought that if the end-users are involved in the conception of a new technology, they will commit themselves to adopt and sustain the technology (Salmen, 1995; World Bank, 2007).

Since Nigeria independence in 1960, multilateral development organizations' project has been an important component of rural development. These efforts culminated in the intervention of the United Nations Development Programme (UNDP) aquaculture projects, under the 4<sup>th</sup> country programme in some artisanal fishing communities, in Lagos State, Nigeria. Given the UNDP aquaculture projects, it is not clear whether the project end-users (the artisanal fisherfolks) participated in the project conception. This is because, in the past, many of similar classically packaged projects fell short of addressing the benefiting communities' participation in project conception (Ohiagu, 2001; Okunmadewa, 2001; Nwachukwu, 2006). The obvious implication of exclusion of the benefiting communities (end-users) from participation in project conception, implementation and evaluation may have accounted for the failure of these projects (Federal Ministry of Information, 1994)

This research was an ex-post study. An ex-post project study was carried out between five and ten years after the project that it has been completed. Against this background, the broad aim of this study was to test the hypothesis that participation in the conception of the aquaculture projects that it was not significantly associated with the adoption of the aquaculture projects. To achieve this aim, the paper presents an ex-post assessment of the participation and adoption of the UNDP aquaculture projects by investigating the artisanal fisherfolks participation in the conception of the aquaculture projects and finding out if the artisanal fisherfolks adopted the aquaculture projects.

Executive summary of the UNDP base-line report (UNDP-FGN-NIR/A1, 1996) stated the base-line study of the artisanal fishing communities (Ibeshe, Iyagbe, Agbowa-Ikosi and Ebute-Afuye) in Lagos, Nigeria, was carried out in 1996. The result of the base-line study showed that the main occupation of the people is fishing. The fisherfolks used various means to fish and the result is that the lagoon has become depleted. Following this, fishing has become a non-profitable trade. The fisherfolks have high incidence of poverty. Their pressing needs are outboard engine, fishing nets, floats, fish processing equipments and access to fuel for powering boat to good fishing ground. The base-line report recommended measures to harness the resources and potentials of the wetland communities by utilizing the swamp and mangrove swamp that abound in the communities, for fish farming (aquaculture). This base-line recommendation, however, culminates in the United Nations Development Programme (UNDP) aquaculture projects intervention, in the four communities (Ibeshe, Iyagbe, Agbowa-Ikosi and Ebute-Afuye) in Lagos, Nigeria.

## **Materials and methods**

### ***Study Area***

The study areas (Ibeshe, Iyagbe, Agbowa-Ikosi and Ebute-Afuye) were basically fishing communities in Lagos State, Nigeria. These were the only communities that benefited the UNDP aquaculture projects intervention, under the 4<sup>th</sup> country programme. These communities are coastal settlements along the lagoon. Their methods of fishing were rudimentary and labour intensive with minimal mechanization.

### ***Sampling Procedure***

The communities that benefited from the UNDP aquaculture projects were purposively selected because the only communities where the projects

were carried out. With the aid of sampling frame, simple random sampling technique was used to select the sample population from each of the communities. The respondents were identified through household listing after which, respondents were randomly selected.

### ***Method of Data Collection***

The methods for data collection were interviewed, focused group discussion (FGD), key informant interview (KII) and direct observation. These methods were chosen because of their ability to provide very different kinds of data. The structured interviews were based on three hundred and fifty (350) total respondents randomly selected. Thirty (30) respondents were purposively arranged for focus group discussions (FGDs) in each of the communities. The group discussants were stratified into adult men, women and the youths. The reason was to make each group homogenous and free with one another to express views without complex. Each of three stratified group of discussants had two sessions of five discussants, at a time. The essence was to have a manageable team of discussants. On the other hand, the key informants interviewed (KII) were the traditional rulers and the chairmen inter-group in all the communities. The concept of inter-group was introduced along with the project by the UNDP. All the government registered fish cooperative societies in each of the project benefited communities were brought together to form an umbrella body called inter-group. Finally, with the aid of rapid rural appraisal (RRA), direct observation was used. The direct observation facilitated information about the project adoption. It also provided a mean of authenticating information received from the respondents.

