AN ASSESSMENT OF THE IMPACT OF "WOMEN-IN-AGRICULTURE" PROGRAMME OF BNARDA ON THE OUTPUT OF WOMEN FARMERS IN MAKURDI LGA

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Abstract

The study was carried out to assess the impact of WIA Programme of BNARDA on Women farmers in Makurdi LG, in respect to the level of adoption of technologies promoted, increase in farm output and the problems encountered through participation.Out of 120 questionnaires administered in the three agricultural extension blocks using stratified random sampling, 118 were recovered and analysed. From descriptive data analysis, the study revealed that the use of improved cassava varieties, fertilizer application, and dry season vegetable farming technologies have been mass adopted. The problems which the women farmers faced were difficulties in securing land as well as obtaining loans from financial institutions. The Recommendations are made for linking up of WIA groups with lending financial institutions for easy granting of credit facilities, and timely provision of fertilizer and agro-chemicals directly to women group.

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1.1: Introduction

Nigeria is principally an agrarian economy in spite of the poor performance of the agricultural sector due to the rise and dominance of oil (Akaahan and Ngutsav, 2006). It has continued to provide food for the teeming and fast growing population of the country, a major source of employment to Nigerians, supplier of raw materials to the industrial sector, provider of market for the products of industry and earns foreign exchange for the economy (Abayomi, 1997). It is currently employing over 60% of the country's labour force, while the remaining percentage is shared between industry and the services sector (FAO, 1985).

The role of the African women in agricultural production has been established to be of great significance (Sugh, 2006). Women supply much of the labour force for production and distribution, particularly of food crops (Boserup, 1970). FAO (1985) report estimated that African women supply 70% of the work in production of food crops, beside 100% of the work in food processing, 50% in animal husbandry and 60% in marketing.

Over the past two decades however, the questions related to the recognition of women's role in economic and social development and of equality between men and women, have fostered increasing interest among policy makers and development practitioners. Despite a noticeable improvement in gender awareness globally, data on women's work and economic contribution have remained far from comprehensive, particularly evident with regards to the role of women in agriculture and rural development (Akello and Saar, 1999).

With the implementation of the "Women in Agriculture" (WIA) programme by the Benue State Agricultural and Rural Development Authority (BNARDA) in Makurdi Local Government Area of Benue State, a number of gender related technologies have been promoted and various

recommended cropping arrangements have come on stream. These cropping arrangements are believed to have the capacity to maximize space without jeopardizing the healthy growth and reasonable output of the various crops in the mixture. They also have the potentials for high yields, disease resistance and crop variability. Upland and swamp rice technologies were also promoted because they have resistance to rice diseases and with high yield characteristics. These technologies were promoted initially by direct efforts using Agricultural Development Programme own farms, staff and resources and later through the out grower's scheme or by contract agreements.

Therefore, in realization of the potentials of rural women in agricultural development, the incorporation of the WIA programme in Nigerian agriculture so as to attain overall self-sufficiency in food production was a right step in the right direction hence cannot be over emphasized.

The broad objective of this study is to assess the impact of the WIA Programme on output women farmers while the specific objectives is to examine the impact of the WIA programme on the output of the women farmers as well as assess the awareness and adoption behavior of these women farmers to modern agricultural technologies promoted.

1.2: Theoretical Framework and Empirical Literature

Technology transfer as a package consists of capital, technology, managerial and marketing skills rather than just the flow of financial resources. Technology is often identified with the transfer of knowledge about improved innovations. It extends to services, manufacturing and agriculture. The theory of Transfer of Technology as advocated by Frances Stewart and Akio Morita (Jhingan, 2003), stressed critically the need for the transfer of knowledge about new

innovations, and not just improved machinery. This is necessary on the grounds – to overcome backwardness in the methods of production, increase productivity in all the sectors of the economy, reduce poverty, inequality and unemployment, increase the growth rate of the economy develop basic and key industries and infrastructures, make the producers competitive as well as solve some of the socio-economic problems of the masses.

