EFFECT OF FADAMA III PROJECT ON RURAL FARM WOMEN PRODUCTION IN GOMBE STATE, NIGERIA

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ABSTRACT

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The effect of Fadama III project on rural women production in Gombe State, Nigeria was studied and analyzed in 2013. The study analyzed socio economic characteristics of rural farm women, determined the effect of the project on the participating rural farm-women (in terms of farm size, selected variable inputs, income and output) in Gombe State and described the problems militating against effective participation of rural farm-women in the project. A multistage random sampling technique was used in the selection of six Local Government Areas, Fadama Community Associations (FCAs), Fadama User Groups (FUGs), participating and non participating rural farmers. A structured questionnaire was administered to 360 randomly selected rural women farmers (180 participating and 180 non participating rural women farmers). Data were analyzed with descriptive statistics like frequencies, percentages, mean and paired t-test. The study revealed that participating rural women and non participating rural farmers had mean ages of 35.5 years and 36.72 years respectively and acquired secondary education. Also Fadama women farmers had mean farm size of 11.91 while the non Fadama farmers farmed on 9.52 hectares of land. Both farmers groups had a monthly income of N75, 59.28 (Fadama Rural Women Farmers) and N27, 505.56. The paired t-test showed that farm income, fertilizer and labour use of Fadama women farmers were higher than the non-participating farm-women at 1.00, 5.00% and 10.00% levels of probability respectively. The study therefore recommends timely supply of farm inputs by the project, prompt payment of counterpart funds by relevant agencies and replication of the project to reduce rural poverty in the State.

INTRODUCTION

Women have been perceived as house wives or farmers’ wives rather than farmers and this gender ideology is reflected in policies that affect access to the means of production and the social relationships of production which Fadama III provides. Ajah (2010), observed that if disparities between men and women’s statuses, access to resources, control of assets and decision making powers persist, sustainable and equitable development would be undermined, Edoka (2008), opined that “women involvement in food production still lack dependent right to own land, manage property, conduct business, or even travel without their husbands’ consent”. In Nigeria, farm women play important roles in all areas of agricultural production. They are involved in food production, processing and marketing (Rahman et al., 2004 and Nwaobiala et al., 2009) and produce 60-80 percent of food in the country (Buchland and Haleegoah, 2006). The women equally provide about 60-80 percent of agricultural labour force and contribute to well being of their households through their income generating activities (Mgbada, 2000 and Rahman et al., 2004). Akangbe, et al., (2012), observed that out of 95 percent of small-scale farmers in Nigeria, 55.0 % of them are women who produce bulk of agricultural products. Women in Northern Nigeria are playing active role in agriculture. In a study of women in Muslim and non-Muslim areas of Northern Nigeria, Ogungbile et al., (1991) as cited by Ehiemere (2008), found that the activities of women include land, preparation, planting, harvesting, food processing, livestock and transportation. Adekanye (1988) reported that the socio-economic activities of Hausa/Fulani women of Northern Nigeria is farming or in the trade are more limited because of the practice of keeping women in purdah away from the sight of men strangers. He agreed that the women who are farmers grew mainly food crops particularly maize and rice, for subsistence and for sale and they perform almost all farm clearing or ridge making involved. However, if necessary, they utilize supplementary family or hired labour. Rural women are also participating in livestock production. Adisa and Okunade (2011) collaborated this by stating that Nigeria women’s role encompasses other sub-sectors of agriculture. They are found to pick forest products like snails, mushrooms vegetable and spices for sale and family consumption. Women are also found in the raising of small ruminant animals like sheep and goat. Some engaged in production of pigs and rearing of local birds.

