

Incidence of Poverty among Fish Farming Households in Oyo and Osun States of Nigeria

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Abstract

The objective of the study is to analyse poverty among fish farming households based on functioning and capabilities in the study area. The study covered both Oyo and Osun states of Nigeria. Primary data were collected via structured questionnaire. The study employed multistage sampling technique. In all, a total of 280 respondents were used for the study. Information on dimensions of functioning, income and expenditure were derived from the data collected. Data were analysed using input distance function and Foster, Greer and Tobecke (FGT) 1984 Poverty measure. The study revealed that about 16% of fish farmers were non poor, 14% were moderately poor and 70% were core poor. Fish farmers in the study area did not enjoy moderate levels of standard of living (0.35). Moderate poverty incidence is highest in the households without formal education and lowest in the households with tertiary education. Household heads with age range of 31-40 years had highest moderate poverty incidence while those with age range of 41-50 years had highest core poverty incidence. Household heads that were divorced /separated had highest moderate poverty incidence while those that were married had highest core poverty incidence. Household heads that had no formal education had the highest poverty intensity of 60%. Household head with the age group of 41-50 years had the highest poverty intensity of 43%. Household heads with household size above ten members had the highest poverty intensity of 61%. Household heads that were married had the highest poverty intensity of 98%. Mean values for many constituents of standard of living reveals that the total durable asset dimension scores highest followed by education, housing condition and per capita income dimensions.

Key words: Core poor, moderately poor, poverty incidence, poverty intensity

Introduction

Food security has two main components: access and availability. Food accessibility is increased when commercial aquaculture generates employment. Without such employment the poor might never translate their need for food into effective demand. Aquaculture is the world fastest growing source of animal food, outpacing terrestrial meat production and the capture fisheries (Food and Agriculture Organisation, FAO, 2002). Yet commercial aquaculture not only increases food supply, but also provides employment income, some of which will

be used to purchase food. Even if the product is not consumed on the farm or even domestically, commercial aquaculture pays wages (or earns foreign exchange) that can be used to acquire food.

Poverty and hunger, however closely associated, are not synonymous and poverty cannot be simply defined in terms of lacking access to sufficient food. In that contest, the measurement of poverty through the level of income or consumption is not totally satisfactory (Beene 2003). The limitation of the income-poverty model gave rise in the

1970s to the development of the “basic needs” model pioneered by the international labour organization (ILO) and United Nations Research Institute on Social Development (UNRISD) (Beene, 2003). There was a new recognition that poverty was not just a failure to meet minimum nutrition or subsistence levels, but included a more general deprivation of the material requirements to meet minimally acceptable human needs such as health/education, clean water and other services required to sustain livelihoods. The basic needs model was the premise of a multi-dimensional definition of poverty which, later led to the human development model of the United Nations Development Programme.

The 1980s marked an even more drastic redefining of the concept of poverty. Undoubtedly, a key element in this new in-depth treatment of poverty was the contribution of Amartya Sen. In his Seminar, 1984 book *poverty and famine*, he observed that famine can occur amidst plenty and therefore that the absolute lack of resources is only one of the number of reasons why people lack access to the resources they need for sustaining their livelihood. This idea of failure of entitlement strongly activated the debate on poverty for the next two decades (1980-90) and other influential concepts emerged during the same period, either in relation/reaction to Sen’s entitlement concept, or independently.

Fish is a vital source of food for people. It is man’s most important single source of high-quality protein, providing 16% of the animal protein consumed by the world’s population (FAO 1997). It is a

particularly important protein source in regions where livestock is relatively scarce (FAO 2000). In the past three decades, production and consumption of fish have risen so dramatically that the world’s wild fisheries may fall victim to their own success. Meanwhile, the growing aquaculture industry has attempted to fill the gap between supply and demand. But as the global appetite for fish continues to increase, current trends in the fish sector pose serious risks to the environment, to the well-being of poor people, and to the viability of fish sector itself (Delgado et al, 2003).

One sure way of increasing the welfare of these farmers is the intensification of agricultural production. This will be possible only if they are able to take full advantage of aquaculture production. Omonona et al (2006) observed that poverty in Nigeria is an overwhelmingly grave problem and has been on the increase for many decades, being endemic to rural areas where the main occupation is farming. In recent times, technological advancement especially in agriculture has been very instrumental in reducing the poverty problem.

