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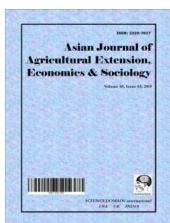
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## **Towards Enhancing Household's Food Security in Rural Abia State: Have Women Cooperative Societies got any Place?**

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### **Authors' contributions**

*This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.*

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### **ABSTRACT**

The place of cooperatives in the lives of rural households in Nigeria as in the case in many developing countries of the world cannot be overemphasized. This is because a sizeable number of households from this economy rely on agriculture and other small and medium scale enterprises (SMEs) as their sources of livelihood. Worse still, the fact that the income they get from these activities is inadequate sometimes, make them look for other avenues of meeting their basic needs, hence they resolve to join or form cooperatives. Again, lack of collateral and imposition of other stringent measures by formal financial institutions make credit facilities inaccessible to these households, thus limiting scale of their activities and this invariably take a toll on their income. Meanwhile, participation in cooperatives has been found to be a veritable way of circumventing

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some of the problems predisposing rural households to food insecurity. The study area was Abia State, Nigeria. Multistage sample technique was used in selection of sample size. Abia State is made up of three agricultural zones, namely Umuahia, Aba, and Ohafia respectively. From this zones, Umuahia agricultural zone was purposively selected with one local government area (Isialangwa) was selected. From the local government area two blocks, three circles and thirty women belonging to registered women cooperatives were selected, thus bringing the total to 180 respondents. Data were collected using structured questionnaire and participatory observation. Data were analyzed using simple descriptive and inferential statistics, like probit regression model. Results revealed that mean age of the respondents was 53 years with a large household size 10 – 12 people. Respondents distribution by educational level show that majority of the respondents (67%) were educated up to tertiary level and with 23% of them no formal education. The Table further showed that 73% of the respondents were food insecure while 23% were food secure. On activities carried out by the women cooperative societies to enhance livelihood of its members, the result shows that all the responses made by the respondents were above 3.0. The implication is that the activities had a positive relationship in enhancing the well-being of the members. The probit analysis result reveal that age, education, household size, membership of cooperative, income were significantly related to Y. therefore based on the study of the findings cooperatives play a very prominent and significant role towards ensuring food security in rural Nigeria. And so cooperative societies need to properly guided and organized especially at their formative stages having seen it as a veritable channel of meeting the needs of rural women in Nigeria.

*Keywords: Women cooperatives; enhancement and food security.*

## 1. INTRODUCTION

Agricultural production as currently practiced under the traditional methods especially in Abia State has been unable to sustain its teaming population. Rural women play a crucial role in the rural economies of developing countries including Nigeria, and agriculture accounts for about 70% of total female employment. Women also make major and multiple contributions to the achievement of food security. They also diversify and perform multiple tasks simultaneously to sustain their livelihoods, working on farms and engage in off-farm activities, as well as their critical role in-terms of reproduction. Beijing platform for action, emphasized that the empowerment of women is a critical factor in the eradication of poverty and that strategies should address the multi-dimensional nature of poverty. But there is an outstanding of mutation in the land tenure system in Nigeria and this situation has had some serious implications on women's right to land, food security and sustainable development in Nigeria.

As a result, how it is owned, managed and exploited becomes an important development question in these areas. Accepting that women exists in the rural areas of Nigeria and play a crucial role in rural and economic lives of their communities, they are excluded or even marginalized by agricultural modernization and development plans, customary laws do not allow

women to own land, men tend to exclude women in extension services. Commercial banks and government agencies frown at women to set up income yielding venture, never had there been any conscientious efforts towards the plight of rural populace especially women until the advent of better life programme and family support programme. Among the objectives of these programme was the upliftment of the standard of living of the Nigerian women, enhancement of their self fulfillment, self-actualization and self sufficiency. To achieve these goals, a number of activities were designed. Prominent among these however was the formation of women cooperative societies [1]. This assisted immensely in mobilizing the women folk. They now realized the need to come together to form cooperative societies were they pool their resources together both financially, mentally and materially to achieve a common economic objectives. Cooperatives therefore are people based and value based economic enterprises, founded upon well-defined ethics and principles, which include "Concern for community". This dual (social economic) character is unique to cooperatives, which makes them the ideal and in fact, the only vehicle to ensure equitable distribution. They have flexibility to fit into any political system while reinforcing national commitments for equity, democracy and good governance. Cooperatives are the only means to bring the poorest segments of society into an organizational fold as legally recognized entities,

