



**ASSESSMENT OF BENEFITS OF NIGER DELTA DEVELOPMENT
COMMISSION CASSAVA PROJECT ON PARTICIPANTS' LIVELIHOOD
ACTIVITIES
IN BAYELSA STATE, NIGERIA**

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Abstract

The study assessed benefits of Niger Delta Development Commission Cassava Project on participants' livelihood activities in Bayelsa State. Objectives that guided the study were participants' level of participation in Niger Delta Development Commission (NDDC) cassava project and the relationship between the benefits of NDDC cassava project participation and the livelihood activities of participants in Bayelsa State, Nigeria. Purposive sampling technique was used to select 150 farmers that participated for the study. Primary data were collected using structured questionnaire and the data were analysed using descriptive statistics such as three (3) point Likert type scale, and inferential statistics such as simple regression model. The findings showed that farmers participated actively in training of all the activities such as adequate and timely supply agro-chemicals (pesticides, fertilizers etc.) 2.1, access to improved planting materials (stem) 2.2, provision of essential farm implements' (hoes, cutlass, spade etc.) 2.1, procurement of irrigation equipments (pumps, pipes etc.) 2.1, training on modern farming techniques on cassava 2.3, advisory services on cassava farm enterprises 2.4, provision of loans/credits 2.3, marketing of produce 2.6, income for my enterprise 2.7, procurement of agro-processing 2.9, infrastructural facilities 2.7, acquisition of farm management skills 2.9, and availability of food for my household 2.7. The regression coefficient of the benefits of NDDC cassava project participation was positive and significant at 1% level. The Hypothesis showed that

the computed F-ratio of 106.724 was significant at 1% level, implying that it is higher than the critical F value at 1% significant level, the null hypothesis is therefore rejected and accepted the alternative hypothesis, concluding that level of participation significantly influenced the benefits derived in participating in NDDC cassava project in Bayelsa State. The study concludes that farmers actively participated and benefited from the project, the study therefore recommends that the entire project be extend to other States that are under NDDC in other to improve the living standard of rural dwellers.

Key words: Assessment, benefits, cassava project, livelihood activities, participants

INTRODUCTION

Food insecurity is a widespread problem in several African countries where growing population pressure, combined with climate change, presents a global challenge associated with social and economic costs. About 50 percent of Africa's rural farm households and 20 percent of the urban poor are food insecure (Heidhues *et al.*, 2004). Food insecurity arises as a result of deficiencies in three aspects: food availability, food access, and food adequacy. Food availability involves productivity and other factors in the food supply chain. Innovations in agriculture have been one of the main methods for addressing food insecurity through increased productivity of common staple crops. Cassava is the second most important food staple in Africa after maize, and it is consumed by more than 200 million people in Africa south of the Sahara, who derive more than 50 percent of their calories from the crop (Manyong *et al.*, 2000).

Nigeria leads the global market share with about 21 percent of world cassava production (FAOSTAT, 2013). The development and introduction of improved cassava varieties has long been recognized as one of the key strategies for transforming the cassava industry and for enhancing the wellbeing of Nigeria's rural population (Dixon and Ssemakula, 2008). It is of this note the Niger Delta Development Commission (NDDC) embarked on a massive Cassava production project in Bayelsa State with the aim of improving the Livelihood activities of the rural dwellers. This research work is to find out the extent the participants participated in NDDC Cassava project and the level the commission was able to better the living standard of the people in the Bayelsa State. Thus the objectives are to:

- i. ascertain participant's level of participation in NDDC Cassava Project,
- ii. ascertain the relationship between the benefits of NDDC cassava project

participation and the livelihood activities of participants in Bayelsa State
HO₁. There is no significant relationship between participant's level of participation and the
benefits participant's derived in the area of study,