### ***Methods of Data Analysis***

A total of three hundred and fifty (350) respondents were sampled with the structured interview instrument but three hundred and forty-one (341) which were received and analysed. Out of these, three hundred and sixteen (316) cases were valid. The data were analysed with statistical package of the social science (SPSS). With the descriptive statistics, the data are presented in cross-tabular form using frequency and percentage distribution. The focus group discussions and other qualitative methods did not provide results that was amendable to quantification and statistical analysis. More importantly, these qualitative methods also allowed the respondents the opportunities to raise issues and questions, which otherwise were not considered by the researchers, in the development of quantitative research instrument.

**Results and Discussion**

*Testing of Hypotheses*

To determine if there is a significant association between participation in the project conception and adoption of the project, a Pearson Chi-square test was undertaken and the result is seen in Table 1.

**Table 1.** Chi-Square Testing Significant Association Between Participation in Project Conception And Adoption of the Aquaculture Project.

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	percent
PCOMI *RFISP	316	92.7%	25	7.3%	341	100.0%

PCOMI *RFISP Crosstabulation					
			RFISP		Total
			Yes	No	
PCOMI	Yes	Count	6	33	39
		% of Total	1.9%	10.4%	12.3%
	No	Count	73	204	277
		% of Total	23.1%	64.6%	87.7%
Total		Count	79	237	316
		% of Total	25.0%	75.0%	100.0%

Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.194b	1	.139		
Continuity Correctiona	1.648	1	.199		
Likelihood Ratio	2.403	1	.121		
Fisher's Exact Test				.169	.096
Linear-by-Linear Association	2.187	1	.139		
N of Valid Cases	316				

Computed only for a 2x2 table. 0 cells (.0%) have expected count less than 5. The minimum expected count is 9.75.

PCOMI.....Participation in project conception

RFISP.....Adoption of project

X<sup>2</sup> = 2.194, Df = 1, P = 0.139

Since the probability value of 0.139 is more than the 0.05 level of significance, the null hypothesis, which states that the participation in the project conception is not significantly associated with the adoption of the aquaculture project, is accepted. Though the chi-square result showed no significant relationship. It was noteworthy that a significant percentage (64.6%) of the respondents who indicated that the aquaculture projects were not their communities' conception did not adopt the project.

### ***Participation of the Fisher folks in Conception of the Aquaculture Projects***

The conception phase of any new agricultural development project is very important because it is expected to incorporate the interaction between the donor and the people. Since social interaction implies social contact and reciprocal response to the action of others (Haralambos, Holborn and Heald, 2004), this social process is expected to produce the donor's awareness and response to the people's need. It is only when the people have effectively demonstrated the adoption and continue adoption of the new project, well after the exit of the donor, that the donor could be said to have succeeded in providing the project that match the need and priority of the people.

The participation in the aquaculture project conception was found to be 12.3% while 87.7% skewed in favour that the aquaculture projects were not their communities' conception. The result of the focus group discussions and key informant interviews also showed that the fisherfolks did not participate in the conception of the aquaculture projects. These findings confirm the UNDP-FGN-NIR/AI Base-Line Report (1996), which recommended the conversion of the swamp and mangrove swamp in the fishing communities for fish farming (aquaculture). It was as a result of the base-line recommendation that the UNDP aquaculture projects were donated to the communities and not necessary that the UNDP aquaculture projects were conceived by the fisher folks. Ekong (2003) observes that the non-involvement of the rural folks in agricultural development projects conception has come a long way from the colonial days. Then, agricultural development was meant to increase productivity for export. The objective of agricultural development projects at that time was not to involve the rural people in the projects conception. It only emphasised changes, which entailed the relegation of indigenous value and adoption of western diffused technology.

The importance of participation in the project conception is the bottom-up involving linking the people's need to the donor. This is the process through which the people as stakeholders or clients could influence and share control over project

priority. So, promoting participation helps to build ownership and enhances aggregate success of agricultural development projects (World Bank, 1994).