The debate on the nature and level of what should not be lacking to anybody leads to the larger issue of equity since it means to formally identify a subspace of space of equality and for each dimension in this poverty subspace, to define a minimal level below which a member of this society is characterized as “poor”. In other words, there is a knowledge gap regarding aquaculture capability – poverty in Nigeria. To this end, the study of

capability – poverty analysis would be a useful guide to policy makers in ascertaining poverty reduction programme in Nigeria. This is necessary in order to put things in the proper perspective for policy formulation. The objective of the study is to analyse poverty among fish farming households based on functioning and capabilities in the study area.

The capabilities approach is useful for examining the overlapping concepts of poverty. According to Sen (1993) an individual's well being or quality of life should be assessed in terms of the individual's capabilities the ability or potential to achieve certain things or functioning's. Functioning range from elementary such as being socially integrated base on how individuals attach weights to these functioning. The capability of an individual reflects the different combinations of functioning the person is able to achieve dependent on their particular circumstances.

Sen (1999), argues in support of a capability approach to poverty. This represents a non-welfarist approach, which use basic achievements (such as the ability to meet basic needs by converting goods) rather than actual goods or utilities as the means for comparing well-being (Ravallion, 1996). To focus upon an individual's opportunity to pursue his/her objectives, one must consider not only those primary goods possessed by that individual but also the relevant personal characteristics governing individual's ability to promote his/her ends (Sen 1999). Building on this perspective, the capabilities approach for understanding poverty is illustrated by (Sen. 1993). The

capabilities approach is concerned with evaluating an individual advantage in terms of "actual ability to achieve various valuable functioning as a part of living" (Nussbaum and Sen 1993).

What goods do to people is identical neither with what people are able to do with them nor with what they actually do with them. To be sure, it is usually true that a person must do something with a good (take it, put it on, go inside it etc) in order to be benefited by it, but that is not always true and even, where it is true, one must distinguish what the good does for the person from what he does with it (Cohen 1993). Deutsch and Silber (2005) clearly stated that the information that one may have on the types and amount of goods with which various individuals are endowed does not necessarily allow us to draw conclusion as to their standard of living or quality of life. Conceptualizing the idea of quality of life is in fact not simple task, Sen, (1985) made such an attempt when he introduced the notions of "capability" and "functioning" To translate empirically Sen's ideas, Lovell et al (1994) advocated the use of efficiency analysis and Deutsch et al (2003) repeated their attempt using more detailed and recent data.

Methodology

Study Area

The study area comprises 63 LGAs from the two states namely Oyo and Osun States with 33 and 30 LGAs respectively.

The two states were purposively chosen for the study based on the highest proportion of fish farmers found in the states from the zone. Out of the total 906

fish farmers from the south-western zone, the two states had 534 which is more than half of the total for the zone. Osun State had the highest fish farmers of 300 followed by Oyo with a total of 234 fish farmers (Aquaculture and inland fisheries project 2005). This study made use of both primary and secondary data. The study employed multistage sampling technique for the selection of the representative respondents.

From the four OYSADEP zones in Oyo State (Ibadan / Ibarapa, Oyo / Iseyin, Ogbomoso and Saki), two were chosen (Ibadan / Ibarapa and Saki) based on the high proportions of fish farmers from those zones while from the three OSSADEP zones in Osun State (Osogbo, Iwo and Ife/Ijesha) two (Osogbo and Ife/Ijesha) were chosen marking the first stage. The random selection of 8 LGAs from the 14 LGAs from Ibadan / Ibarapa zone, 7 LGAs from the 9 Local Government Areas from Saki zone in Oyo State, totaling 15 Local Government LGAs from the whole 33 in Oyo State and the random selection of 8 LGAs from the 12 LGAs in Osogbo zone, 7 LGAs from the 11 LGAs in Ife / Ijesha in Osun State totaling 15 LGAs from the whole 30 LGAs in Osun State which in all made up to 30 LGAs from the whole 63 LGAs in the two states formed the second stage. The third stage was the random selection of 10 fish farmers each from the randomly selected LGAs. From Ibadan/Ibarapa ADP zone in Oyo State a total of 80 respondents were selected, from Saki ADP zone in Oyo State a total of 70 respondents were selected summing up to a total of 150 respondents from Oyo State, while from

Osogbo ADP zone in Osun State, a total of 80 respondents were selected and from Ife/Ijesha in Osun State a total of 70 respondents were selected summing up to a total of 150 respondents from Osun State.