Methodology

The study was carried-out in Bayelsa Central Agricultural Zone which comprises of Kolokuma/Opokuma, Southern Ijaw and Yenagoa Local Government Areas respectively. Each of this L.G.As is known as Agricultural districts. The major occupation of the people are farming and fishing (NPC, 2006). Population of the study is made up of participants of Niger Delta Development Commission Cassava Project in Bayelsa State. Purposive sampling technique was used to select the participant's that participated in Niger Delta Development Commission Cassava Project in Bayelsa State, Kolokuma/Opokuma Local Government Area was used to represent the three (3) L.G.As that made up Bayelsa Central Agricultural Zone, three (3) communities such as Kaiama, Olobiri, and Okorotomu were used to represent the selected Local Government Area, One-Hundred and fifty (150) participants that participated in the Niger Delta Development Commission Cassava Project in Bayelsa State were selected from the communities for the study. Primary data and secondary information were used. Primary data were collected by means of structured interview-guide, while secondary information was gathered from internet.

Objective one (1) which ascertained the level of the farmers participation in NDDC Cassava Project in the study area, data were generated by presenting the respondents with items rated on a three point Likert scale, which was based on the question options of: 1) Always, 2) sometimes, 3) never. The options were quantified as 1, 2, and 3. The mean of 1, 2, and 3 equals 2, i.e. $1+2+3/3=2$. Items with mean scale of at least 2.0 were regarded as having the average score and therefore, were seen as active participants in Niger Delta Development Commission Cassava Project in Bayelsa State. Any item with a mean score of below 2.0 was regarded as non-active participant. Objective two (2) which assess relationship between the benefits of NDDC cassava project participation and the livelihood activities of participants in Bayelsa State was realized using simple regression analysis technique. Simple regression model was used to estimate the influence of the benefits derived from participating in Niger Delta Development Commission (NDDC) Cassava project on the livelihood activities of the participants is given in explicit form as:

$$Y_i = \beta_0 + \beta_1 X_1 + X_2 + X_3 + \dots + X_{13} + e \dots \dots \dots (1)$$

Where Y_i = livelihood activities as related to cassava production (output measured in

Naira),

$X_1 X_{13}$ was measured with 3 point Likert type scale

X_1 = Cassava stem production

X_2 = Cassava tuber production

X_3 = Starch production and marketing

X_4 = Flour production and marketing

X_5 = Production/sales of cassava chips

X_6 = Cassava production into garri and marketing

X_7 = Processing of cassava peels into livestock

X_8 = Making cakes, bread and biscuits from cassava flour and pulpy

X_9 = offering training on modern cassava production techniques

X_{10} = Engaging in cassava grinding business

X_{11} = Procurement of agro-processing facilities

X_{12} = Food vendor (fufu, garri, tabu-ababuru also known as abacha)

X_{13} = Non-agricultural related occupations

e = error term

X = mean rating of the benefits derived by the participants in NDDC cassava project.

Results and Discussion

Level of participation in Niger Delta Development Commission cassava project by the Participants

Result in table 1 showed respondent that had a mean score of 2.1 in their response to the question ascertaining their level of participation on adequate and timely supply of agro chemicals (pesticides, fertilizers) in Niger Delta Development Commission Cassava Project in Bayelsa State. The farmers mean score of 2.1 was above the bench mark mean score of (2.0). This implies that farmers participated actively on adequate and timely supply of agro chemicals (pesticides, fertilizers) in Niger Delta Development Commission Cassava Project in Bayelsa State. This is expected since finance is regarded as the backbone to any business activities (Nnamerenwa, 2012). Agricultural credit is expected to play a critical role in Agricultural development (Duong and Izumida, 2002) by supporting farmers to make substantial investment in agriculture and stimulate increased productivity. The active participation of the farmers on adequate and timely supply of agro chemicals (pesticides, fertilizers) in Niger Delta Development Commission Cassava Project in Bayelsa State will serve as a means of encouragement to engage actively in agricultural

production in other to ensure a good living standard among the participants.