The theory is very consistent with the objectives of the WIA Programme encapsulated in an innovative package which involves: use of good quality hybrid seeds, appropriate planting dates, spacing and sowing, timely and proper application of fertilizer and post harvest technologies. This technical package if imbibed by the women folk, agricultural modernization would be easily achieved and the technical process easily replicated without foreign tutorage.

Thomas Robert Malthus propounded this theory in his essay titled "An Essay on Population" published in 1798. Malthus is well known for his essay on the Principles of Population and Food Production. Here, Malthus argued that population growth, unless checked, constantly tends to increase and even outstrip the production of food supplies. Because of the strong attraction between the two sexes, population can easily double every 25 years if nothing stop it. Food supplies, however, cannot be produced that fast due to the law of diminishing returns in agriculture the speed at which food production can be made to increase is much lower (Todaro, 2000).

Even though the Malthusian theory was highly criticized due to its negligence of technological advancement and discovery of virgin farm settlements, it is still relevant to Less Developed Countries (LDCs) in general, and Nigeria in particular considering the fact that the Nigerian population is growing so fast at an alarming rate while food production is already in crisis. The

global food crisis has further buttressed the importance of the Malthusian postulations. In this regard, Nigeria must do something very urgently to balance population growth with food production. Where population growth can not be curtailed, food production must be augmented to tally with increase in population.

Several studies have assessed the performance of the Nigerian agricultural sector and how it has affected the income and living standard of Nigerians, but most of these studies have neglected the vital role played by women in Nigerian agriculture. Few of some of the studies conducted on the role of women in agricultural production are reviewed below:

In Oyo State of Nigeria, a study was conducted using only descriptive statistics to determine the information needs of women in agriculture by Oladokun (1994). The study revealed that women were eager to express their views and that their information needs were similar to those of the male farmers. The study further revealed that the female farmers were more likely to employ modern farming methods and that their needs were far from satisfied. The study called for proper attention on the information needs of women farmers especially in terms of the technical aspects of farming and post harvest technologies to encourage processing.

Sugh (2006), in her study on women and agricultural development in Tombo-Mbalagh, Benue State using semi structured interview (SSI) and focused group discussion (FGD) and descriptive data analysis revealed that some of the general problems facing Benue women in agricultural production are lack of amenities like water, roads, electricity, credit facilities, inadequate extension services, and farm inputs like fertilizer and improved seedlings. Others are lack of improved technologies and low level of literacy. According to her, government programmes such as ADPs, Hope Alive Foundation and Better Life for Rural Women have all denied the women

access to opportunities and policies available for them to improve their productivity by engaging in aggressive lip service and propaganda.

Adeware (1988), in his study women in agricultural cooperatives; a comparative analysis of Bauchi and Kwara State of Nigeria using descriptive statistics stressed that in many parts of the developing world, women do much of the agricultural work. They take crops to the market or negotiate prices for their crops or livestock. In such regard, women need a comprehensive information package to effectively carry out their role of producing and marketing of agricultural products.

A similar study on analysis of the role of rural women in production and processing of selected crops in Etiti Local Government Area of Imo State was carried out by Egbugara (1989). She concluded with the use of descriptive statistics that, steadily increasing evidence suggests that girls' education is probably the most effective investment that a developing country can make. Educating women reduces child mortality, maternal mortality, and fertility, improves family health, educational attainment of children and above all, increases productivity.

In a related development, a study on attitude of women farmers towards sustainable land management practices in South-Western Nigeria" was carried out by Fakoya *ed* (2007). Using a multiple regression analysis and descriptive statistics, he established the fact that women contribute significantly to agricultural production in South-Western Nigeria accounting for 80% of the produce produced in the region but are at the same time faced with myriad of obstacles such as land ownership and management practices. To him, environmental factors present a severe threat on women's productivity. He called for proper education of women and the adoption of technical packages that does not have any bias towards the men folk.