However, a sample size of 135 respondents out of 150 population in Oyo State and 145 respondents out of 150 populations in Osun State were finally accepted for processing. In all, a total of 280 respondents were finally used for the study. The remaining 20 respondents were excluded due to inconsistencies in response to the questions asked. People's lives are not measured by income alone (Women Aid International 1996). Poverty should be viewed as the deprivation of basic capabilities rather than merely the lowness of income (Iceland and Bauma 2004). The capability approach focuses on the information that we need to make judgments about individual well-being, social policies, and so forth, and consequently rejects alternative approaches that it considers normatively inadequate, for example when an evaluation is done exclusively in monetary terms and also be used for poverty analysis (Robeyns 2003).

We used capability approach to measure fish farmers poverty using input distance function approach in the study area. Total durable asset dimensions combines both aquacultural and non-aquacultural assets. Weights were assigned to each one according to their priorities. Security dimension was measured in terms of numbers of attack within a year (Deutsch and Silber, 2005). The information concerning work-life balance

came from answers to two questions on the satisfaction with ones amount of leisure time and with that spent with children .To assesses the economic status, per capita income was used. This measures household income per household size. Standard of living index, was measured bearing in mind the three basic of life(clothing ,feeding and shelter).It takes on the values in the interval (0,1),where zero denotes minimum level of standard of living and one complete attainment of standard of living.

Y = standard of living index, X_1 = log of per capita income, X_2 =health related issues, X_3 = educational dimension, X_4 = water poverty, X_5 = housing conditions, X_6 = total durable Assets, X_7 = security, X_8 = work-life balance.

This is a pre-determined and well-defined standard of income or value of consumption. In this study, the relative poverty line was based on the output of the input distance function of the households. A relative approach was used in which a household was defined as poor relative to other in the same society or economy ($1/3$, $1/2$ $2/3$ of the population). Two thirds of the mean of the output of the input distance function was used as the moderate poverty lines while one third of the mean was taken as the line for core poverty. The mean was obtained by dividing the sum of all values obtained from the output of the input distance function by the number of households surveyed. The categorization of the poverty line is given as: Core poor;

below $1/3$ of mean, moderately poor: below $2/3$ of mean and Non-poor: above $2/3$ of mean (Omonona et. al, 2006)

Results and discussion

Table 1 presented the capability-poverty distribution of fish farmers in the study area. It was revealed that about 16.3, 11.7 and 16.1% respectively were non poor in Oyo, Osun and Zone. About 17, 14.5 and 13.9% respectively were moderately poor in Oyo, Osun and Zone. While about 66.7, 73.8 and 70% respectively were core poor in Oyo, Osun and Zone. Based on these findings, the respondents in Oyo were better off than their Osun counterparts. Those that were moderately poor were more in Oyo than Osun, conversely, those that were poor were more in Osun than in Oyo. But in the overall, majority of them were poor in terms of functioning and basic capability. The findings were quite the opposite of the findings of Deustch and Silber (2005) who found out that majority of their respondents were non poor in terms of their capability poverty analysis in Israel. This finding was in line with the findings of Balestrino in 1996 that concluded policy wise that for pure functioning poor, in-kind transfers would be more effective to fight poverty than cash transfers. It also corroborated the findings of Lovell et al (1994) which stated that, all individuals were equally proficient in transforming resources into functioning.

**Table 1: Distribution of farmers based on Functioning and Capability
Poverty analysis**

Poverty	Oyo Frequency	State Percentage %	Osun Frequency	State Percentage %	Zone Frequency	Percentage %
Non poor	22	16.30	17	11.72	45	16.07
Moderately poor	23	17.03	21	14.48	39	13.93
Core poor	90	66.67	107	73.80	196	70.00
Total	135	100.00	145	100.00	280	100.00

Source: Field Survey 2007.

The distribution of standard of living dimensions

Bearing in mind that the distribution of the overall index of standard of living takes on values in the interval [0, 1], where zero denotes minimum level of standard of living and one complete attainment, the results in Tables 2a, 2b and 2c suggest that, on the average, fish farmers in the South western part of Nigeria did not enjoy moderate levels of standard of living (0.35). Mean values for many constituents of standard of living reveals that the total durable asset dimension scores highest followed by education, housing condition and per capita income dimensions while individuals do not achieve good attainment levels in empowerment and participation, health related issue, security, water poverty index and leisure.