The respondents had mean ratings of 2.2, 2.1, 2.1, 2.3, 2.4 and 2.3 in their response to the question ascertaining their level of participation in access to improved planting materials (stem), provision of essential farm implements (hoes, cutlass, spade etc.), procurements of irrigation equipment (pumps, pipes etc.), training on modern farming techniques on cassava, advisory services on cassava farm enterprises and provision of loans/credits respectively in Niger Delta Development Commission Cassava Project in Bayelsa State. The farmers mean score of 2.6, 2.7, 2.9, 2.7, 2.9, and 2.7 for marketing for produce, income for my enterprise, procurement for agro-processing, infrastructural facilities, acquisition of farm management skills and availability of food for my house hold respectively were above the bench mark mean score of (2.0). This implies that the farmers participated actively in the listed items made available for them to participate in Niger Delta Development Commission Cassava Project in Bayelsa State.

Roth (2001) cited in Agbarevo and Okwoche (2014), succinctly observed that greater success in Agricultural development programmes were achieved by using participatory approaches rather than top-down bureaucratic approach, which has been criticized for being responsible for the failure of many Agricultural projects/programmes. This view is equally supported by Haggmann *et al.*,(year?) in Agbarevo (2003), who concluded that participatory approaches such as Community Development Approach involved farmers/participants as equal partners in generating and testing new ideas, technologies and practices, leading to a more dynamic development and commitment, with better results achieved at community level.

Table 1: Mean Scores of Frequency of Participation in Niger Delta Development Commission Cassava Project

Activity	Score (n=150)					Total Score $\sum FX$	Mean Score (\bar{x})	Remark
	AL 3	ST 2	N 1					
Adequate and timely supply of agro chemicals (pesticides, fertilizers etc.)	54	61	35	319	2.1	Active		
Access to improved planting materials (stem)	62	63	25	337	2.2	Active		
Provision of essential farm implements (hoes, cutlass, spade etc.)	43	79	28	315	2.1	Active		
Procurement of irrigation equipment (pumps, pipes etc.)	55	58	37	318	2.1	Active		
Training on modern farming techniques on cassava	74	52	24	350	2.3	Active		
Advisory services on cassava farm enterprises	66	78	6	360	2.4	Active		
Provision of loans/credits	55	79	16	339	2.3	Active		
Marketing of produce	101	36	13	388	2.6	Active		
Income for my enterprise	107	37	6	401	2.7	Active		
Procurement of agro -processing equipments	133	9	8	433	2.9	Active		
Infrastructural facilities	100	39	11	400	2.7	Active		
Acquisition of farm management skills	133	9	8	433	2.9	Active		
Availability of food for my household	100	30	20	400	2.7	Active		
Overall mean score						2.5	Active	
Benchmark mean score (Decision cut point)						2.0		
Number of respondents						150		

Source: Computed by the author from field survey data, 2017

Note: AL= Always, ST = Sometime, N = Never.

Relationship between the benefits of NDDC cassava project participation and the livelihood activities of participants in the study area

Linear functional form of the ordinary least square regression model was the choice analytical tool due to its directness in estimating a cause and effect study. The coefficient of determination (R^2) for each of the models was above 70%, indicating that over 70% of the variations in each of the dependent variables were explained by the exogenous variable included in each of the models.

The regression coefficient of the benefits of NDDC cassava project participation was positive and significant at 1% level, implying that participants increased engagement in

cassava stem production as a livelihood activity was positively influenced by such experience derived from participating in NDDC cassava project in the study area. Such increase in production is expected to translate into higher income and better the standard of living of the project beneficiaries.

The regression coefficient of the benefits of NDDC cassava project participation was positively related to cassava stem production at 5% level of significance. This implies that participants increased engagement in cassava tubers production as a livelihood activity was positively influenced by the experience benefited from participating in NDDC cassava project in the study area. Such increase in the production of cassava tubers is also expected to translate into higher income and better the standard of living of the project beneficiaries.

The regression coefficient of the benefits of NDDC cassava project participation was positively related to cassava starch production and marketing at 1% level of significance. This implies that participants increased engagement in cassava starch production and marketing as a livelihood activity was positively influenced by the experience benefited from participating in NDDC cassava project in the study area. Exposing the beneficiaries to the processes and procedures of cassava starch production and marketing through NDDC cassava project will enable them to take on it as a way of life to generate income for catering for their need and those of their family members.