providing opportunities for employment and better income along with the needed support services [2]. Cooperatives are community-based, rooted in democracy, flexible, and have participatory involvement, which makes them well suited for community development [3]. Cooperatives can provide locally needed services, employment, circulate money locally and contribute to a sense of community or social cohesion. Often-marginalized segments of communities have the opportunity to be represented in cooperatives, where in many other organizations they are left out [4]. Cooperatives can also be seen as an agent for the process of community development. The conclusion is that cooperatives and similar member-owned businesses are an extremely flexible form that can be adapted successfully to solve a variety of economic problems. However, their successful application requires a great deal of promotional effort, attention to detail, and investment in human capital. A key conclusion of the study is that self-help organizations by the poor is a precondition for successful anti-poverty work and that cooperatives can play an important role in this struggle. The poor must be involved in the ownership of the development process, through their own local, democratically controlled economic organizations. If the cooperative form did not exist, it would have to be invented. It is the realization of this that occasioned this study. The broad objective of this study is to analyze the activities of women cooperative societies in enhancing the food security status of its members; with the following specific objectives to,

1. Identify the socio-economic characteristics of the cooperators.
2. Ascertain their level of access to credit and extension services.
3. Identify their land access structure by location.
4. Analyse the activities of the women cooperatives in the study area.
5. Identify the distribution of the cooperators based on food security status.
6. Ascertain the determinant of the food security status of the respondents in the study area.

### 1.1 Hypothesis Testing

Null hypothesis

**H<sub>0</sub>:** There is no significant relationship between the socio-economic

characteristics of the respondents and being a member of the cooperative society

**H<sub>a</sub>:** There is significant relationship between the socio-economic characteristics of the respondents and being a member of the cooperative society.

## 2. LITERATURE REVIEW

### 2.1 Linking Food Security with the Informal Financial Sector

Food security is defined as access by all people, at all times to sufficient food for an active and healthy life and includes at a minimum the ready availability of nutritionally adequate and safe foods, and an assured ability to acquire acceptable foods in socially acceptable ways [8]. Access to adequate food is a necessary but not a sufficient condition for a healthy life; a number of other factors such as the health and sanitation environment and household or public capacity to a care for vulnerable members of the society, also come into play [5]. The inability of the poor to have access to needed food can be attributed to low income and food production. Food insecurity on the other hand connotes a temporary shortfall of adequate food for a proper diet (transitory food insecurity) as well as a long term food shortage called chronic food insecurity.

Rural and urban households cope with transitory food insecurity by diversifying their source of income through selling assets, or by resorting to informal financial credits, savings and insurance markets. The informal financial sector now acts as the place of solace for the rural poor to augment their consumption needs and meet other basic necessities of life. For the attainment of food security in Nigeria, there is therefore no gainsaying the prime position of the informal financial sector in ensuring consumption smoothing all year round for the rural and urban poor. In achieving this, farmers operating on small scale and having scattered farms needs to be brought together and properly organized to take the advantage of group actions as this will make them to be better equipped to take advantage of credit access from the informal sources.

## 3. METHODOLOGY

The study was conducted in Abia State, Nigeria. Located between longitude 70 23' and 802' East and latitude 55' 47' and 60' 12' North, Abia

shares physical boundaries with Akwa-Ibom, Anambra, Cross River, Ebonyi and Rivers State of Nigeria. It covers an estimated land area of 776, 720 square kilometers, and has a population of 2, 293, 978 people (NPC, 2006). Most of the communities in the state possess the basic features of rural life with intimate homogenous groups, having informal administrative structures. A few human settlements in the state have however acquired urban status since they either carry a threshold population of 20,000 inhabitants or more. Abia State is made up of 17 Local Government Area and three agro-ecological zones. The agro ecological zones are Aba, Ohafia and Umuahia. Aba zone is made up of seven local government areas, namely Aba North, Aba South ObiomaNgwa, Osisioma, Ugwuagbo, Ukwa East and Ukwa West. Umuahia zone consists of Ikwuano, Isialangwa North, Isialangwa South, Umuahia North, Umuahia South Local Government Areas while Ohafia zone comprises Arochuku, Bende, Isikwuato, Ohafia and Umunneochi local government areas.