Table 2a: Summary of statistics of functioning and capability of poverty dimensions among fish farmers in Oyo State. N=135

Dimensions	Mean	Standard Deviation	Minimum	Maximum
Health related issue	1.63	2.51	0.00	20.00
Education	11.71	5.98	0.00	17.00
Water poverty index	4.65	3.64	0.00	9.00
Housing condition	10.46	2.20	4.00	15.00
Total durable assets	12.37	15.46	8.22	16.67
Security	2.67	1.64	0.00	6.00
Leisure	3.55	1.75	1.00	9.00
Empowerment and participation	0.47	0.50	0.00	1.00
Log of per capita income	5.26	0.73	3.48	6.51
Standard of living	0.58	0.05	0.25	1.00

Source: Field Survey 2007

Table 2b: Summary statistics of functioning and capability poverty dimensions among fish farmers in Osun State. N=145

Dimensions	Mean	Standard Deviation	Minimum	Maximum
Health related issue	1.68	2.47	0.00	20.00
Education	10.80	5.90	0.00	17.00
Water poverty index	2.84	3.69	0.00	9.00
Housing condition	10.76	1.75	5.00	14.00
Total durable assets	23.53	38.34	14.38	48.00
Security	2.69	1.66	0.00	6.00
Leisure	3.50	1.70	1.00	9.00
Empowerment and participation	0.47	0.50	0.00	1.00
Log of per capita income	5.53	0.70	3.94	6.99
Standard of living	0.62	0.12	0.45	1.00

Source: Field Survey 2007

Table 2c: Summary statistics of functioning and capability poverty dimensions among fish farmers in the zone. N=280

Dimensions	Mean	Standard Deviation	Minimum	Maximum
Health related issue	1.66	2.49	0.00	20.00
Education	11.24	5.95	0.00	17.00
Water poverty index	3.72	3.77	0.00	9.00
Housing condition	10.61	1.98	4.00	15.00
Total durable assets	18.15	30.08	8.26	38.00
Security	2.68	1.65	0.00	6.00
Leisure	3.52	1.73	1.00	9.00
Empowerment and participation	0.47	0.50	0.00	1.00
Log of per capita income	5.40	0.73	3.48	6.99
Standard of living	0.60	0.09	0.38	1.00

Source: Field Survey 2007

Moderate and core poverty profile of fish farmers by socio-economic characteristics

The moderate poverty level shows that from table 3 incidence of poverty is highest in the households without formal education and lowest in the households with tertiary education in the study area. The core poverty trend is the opposite of the moderate poverty trend. The household head that had no formal education had the highest poverty incidence 65% for Oyo, 84% for Osun and 95% for the zone. Household heads with primary education had moderate poverty incidence of 59% in Oyo, 58% in Osun and 69% in the zone. Household heads with secondary education had moderate poverty incidence of 52% in Oyo, 57% in Osun and 52% in the zone.

Household heads with tertiary education had the least moderate poverty incidence of 33% in Oyo, 29% in Osun and 28% in the zone. For the core poverty incidence, household heads with no formal education had 77% in Oyo state, 67% in Osun state and 72% in the zone. Household heads with primary education had 43% in Oyo, 34% in Osun and 38% in the zone. Household heads with secondary education had 17% in Oyo, 23% in Osun and 19% in the zone. Household heads with tertiary education had the least 13% in Oyo, 11% in Osun and 14% in the zone. Based on these findings, it was established that, as the levels of education increases the levels of both moderate and core poverty incidence decreases in the study area. Gender-wise, male headed household had poverty incidence of 20, 20 and 17% of moderate poverty in Oyo, Osun and

zone respectively while their female counterparts had poverty incidence of 72, 57 and 89% of moderate poverty in Oyo, Osun and zone respectively. This finding showed that there were poorer household among female fish farmers in the study area than their male counterparts.

The household head with age group of 20-30 years had poverty incidence of 30, 24 and 31% of moderate poverty in Oyo, Osun and zone respectively. The household head with the age group of 31-40 years had poverty incidence of 70, 100 and 95% of moderate poverty in Oyo, Osun and zone respectively. Household head with the age group of 41-50 years had poverty incidence of 46, 40 and 38% of moderate poverty in Oyo, Osun and zone respectively. Household head with the age group of 51-60 years had poverty incidence of 59, 68 and 56% of moderate poverty in Oyo, Osun and zone respectively. Household head with their age above 60 years had poverty incidence of 100, 56 and 66% of moderate poverty in Oyo, Osun and zone respectively. This showed that age group 31-40 years and 60 years and above had the highest moderate poverty among the fish farmers in the study area.