Rural farm women contribute so much in the development process and yet there is little to show for their efforts. Banji and Okunade (2005), stated that women’s role in agriculture is greatly governed by socio-cultural and economic factors. For example in the Northern part of Nigeria, farm women Muslims in Purdah are found mainly in processing activities of agriculture although, some of them have personal farms which are being managed by their husbands. This has hindered their effective participation in donor agency programmes. In access to credit by rural farm-women has been identified as a major constraint on the ability of women to increase agricultural output and participate fully to poverty focused credit programmes (Fadama III) in Gombe State (Mahtab, 2006). Again, agricultural production in Gombe State has always been seen as dominated by men. This assumption helps in
perpetuating the vicious cycle of poverty and undermines the rural farm-women’s involvement in agricultural production (Ehiemere, 2008). The involvement of rural farm-women in agricultural production has not in any way accorded them recognition just as Durso and Stuart (2005) succinctly put it “they are not recognized as farmers and are not critically involved in the process of farm problem analysis, planning and decision-making, or provided with the training, credit and support they needed”. In Nigeria, poverty and its excruciating impact are pervasive and palpable on the people, especially rural dwellers (Ezech and Nwachukwu, 2010).

With the projections made by the World Bank that poverty in Nigeria will increase by two-thirds, and the possibility of 60% of the population living below the poverty line in ten years, the Government of Nigeria adopted the concept of poverty alleviation as a major thrust of its annual budget since 1996 (Amaulu, 2005). In order to raise the standard of living of the people and instill in the poor people some sense of belonging, several Nigerian governments adopted and implemented various poverty alleviation programmes including the National Fadama Development Project (NFDP). The National Fadama Development Project (NFDP) came into being and is operated in 18 states supported by World Bank and African Development Bank (ADB). The objective of the programme is to increase the incomes of users of rural land and water resource on a sustainable basis, increasing their incomes, reducing rural poverty, increase food security and contribute to the achievement of key Millennium Development Goals (MDGs) such as eradication of extreme poverty and hunger, promote gender equality and empower women, ensure environmental sustainability and develop a global partnership for development (GSFCO, 2012). Despite many years of agricultural development efforts by past successive governments in Nigeria and international donor agencies and in spite of Million dollars committed into such development efforts, agricultural sector appears to have remained undeveloped (Nwaobiala, 2013). This may be as a result of neglect of most rural farm-women in execution of such programmes. Again the areas where rural farm-women are involved in agriculture, lack facilities such as good road network for proper evacuation of farm produce, pipe borne water, agro-processing equipment and agro-based industries among others. The production of agricultural products by rural women could not be ascertained because many donor sponsored agencies impact are hampered by bureaucratic bottlenecks that ranges from non payment of counterpart funds, religion and socio-cultural factors. The study therefore analyzes effect of the project on rural farm women production in Gombe State, Nigeria. Specifically, the study described selected mean socio-economic characteristics of participating rural farm-women and non participating rural farm women, compared effect of the project on the participating and non rural farm-women farm size, selected variable inputs, income and output and describes the problems militating against effective participation of rural farm-women in the project in Gombe State, Nigeria.

Hypothesis

H$_{null}$: There is no significant difference between participating rural farm-women’s farm size, variable inputs, farm output and farm income and non participating rural farm women in Gombe State, Nigeria.

METHODOLOGY

This study was carried out in Gombe State, Nigeria. Gombe State is a successful socio-political fusion of two distinct groups of people, comprising, the Emirate of Gombe North and ethnic groupings of Gombe South in the North Eastern region of Nigeria. Gombe State is located between Latitudes 9°30’ to 12°30’ North and Longitudes 8°45’ and 11°45’ East. It lies in the centre of North East geopolitical zone of Nigeria and shares boundaries with all other states in the zone; Adamawa and Taraba in the South-south, Bauchi in the West, Bornu in the east and Yobe in the North-east. According to NPC (2006), the population of Gombe State in 2006 census stood at about 2,365,040 while women constitute 1,120,812 and the State has an average population density of 130/km$^2$ (Wikipedia, 2012).