### ***Adoption of The Aquaculture Projects***

The result from the above quantitative table shows that 25.0% of the respondents adopted the aquaculture projects while 75.0% did not adopt the project. Among all the four communities studied, qualitative findings (FGDs, KIIs and observations) confirmed that it was only at Ebute-Afuye that the project was adopted. To understand why some fisherfolks adopted the aquaculture project and others did not, it is more constructive to look for the seemingly “hidden” rationality of such decisions (Vanclay, 1992). The focus group discussions and key informant interviews reveal that other factors different from participation of the fisherfolks in the conception of the aquaculture projects accounted for the non-adoption of the projects. These factors include cost, mortality of the stocks donated by the UNDP, predators and the belief in river deities.

Cost factor was identified through the FGDs and KIIs as reason for non-adoption of the aquaculture project at Iyagbe. Cost includes construction, stocking the pond and feeding the stocks. An innovation may be perceived as having relative advantage over other practice and can be tried on a small scale. Yet, it may still not be adopted because of its cost. Except if the cost of an innovation is very low, it may not attract adoption.

At Ibeshe, the qualitative finding (FGDs and KIIs) reveals that the mortality of the stocks experienced few days after the aquaculture project was donated, influenced the non-adoption. The qualitative findings further revealed that the serious fish mortality as a result of overliming the pond. The field observation revealed that the pond 15 m x 30 m is located in the mangrove swamp. Generally, the high acidity of the mangrove water and soil require liming before it can be effectively used for stocking of fish (Nigeria Environmental Study/Action Team 1991). Basically, it is important to make clear that the issue of overliming the pond and its effect on fish mortality provided an evidence of technical error in the project execution. This technical error was an important factor for explaining the probable reason for non-adoption of the project. Where the donor could not technically, efficiently and convincingly demonstrate the success of the projects, it may difficult to expect the fisherfolks to interest in adoption.

At Agbowo-Ikosi, the qualitative finding (FGDs and KIIs) revealed that the invasion of predators (birds and animals) on the stocks donated deterred adoption. Cymmyt (1993) grouped issue like predator as biological factor that

hinders adoption agricultural of innovation. This implies that neither the technology nor the participatory roles of the end-users are the only conditioning factors for adoption. This is because innovation with perceived relative advantage may still be rejected because of the problem of predators.

In all the communities studied, qualitative finding (FGDs and KIIs) reveals that the fisherfolks believed in the benevolent ability of the river deities to boost fish supply. The fisherfolks take the belief in river deities serious and express concern to offer rituals to honour the deities to have bumper catch and safety in the wild. This non-empirical belief may have potential influence on poor aggregade of adoption of the aquaculture project. The issue of non-empirical belief in rituals to appease the river deities to boost fish supply is institutionalized and supported with norms and taboos among the fisherfolks. So, externally driven agricultural technology like aquaculture requires sufficient knowledge of the belief system, culture and value practices of the fisherfolks and to understand their adoption behaviour.

#### ***Factors that Influenced Adoption at Ebute-Afuye***

In the community (Ebute Afuye), the qualitative findings reveal that the community had a fish pond before the one donated by the UNDP. Other factors that influenced the adoption include income and employment opportunities of the project. Where an agricultural innovation promises employment opportunity, such innovation is most likely to attract youth's adoption and reduce rural-urban migration of youths.

#### **Conclusion**

This study concludes that the fisherfolks did not participate in the project conception. Likewise, the adoption of the aquaculture is substantially poor. The null hypothesis which states that the participation in the conception of the aquaculture projects is not significantly associated with adoption of the projects is accepted. The factors are not related to participation, such as cost of the technology, mortality of the stocks donated by the UNDP, predators and the belief in the river deities were profoundly responsible for the poor adoption of the aquaculture project.

It is recommended that the fisherfolks should be involved in the project conception. This would strengthen their voice, sense of relevance and capacity to negotiate with the donor the project they need. This implies working with the people and not for the people and allowing them to prioritize the project to be undertaken. This bottom-up project delivery strategy would erase the



fisherfolks feelings of neglect and passive recipient. This would impact positively on the adoption of the projects. The pond construction should be sensitively handled to avoid overliming resulting to fish mortality in the demonstration pond. It is through this that the fisherfolks would generate interest and confidence to adopt the project. Where agricultural development projects can not generate interests and confidence for adoption The project would remain a mere experiment and its aggregade impact on the lives of the people may be insignificant.

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