The household head with age group of 20-30 years had poverty incidence of 8, 5 and 6% of core poverty in Oyo, Osun and zone respectively. The household head with the age group of 31-40 years had poverty incidence of 18, 20 and 19% of core poverty in Oyo, Osun and zone respectively. Household head with the age group of 41-50 years had poverty incidence of 56, 49 and 52% of core

poverty in Oyo, Osun and zone respectively. Households with the age group of 51-60 years had poverty incidence of 43, 29 and 36% of moderate poverty in Oyo, Osun and zone respectively. Households with their age above 60 years had poverty incidence of 100, 56 and 66% of moderate poverty in Oyo, Osun and zone respectively. Households with their age above 60 years had poverty incidence of 26, 34 and 30% of core poverty in Oyo, Osun and zone respectively. This showed that age group 41-50 years and 60 years and above had the highest core poverty among the fish farmers in the study area.

Household heads with household size of one to five members had poverty incidence of 33, 29 and 27% of moderate poverty in Oyo, Osun and zone respectively. Household heads with household size of six to ten members had poverty incidence of 44, 58 and 54% of moderate poverty in Oyo, Osun and zone respectively, while household heads with household size above ten members had poverty incidence of 57, 64 and 75% of moderate poverty in Oyo, Osun and zone respectively.

Household heads with household size of one to five members had poverty incidence of 40, 31 and 27% of core poverty in Oyo, Osun and zone respectively. Household heads with household size of six to ten members had poverty incidence of 58, 36 and 43% of

core poverty in Oyo, Osun and zone respectively, while household heads with household size above ten members had poverty incidence of 57, 68 and 73% of core poverty in Oyo, Osun and zone respectively. It was revealed that as the household size increases the levels of both moderate and core poverty increases.

Household head that were single had poverty incidence of 43, 43 and 49% of moderate poverty in Oyo, Osun and zone respectively. Household head that were married had poverty incidence of 23, 16 and 17% of moderate poverty in Oyo, Osun and zone respectively. Household head that were widow(er) had poverty incidence of 13, 14 and 15% of moderate poverty in Oyo, Osun and zone respectively. Household head that were divorced/separated had poverty incidence of 91, 19 and 64% of moderate poverty in Oyo, Osun and zone respectively. Household head that were single had poverty incidence of 11, 8 and 10% of core poverty in Oyo, Osun and zone respectively. Household head that were married had poverty incidence of 89, 83 and 85% of core poverty in Oyo, Osun and zone respectively. Household head that were widow(er) had poverty incidence of 3, 3 and 3% of core poverty in Oyo, Osun and zone respectively. Household head that were divorced/separated had poverty incidence of 23, 4 and 13% of core poverty in Oyo, Osun and zone respectively.

Table 3: Moderate and core poverty profile of fish farmers in South Western Nigeria by socio-economic characteristics

Socio-economic characteristics	Oyo Moderate poor incidence	State Core poor Incidence	Osun Moderate poor incidence	State Core poor incidence	Zone Moderate poor incidence	Core poor incidence
Educational Level						
No formal education	0.65	0.77	0.84	0.67	0.95	0.72
Primary education	0.59	0.43	0.58	0.34	0.69	0.38
Secondary education	0.52	0.17	0.57	0.23	0.52	0.19
Tertiary education	0.33	0.13	0.29	0.11	0.28	0.14
Gender						
Male	0.20	0.87	0.20	0.80	0.17	0.83
Female	0.72	0.36	0.57	0.11	0.89	0.22
Age						
20-30	0.30	0.08	0.24	0.05	0.31	0.06
31-40	0.70	0.18	1.00	0.20	0.95	0.19
41-50	0.46	0.56	0.40	0.49	0.38	0.52
51-60	0.59	0.43	0.68	0.29	0.56	0.36
Above 60	1.00	0.26	0.56	0.34	0.66	0.30
Household Size						
1-5	0.33	0.14	0.29	0.31	0.27	0.27
6-10	0.44	0.58	0.54	0.36	0.46	0.43
Above 10	0.57	0.78	0.64	0.68	0.75	0.73
Marital Status						
Single	0.43	0.11	0.43	0.08	0.49	0.10
Married	0.23	0.89	0.16	0.83	0.17	0.85
Widow(er)	0.13	0.03	0.14	0.03	0.15	0.03
Divorced/Separated	0.91	0.23	0.19	0.04	0.64	0.13