Multi-stage random sampling technique was used in the selection of local government areas, Fadama Community Associations (FCAs), Fadama Users Groups (FUGs) and participating rural farm women and non-participating rural farm women. First, six (6) Local Governments Areas (LGAs) were randomly selected out of the eleven (11) LGAs that make up Gombe State. Second, two (2), FCAs each were randomly selected from the selected LGAs to give a total of 12 FCAs. These are: Kwaya Banganje FCA and Billiri south B FCA in Billiri LGA, Jillahi and Tong youth and women FCAs in Funakaye LGA, Jaka-Dafari and Nasarawa FCAs in Gombe LGA, Bambam Yiri and Kamo FCAs in Kaltungo LGA, Nafada East and Birini Fulani East FCAs in Nafada LGA and Kwadon and Dadin kowa FCAs in Yamultu-Deba LGA. Also three (3) FUGs were randomly selected from each FCAs to give a total of 36 FUGs. From the selected FUGs, five (5) participating rural farm-women were randomly selected to give a sample size of 180 participating rural farm women. Finally, non participating rural farm-women were randomly selected from where the participating rural farm-women were selected to give a grand sample size of 360 rural farm-women (180 for participating rural farm-women and 180 non-participating rural farm-women). Objectives i and iii were realized with descriptive statistics as frequencies, percentages and mean counts, while objective ii was captured with Paired “t” test.

Model Specification
The paired treatment test which was used to determine the effect of the project on the rural farm-women is implicitly stated as:

\[
t = \frac{\bar{X}_1 - \bar{X}_2}{S_p} = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}
\]

Where \(t\) = Student \(t\) statistic
\(\bar{X}_1\) = Sample mean for participating rural farm-women
\(\bar{X}_2\) = Sample mean for non participating rural farm-women
\(S_1^2\) = Sample variance for participating rural farm-women
\(S_2^2\) = Sample variance for non participating rural farm-women
\(n_1\) = Sample size for participating rural farm-women.
\(n_2\) = Sample size for non participating rural women-farmers.

**RESULTS AND DISCUSSION**

Data on Table 1 shows that the mean age of Fadama III participating rural women farmers was 38.05 years, while the non Fadama III participating rural women farmers was 36.72 years. The implication is that both groups of rural women farmers were within the middle-aged groups which are still energetic and productive. The Table shows that 75.0% and 88.89% of the participating and non-participating rural farm women in Fadama III project in Gombe State were married. It is likely that the married women were more relatively stable, because of the need to supplement the family’s means of livelihood (Adegboyé et al., 2008). The table revealed that a good proportion (48.33%) of the participating rural farm women in Fadama III project in Gombe State had secondary school education. The level of education attained by a farmer not only increases his/her farm productivity but also enhances ability to understand and evaluate new production technologies (Obasi, 1995; Ajibefun and Aderemola, 2004). The ability to read and write would enable both groups of farm women to better utilize effectively and efficiently whatever resources exist in the area. The result shows that the mean sizes of farmland cultivated by participating and non-participating rural farm women were 2.62ha and 2.39ha respectively. This implies that most of the participating and non-participating rural farm women in the study area were medium scale farmers who either inherited or accessed appreciable parcels of land. This is not in agreement with Awoyemi (1999) that rural women farmers in Nigeria are predominantly smallholders with average farm size of between 1 and 2 hectares. The mean years of farming experience was 11.9 and 9.5 years for participating and non-participating rural farm women respectively while the respondents’ annual farm income Mean Monthly income for Fadama III participating and non participating rural women farmers \$75,590.28 and \$27,505.56 respectively. It is obvious from the result that the mean annual farm income of the participating women farmers was greater than their counterpart (non-participating women farmers). The relatively low annual farm income status of the rural women farmers has implication on their participation level and household welfare as reflected in their expenditures. Despite the fact that these amounts are significant for the average farmer, all mean annual incomes below \$50,000.00 were classified as belonging to low income group (Ezeh, 2003; Okorji, 1999; Ezeh, 2007).