Experience in cassava flour production and marketing benefited by the respondents from participating in NDDC cassava project was positively related to their engagement in cassava flour production and marketing as a livelihood activity at 1% level of significance. This implies that engagement in cassava flour production and marketing as a livelihood activity among the respondent's increases as their experience in cassava flour production and marketing benefited from participating in NDDC cassava project increases and vice versa.

Experience in improved production of cassava chips benefited by the respondents from participating in NDDC cassava project was positively related to their engagement in improved production of cassava chips as a livelihood activity at 1% level of significance. This implies that engagement in improved production of cassava chips as a livelihood activity among the respondents increases as their experience in it increases and vice versa. Such increase in the production of cassava chips is also expected to translate into higher income and better the standard of living of the project beneficiaries. This finding is consistent with Ibeagwa, Nnamerenwa and Anorue (2012) who noted that the passion to

process cassava into garri, fufu and chips as a business opportunity by individuals is dependent on knowledge and/or experience one had gathered for the business. Experience in cassava processing into garri and how to market it benefited by the respondents from participating in NDDC cassava project was positively related to their engagement in Cassava processing into garri and marketing it as a livelihood activity at 5% level of significance. This implies that engagement in cassava processing into garri and marketing it as a livelihood activity among the respondent's increases as their experience in cassava processing into garri and marketing increases. Such increase in processing cassava into garri and marketing it is expected to translate into higher income and better the standard of living of the project beneficiaries.

Processing of cassava peels into livestock feeds was positively and significantly influenced by the benefit of such knowledge gained from participating in NDDC cassava project by the respondents in the study area at 1% level of significance. This implies that engagement of the respondents in processing cassava peels into livestock feeds as a livelihood activity was necessitated by gaining such knowledge through participating in NDDC cassava project in their area. This conforms to *a priori* expectation. The use of cassava peels in composition of feed for livestock is gaining ground as a mean to supplement commercial livestock feed and reduce cost of production. Individuals engagement in processing cassava peels to livestock feed will translate into higher output and hence higher income. Making cakes, bread and biscuits from cassava flour and pulpy as a livelihood activity was positively and significantly influenced by the benefit of such knowledge gained from participating in NDDC cassava project by the respondents in the study area at 5% level of significance. This implies that engagement of the respondents in Making cakes, bread and biscuits from cassava flour and pulpy as a livelihood activity was necessitated by gaining of such knowledge through participating in NDDC cassava project in their area. This conforms to *a priori* expectation. The use of cassava flour or pulpy to make cakes, bread and biscuits is gaining ground as a mean to supplement 100% usage of wheat flour in making bread, cakes and biscuits. This reduces cost of production and translates into higher income for the business owner.

Offering training on modern cassava production techniques as a livelihood activity was positively and significantly influenced by the benefit of such knowledge gained from participating in NDDC cassava project by the respondents in the study area at 1% level of significance. This implies that engagement of the respondents in training other farmers on

modern cassava production techniques as a livelihood activity was necessitated by gaining of such knowledge through participating in NDDC cassava project in their area. This conforms to *a priori* expectation. Such consultation services will help non-beneficiaries to queue into the mandate of NDDC cassava project, leading to increased cassava farming and food security in the area.

Engaging in cassava grinding business was positively and significantly influenced by the benefit of such knowledge gained from participating in NDDC cassava project by the respondents in the study area at 1% level of significance. This implies that engagement of the respondents in cassava grinding business as a livelihood activity was necessitated by gaining of such knowledge through participating in NDDC cassava project in their area. This conforms to *a priori* expectation and individuals engaging in cassava grinding business will translate into higher income for the business owner.

Procurement of agro-processing facilities was positively and significantly influenced by the benefit of such knowledge gained from participating in NDDC cassava project by the respondents in the study area at 1% level of significance. This implies that individual taking up procurement of agro-processing facilities as a livelihood activity was necessitated by gaining of such knowledge through participating in NDDC cassava project in their area. This conforms to *a priori* expectation. Individuals engaging in procurement of agro-processing facilities will help to increase the potential of processing cassava into several bye-products which will translate into higher income for the business owners.