Source: Field Survey 2007

Conclusion and Recommendation

This study shows how distance functions, a tool typically employed in production economics to measure the distance between a set of inputs and a set of outputs, can be employed to approximate a composite multidimensional measure of standard of living. It also illustrates how to implement the methodology originally put forth by Lovell *et al.* (1994), using data originally collected from aquaculture. There appears to be a fair degree of agreement between the various multidimensional poverty indices concerning the identification of the poor households. It was revealed that fish farmers in the study area failed to transform their resources into valuable functioning. Therefore, they were capability poor as majority of them 67, 74 and 70 percent respectively were core poor in Oyo, Osun and Zone

It was shown that on the average, fish farmers in Oyo and Osun States of Nigeria did not enjoy moderate levels of standard of living (0.35). Mean values for many constituents of standard of living reveals that the total durable asset dimension scores highest followed by education, housing condition and per capita income dimensions while individuals failed to achieve good attainment levels in empowerment and participation, health related issue, security, water poverty index and leisure.

Based on the research findings of this study, the following policy measures are hereby recommended to increase the production of fish in the study area. We found out that not all the individuals were equally proficient in converting resources

into functioning, as it was depicted that majority of them were functioning and capability poor. It is therefore, recommended that individuals should be concerned with how they convert their achievement into various functioning rather than mere achievement, because it was evident that individuals who enjoy a relatively high standard of living were relatively proficient in converting resources into functioning.

References

- Aquaculture and Inland Fisheries Survey 2005.** Balestrino A, (1996) ; **A note on functionings-poverty in affluent society. Notizia di politia 12 (43/44) 97.**
- Beene C, (2003);** When Fishery Rhymes with Poverty: A First Step Beyond the Old Paradigm on Poverty in Small-Scale Fisheries. *World Development* Vol. 31, No. 6, pp. 949–975.
- Cohen, G. A., (1993)** “Equality of What? On Welfare, Goods and Capabilities,” in M. C. Nussbaum and A. Sen (eds), *The Quality of Life*, Clarendon Press, Oxford.
- Delgado C L, Wada N, Rosegrant M W, Meijer S and Ahmed M. (2003);** The future of fish: Issues and Trend to 2020. World fish center and International Food Policy Research Institute P1
- Deutsch J and Silber J, (2005)** “Measuring Multidimensional

Poverty: An Empirical Comparisons of Various Approaches” Review of Income and Wealth Series 51 Number 1.pp48.

- Deutsch, J., X. Ramos, and J. Silber, (2003)** “Poverty and Inequality of Standard of Living and Quality of Life in Great Britain,” in J. Sirgy, D. Rahtz, and A. C.p4.
- FAO (1997);** Review of the State of World aquaculture. FAO fisheries circular No. 886. Rev. 1 Rome Italy pp. 10.
- FAO (2000);** FAO statistical bulletin
- FAO (2002)** *The State of the World Fisheries and Aquaculture 2002*. Rome: FAO.
- Lovell, C. A. K., S. Richardson, P. Travers, and L. Wood, (1994)** “Resources and Functioning: A New View of Inequality in Australia,” in W. Eichhorn (ed.), *Models and Measurement of Welfare and Inequality*, Springer-Verlag, Heidelberg
- Pastoral Zones of Eastern Australia,”** Australian Journal of Agricultural Economics, 21, 169–79.
- Omonona B. T., Oni O. A and Uwagboe A. O. (2006);** Adoption of improved cassava varieties and its welfare impact on Rural Farming Households in Edo State, Nigeria. Journal of Agriculture and Food Information. 7(1) 39-55.
- Ravallion, M. (1996)** ‘Issues in Measuring and Modeling Poverty’, *Economic Journal* 106: 1328-43.
- Robeyns I (2003);** The capability Approach: An Interdisciplinary Introduction Training course for the International conference on the capability Approach pp8.
- Sen A.K, (1984) ;** Rights and Capabilities. In *Resources, Values and Development*.
- Sen, A. K. (1985).** Commodities and capabilities. Amsterdam: Elsevier.
- **(1993.)** “Capability and Well-Being,” in A. Sen and M. Nussbaum (eds), *The Quality of Life*, Clarendon Press, Oxford.
- **(1999),** *Development As Freedom* (Knopf Press, New York).
- Women aid International (1996) ; Human Development Report.