Table 1: Mean Distribution of Selected Socio-Economic Characteristics of Fadama III Participating Rural Women and Non Participating Farmers in Gombe State, Nigeria. (N= 180 Fadama III Rural and N= 180 Non Fadama III Rural Women Farmers)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Fadama III rural women farmers</th>
<th>Non Fadama III rural women farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>35.05</td>
<td>36.72</td>
</tr>
<tr>
<td>Farming Experience (years)</td>
<td>11.91</td>
<td>9.52</td>
</tr>
<tr>
<td>Farm Size (hectares)</td>
<td>2.62</td>
<td>2.39</td>
</tr>
<tr>
<td>Monthly income</td>
<td>N75, 590.28</td>
<td>27,505.56</td>
</tr>
</tbody>
</table>

*Source: Field Survey Data, 2013*

**Effect of Fadama III Project on the Participating and Non Participating Rural Farm Women Income, Output, Farm Size, (Input such as Labour, Herbicides, Improved Crop and Fertilizer Use Levels)**

The result of the paired t-test for differences in farm output, farm incomes, farm sizes, input use levels such as; labour, herbicides, improved seed input and fertilizer use levels between the Fadama III participating and non participating rural women farmers in Gombe State, Nigeria is shown in Table 2.
Farm income
The result shows that the mean annual farm income generated from the sales of farm produce from the participating rural farm women was ₦75,590.28 while that of the non-participating rural farm women was ₦27,505.56. The mean difference between the two groups of rural farm women was ₦48,084.72 with a standard error of 10351.44. The paired ‘t’ result showed that this is statistically significant at 1.0% risk level because the calculated ‘t’ = 4.6452 > the tabulated ‘t’ 0.025 = 2.58. Therefore, the null hypothesis is rejected. This implies that the participating rural farm women in Fadama III project had more farm income than the non-participating rural farm women. This result compared favourably with Ezeh (2009) who obtained similar result in Imo State between Fadama II and non Fadama II participants.

Level of fertilizer use
The mean fertilizer use level of the participating rural farm women in Fadama III project was 6430.417 kg while that of the non- participants was 5429.931 kg. The mean difference between the two groups of rural farm women was 1000.486 kg with a standard error of 599.1675. The paired ‘t’ result shows that this is statistically significant at 10.0% alpha level because the empirical ‘t’ = 1.6698 > tabulated ‘t’ 0.025 = 1.64. Therefore, the null hypothesis is rejected. This implies that the participating rural farm women used higher quantities of fertilizers in their production process than the non participating farmers. This result compared favourably with Ezeh et al, (2012) who obtained similar result in Abia State.

Level of labour use
The result of the difference in labour use level of the participating and non participating rural farm women in Fadama III project shows that the mean labour use (man day) of the participating rural farm women was 7.63106 mandays while that of the non-participating rural farm women was 6.71844. The mean difference was 0.9126214 man days. The result shows that the calculated ‘t’ (2.1937) was greater than the tabulated ‘t’ (2.0) and was significant at 95.0% confidence level. This shows that the Fadama III participating rural farm women employed more labours in farming than their counterpart. Therefore, the null hypothesis of no difference in labour use level is rejected. Given that the mean values of participating rural farm women used higher quantities of fertilizers in their production process than the non participating farmers, it could be inferred that the Fadama III project impacted more on the participating rural farm women than the non participating rural farm women.

Table 2: Results of the Paired t-test of Farm Output, Farm Income, Farm Size, Labour, Herbicides and Fertilizer Use Levels of Participating and Non Participating Rural Farm Women in Fadama III Project in Gombe State, Nigeria

<table>
<thead>
<tr>
<th>Variables</th>
<th>Individual mean</th>
<th>Mean difference</th>
<th>Standard Error</th>
<th>T-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output of participating farmers (kg)</td>
<td>3995.155</td>
<td>-121.3955</td>
<td>1078.272</td>
<td>-0.1126</td>
</tr>
<tr>
<td>Output of non participating farmers</td>
<td>4116.551</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>farm size of participating farmers (ha)</td>
<td>2.615556</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>farm size of non participating farmers</td>
<td>2.386111</td>
<td>0.2294444</td>
<td>0.1985292</td>
<td>1.1557</td>
</tr>
<tr>
<td>farm incomes of participating farmers</td>
<td>75590.28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>farm incomes of non participating farmers (₦)</td>
<td>27505.56</td>
<td>48084.72</td>
<td>10351.44</td>
<td>4.6452***</td>
</tr>
<tr>
<td>farm labour use for participating farmers</td>
<td>7.631068</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>farm labour use for non participating farmers (manday)</td>
<td>6.718447</td>
<td>0.9126214</td>
<td>0.41601</td>
<td>2.1937**</td>
</tr>
<tr>
<td>Fertilizer use level of participating farmers (kg)</td>
<td>6430.417</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fertilizer use level of non participating farmers (kg)</td>
<td>5429.931</td>
<td>1000.486</td>
<td>599.1675</td>
<td>1.6698*</td>
</tr>
<tr>
<td>Herbicide use level of participating farmers</td>
<td>3.86</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Herbicide use level of non participating farmers</td>
<td>3.55</td>
<td>0.31</td>
<td>.5236393</td>
<td>0.5920</td>
</tr>
<tr>
<td>Improved seed input use level for participating farmers</td>
<td>78.0691</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improved seed input use level for participating farmers</td>
<td>79.72247</td>
<td>-1.653371</td>
<td>3.999943</td>
<td>-0.4133</td>
</tr>
</tbody>
</table>