Fabiyi (2007) in his study role of women in agricultural development and their constraints: A case study of Billiri Local Government Area of Gombe State. Using interview scheduled for data collection and descriptive statistics for analysis, revealed that despite women's monumental contributions to agricultural production in Nigeria, they are faced with enormous problems including lack of extension services, little access to farmland, lack of improved varieties of seeds, poor planting dates and fertilizer application as well as poor post harvest technologies. To further aggravate their problem was lack of capital and other assets that make agricultural production easy and profitable.

This study therefore aimed at filling this great disparity or research gap in Makurdi Local Government where there is no such assessment of women agricultural activities. In particular, the research would at the end of the day establish whether the findings are consistent with others or not and why?

1.3: Methodology

The study was conducted in Makurdi Local Government Area of Benue State. The research was targeted at the numerous women farmers scattered throughout the three agricultural blocks of BNARDA's division of the local government area (BNARDA, 2008). In all, 120 women farmers were identified in the study area with each block consisting of 40 women farmers out of 2,400 as the sample size for the study.

The distribution of the crops and technologies in the three blocks are not different and the cultural or management practices are almost uniform. A stratified random sampling procedure was used in the selection of women farmers for the study. The primary data was collected through structured questionnaires; also field observation formed a critical means of data

collection. Descriptive statistics such as percentages, averages, frequencies, cross tabulation and charts were used. The Chi-square (x^2) was used in testing the research hypothesis.

1.4: Data Analysis

Table 1.1 Percentage Distribution of Respondents by Level of Education

S/No	Educational Status	Frequency	Percentage(%)
i.	None	12	10.2
ii.	Primary	42	35.6
iii.	Secondary	51	43.2
iv.	NCE/Diploma	7	5.9
v.	Degree	2	1.7
vi.	Post Graduate	4	3.4
	Total	118	100

Source: Field Survey (2013)

The result of Table 1.1 did not conform with the submissions of Saito and Weidemann (1990) that women's access to agricultural technologies and their ability to comprehend same is compromised where they lack basic education since 78% of the rural women that adopted the WIA technologies had no serious formal education or at most secondary education.

Table 1.2. Percentage Distribution of Respondents by Nature of Land Ownership

S/No	Land Ownership	Frequency	Percentage(%)
i.	None	4	3.4
ii.	Belong to Relations	2	1.7
iii.	Inherited	23	19.5
iv.	Hire	7	5.9
v.	Belong to Husband	63	53.4
vi.	Bought	10	8.5
vii.	Communal	9	7.6
	Total	118	100

Source: Field Survey (2013)

Land ownership by women farmers posed a problem to them. Their difficulty in securing land for WIA activities may be due to the land tenure system inherent in the farming system.

Women's relatively less favourable access to land can be a strong disincentive to adopting new techniques. The survey result showed that 3.4% of the respondents owned no land, 19.5% inherited land, 5.9% through loan, while 8.5% bought land. Furthermore, 53.4% of the women practised their WIA technologies on land owned by their husband or family land. Thus the highest number of women could not have farmed or practised WIA if their husbands' farm lands were not available.

Table 1.3. Adoption of Major Farm Technologies promoted by WIA Programme for Rural Women Farmers

S/No	Technology	Frequency	Percentage(%)
i.	Use of Improved Cassava Variety	31	26.3
ii.	Cassava/Maize/Melon/Yam	15	12.7
iii.	Yam/Cassava/Maize/Melon	10	8.5
iv.	Use of Fertilizer	24	20.3
v.	Yam Minisett	2	1.7
vi.	Upland Rice	4	3.4
vii.	Rabbit Rearing	1	0.8
viii.	Soyabeans Processing	3	2.5
ix.	Soap Making	6	5.1
x.	Dry Season Vegetables	22	18.6
	Total	118	100

Source: Field Survey (2013)

The acceptability index for each technology was considered. Generally an acceptability index of 35% is regarded as being good enough in crop production to declare that the practice has been mass adopted. In addition to that the number of farmers and the area under cultivation must also be taken into consideration (Beal and Sibley, 1967). The percentages computed did not meet this 35% standard due to the size of the population sampled, yet inferences can be made with these values so obtained.