Engaging in food vendor was positively and significantly influenced by the benefit of such knowledge gained from participating in NDDC cassava project by the respondents in the study area at 10% level of significance. This implies that engagement of the respondents in food vendor as a livelihood activity was necessitated by gaining of such knowledge through participating in NDDC cassava project in their area. This conforms to *a priori* expectation and individuals engaging in food vendor will translate into higher income for the business owner. This will help other business from cassava production such as Garri, Fufu and Abacha making to thrive in the study area and its environs. This finding collaborates Ibeagwa *et al.* (2012) who noted that many individuals engaging in processing cassava into garri, fufu and chips for making abacha is on the increase due to the high demand for such product necessitated by increase in population and increase in alternative forms of food such as yam, rice, beans, cornflake, fruits etc.

Engaging in non- agricultural related occupations was negatively and significantly

influenced by the benefit of participating in NDDC cassava project by the respondents in the study area at 1% level of significance. This implies that engagement of the respondents in non- agricultural related occupations as a livelihood activity decreases with their participation in NDDC cassava project in their area. This conforms to *a priori* expectation. The acquisition of new business training causes an individual to abandon his previous occupation especially when the new business training offers a better source of income to the individuals. This finding collaborates with findings of Ezenwa, Omondi, Ubuoh and Nnamerenwa (2018) who noted that training of individuals in agricultural production causes them the focus on it as an occupation against non-agricultural related occupations.

Table 2: Linear regression estimates of the relationship between the benefits of NDDC cassava project participation and the livelihood activities of participants in the study area

Indicators for participants livelihood activities	Benefits of NDDC cassava project participation				
	β_0	β_1	R ²	Adj-R ²	F-Ratio
Cassava stem production	20169.62 (7.189)***	221.773 (3.739)***	0.872	0.855	60.411***
Cassava tuber production	121621.24 (10.163)**	3210.429 (2.495)**	0.903	0.881	55.489***
Starch production and marketing	223830.66 (12.492)***	1260.132 (3.153)***	0.860	0.841	69.586***
Flour production and marketing	54053.48 (8.854)***	110.424 (2.844)***	0.863	0.844	68.156***
Production/sale of cassava chips	13178.067 (9.739)***	240.115 (4.921)***	0.852	0.839	61.431***
Cassava processing into garri and marketing	21320.217 (6.832)**	523.001 (2.330)**	0.749	0.726	56.045***
Processing of cassava peels into livestock feeds	114641.298 (11.076)***	1224.009 (2.203)**	0.750	0.736	55.665***
Making cakes, bread and biscuits from cassava flour and pulpy	312242.319 (12.460)***	1430.119 (2.620)**	0.849	0.823	53.022***
Training on modern cassava production techniques	25430.632 (4.595)**	321.440 (4.690)***	0.867	0.842	65.206***
Engaging in cassava grinding business	11778.045 (3.590)***	114.152 (4.690)***	0.764	0.743	66.001***
Procurement of agro-processing facilities	621513.859 (6.170)***	1530.605 (4.520)***	0.854	0.831	64.247***
Food vendor (Fufu, Garri, Abacha)	31100.892 (4.891)***	230.461 (1.923)*	0.847	0.822	37.716***
Non- agricultural related occupations	- 377101.327 (8.125)***	-2041.958 (-3.169)***	0.845	0.823	67.491***

Source: Field survey, 2019

Note: ***, **, and * indicates statistically significant at 1 percent, 5 percent and 10 percent level of significance respectively.

Conclusion and Recommendation

The result of this study shows that participants participated actively in all the outlined thirteen (13) items made available for participation in Niger Delta Development Commission (NDDC) Cassava project and benefited immensely by positively changing their living standard in Bayelsa State. This implies that Niger Delta Development Commission (NDDC) is succeeding in eliminating food insecurity specifically and poverty in general through its cassava project in Bayelsa State. Based on the successes recorded by Niger Delta Development Commission (NDDC) Cassava project, the Commission should extend the project to other States that made up Niger Delta Development Commission (NDDC).

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