Source: Field Survey Data, 2013.
***= Significant at 1%; **= Significant at 5%; *= Significant at 10%

Problems of effective participation of rural farm women in Fadama III development project
The Problems militating against the active participation of rural farm women in the project technology component of Fadama III in Gombe State is shown in Table 4.13. The table shows that a good proportion (53.33%) of the participating rural farm women ascribe late arrival of farm input as a major problem. This is because majority of the farmers depend solely on sourcing these improved varieties on crops, livestock and fingerlings from the programme. Also, 49.44% of the participating rural farm women averred that non-payment of counterpart funds by State and Local Governments hampered their participation in the project. This supports the view of Nwaobiala, (2013a) that non-participation of stake holders in community-based programmes due to non-payment of counterpart funds by government at the State and Local government levels.

Furthermore, a fairly good proportion (32.22%) of participating women farmers complained of the problem of inadequate training and re-training of participating farmers by the programme facilitators. This is contrary to the
views of Nwaobiala, (2013b) that staff training and re-training of farmers has led to increased participation of farmers in any agricultural development programme, thereby exposing them to the latest improved technology packages, risk aversion and farm budgeting procedures.

Table 3: Distribution of the problems of rural farm women participation in national Fadama III development project in Gombe State, Nigeria

<table>
<thead>
<tr>
<th>Category of problems</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative bottlenecks and bureaucracy in release of capital funds</td>
<td>38</td>
<td>21.11</td>
</tr>
<tr>
<td>Late arrival of farm input</td>
<td>96</td>
<td>53.33*</td>
</tr>
<tr>
<td>Infrequent visit of Extension Officers</td>
<td>32</td>
<td>17.78</td>
</tr>
<tr>
<td>Inadequate training and retraining of participating rural farm women</td>
<td>58</td>
<td>32.22*</td>
</tr>
<tr>
<td>Ineffective leadership of FCA and FUG</td>
<td>42</td>
<td>23.33</td>
</tr>
<tr>
<td>Nonpayment of counterpart funds by state and LGAs</td>
<td>89</td>
<td>49.44*</td>
</tr>
<tr>
<td>Lack of infrastructural development by the project to evacuate or process the produce</td>
<td>28</td>
<td>15.56</td>
</tr>
</tbody>
</table>

Source: *Field Survey Data, 2013*

*Multiple responses recorded; 50% and above = Associated Problems

CONCLUSION AND RECOMMENDATIONS

The study has revealed that Fadama III project has played a complementary role in extension delivery in the study area. Based on this, it is evident that the Fadama III project in Gombe State has increased the participating rural women farmers’ agricultural production. This is based on the fact that the beneficiaries’ levels of income, fertilizer use and labour use were significantly different from the non beneficiaries. Despite this, the project identified late arrival of farm inputs, non prompt payment of counterpart funds and inadequate training and retraining of women as pertinent problems affecting the project. Governments at all levels (Federal, State and Local) should pay their counter-part funds on time in order to sustain and improve the participation level of the rural farm-women and to enable them and the development partner achieve the goals of the project. Finally, considering the impact made by the project in the areas studied, the project should be replicated in other communities to help reduce rural poverty.

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REFERENCES