From table 1.3, it can be deduced that the use of improved cassava varieties 26.3%, fertilizer application 20.3% and dry season vegetable 18.7% technologies have been mass adopted by women under the WIA programme in Makurdi Local Government Area. Cassava is one of the major staple food crops in this area and the intervention of cassava technologies have been long standing. In the case of fertilizer, it was the first agro-chemical input introduced into the farming system and which has also lasted for a long period of time. Dry season vegetable farming was mass adopted based on the presence of a very conducive enviroment-the presence of River Benue and other smaller rivers as a sure source of water supply and the fertile alluvial banks for cultivation and proximity to Makurdi township markets where the output is easily sold off.

Table 1.4 Percentage Distribution of Respondents According to Farm Problems

S/No	Problems/Constraints	Frequency	Percentage(%)
i.	Scarcity of Inputs	15	12.7
ii.	Lack of Funds	20	16.9
iii.	Inappropriateness of Technology	8	6.8
iv.	Untimely Fertilizer Availability	18	15.3
v.	Unawareness of the Technology	15	12.7
vi.	Leadership Tussle	5	4.2
vii.	Poor Demonstration Methods	7	5.9
viii.	Low Visits by WIA Groups	16	13.6
ix.	Cost of Inputs	14	11.9
	Total	118	100

Source: Field Survey (2013)

According to BNARDA (2008), even though there were many achievements of the WIA programme in Makurdi Local Government Area, some identified problems affected the high performance of the programme. From table 1.4, scarcity of inputs ranked fifth among all the identified problems. Lack of funds 16.9%, untimely availability of fertilizer 15.3%, unawareness of WIA technology 12.7%, and inadequate visits of the WIA agents13.6% were the major constraints of the WIA programme. Lack of funds however ranked highest with 16.9%. Poor

demostration methods, inappropriateness of technology in the farming system, women leadership tussle, high price of inputs also constituted geniue problems.

1.5 Hypothesis Testing Ho: WIA programme has no significant effect on the output of women farmers in Makurdi Local Government. Data for hypothesis testing was derived from the independent variable of output. Output before participation on the WIA programme was compared with output during the WIA programme with detailed result shown in table 1.5 below. The Chi- Square test is applicable because it permits inferences of causation.

Table 1.5 Chi Square Test of Hypothesis on Output

0	E	0-E	$(O-E)^2$	$(O-E)^2/ E$
684	660.8	23.2	538.24	0.81
480	517.6	-37.6	1413.76	2.73
476	461.6	14.4	207.36	0.44
1180	1203.2	-23.2	538.24	0.44
980	942.4	37.6	1413.76	1.50
826	840.4	14.4	207.36	0.24
			$\Sigma (O-E)^2/ E$	6.15

$\Sigma (O-E)^2/ E = 6.15$

To find the Chi-Square critical value at 95% confidence level with D.F. (R-1)(C-1) Where R= number of row, C= number of columns = (3-1)(2-1) = 2 x 1 **= 2**

The critical value of Chi-Square at 95% confidence level with 2 degrees of freedom is given as 5.991

Since the calculated value is greater than the tabulated value (6.15 > 5.991) at 95% confidence level and 2 D.F., we reject the null hypothesis. The rejection of the null hypothesis automatically

means acceptance of the alternative hypothesis. By implication, the WIA Programme has really impacted positively on the output of women farmers in Makurdi LGA .during the period of analysis

1.6: Recommendations

(a) the WIA programme should be linked to appropriate lending institutions like Nigeria Agricultural Cooperatives and Rural Development Bank (NACRDB).

(b) the ADPs should be made to effectively channel most of the farm inputs, especially fertilizers and agro-chemicals, directly to thefarmers.

(c) The proposed amendment before the Nigerian Senate should consider critically the role of women and children in farming in particular and the stringent conditionality on land acquisition in Nigeria.

(d) most of the technologies promoted in favour of women so far appear to be crop-based with few livestock, fishery and agro-forestry technologies.they should be diversification.

(e) finally, to support the WIA programme, a data bank on the role of women in Nigerian agriculture should be established to generate data for future policy options.

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