A multi-stage, stratified sampling technique was adopted in selecting the sample size. Isialangwa North in Umuahia agricultural zone had 34 registered women cooperative societies with 30 women cooperative societies engaged in farming as their operational base.

In the first stage, one extension block, 2 circles from each block and thirty women cooperative from each registered women cooperatives from the list of registered cooperatives from each circle were be selected bringing the total to 180 respondents. Data were collected using questionnaires, Focus Group Discussion (FGD) and physical observation. Physical inspection of each groups operational environment was also undertaken. Data collected were analysed with both descriptive statistics like frequency distribution and also inferential statistics. Like probit model.

Objective 1 – 3 were analysed with descriptive statistics while objectives 4 was realized using 5 – point likerts type questions of excellent 5, very good, 4, above average 3, satisfactory 2 and not satisfactory 1, to generate the data for the analysis. The mean response was determined by calculating  $5 + 4 + 3 + 2 + 1 = \frac{15}{5} = 3.0$ .

The explicit form is stated below.

$$X = E f x / N$$

$$\text{Where } x = 5 + 4 + 3 + 2 + 1 = \frac{15}{5}$$

Where  $\varepsilon$  = summation

F = frequency of cooperatives

X = assigned scores to cooperatives

N = number of inputs.

To determine the level of activities carried out by the cooperatives, a decision rule based on statistical real units of number was used

1 – 1.99 not satisfied

2 – 2.99 satisfied

3 – 3.99 above average

4.00 – 4.99 very good

5.00 - Excellent

In determining the factors influencing food security in the area, probit regression was used. Dietary Diversity measures was employed to categories respondents into food secure and non-food secure group [6,7]. In the survey a number of food consumed by the respondent were identified. A food secure bench mark of 0.5 was determined based on how varied the diets of respondents are. In all 15 common food items (with three food items belonging to each of the five classes of food) and water as the 16<sup>th</sup> food item were used and respondents with a benchmark >0.5 classified as food score as food insecure. The probit model was employed to ascertain the relationship between respondents' food security status and their membership of cooperatives. Household socio-economic variables were also household socio-economic variables were also included as regressors in the model. The dependent variable (Y) takes the value (1) for food secure and '0' otherwise.

The explicit form for the model is specified as: The probit model [8] used was of the form.

$$\Pr (Y_1 = 1) = F (X_1 B)$$

Where

$Y_1$  = Food security status (1 or 0)

$X_1$  – Age (measured in years as supplied by the respondents)

$X_2$  = Education (measured in years of formal education)

$X_3$  = Marital status – (dummy variable; married 1. Otherwise 0)

$X_4$  = Household size – No of people living together in a household and eat from the same pot.

$X_5$  = Religion – (Christianity 1; Otherwise 0)

$X_6$  = Membership of cooperatives (dummy variables, belonging 1, otherwise 0)  
 $X_7$  = Income (measured in naira from major occupation)  
 $X_8$  = Farm size (measured in hectares)  
 $\beta_1 - \beta_8$  = Coefficients  
 $\varepsilon_1$  = Error term

#### 4. RESULTS AND DISCUSSION

Results on Table 1, show respondents socio-economic characteristics. Majority of the respondents were between the ages of 45-50 years of age. The overall result shows that most of the cooperators are still active in their economic activities. The implications of the result are that the respondents can meaningful constitutes to the cooperative ventures, thus ensuring sustainability and profitability. According to Oluwatayo [9], resources contributed by women are more likely to be used to improve family food consumption and welfare, reduce child malnutrition and increase overall well-being of the family.

The results obtained from age are of significance when viewed from the economic perspective. Most people within the middle age count are adults who partially or fully attained economic independence all things being equal; and who are either contributing or have the potential to constitute to societal economic development. The strong pressure on women to provide economic support for their families was probably a motivating factor for them, not only to engage in primary occupation, but also to join self-helps organization that advances their self reliance and economic needs.

From also overwhelming majority of adults have experienced some form of marital relationship. This expected, given the adult structure of the groups, and the fact that most of the members were within the legal and mature age of marriage which is 18 years and above for females [10]. Over half of the members 67% were currently married. Although marriage confers respect on people, it never the less challenging since it attracts greater responsibility and involvement in social and economic activities. However being single, as found in 29% of the respondents, does not exonerate people from family care responsibilities widows and divorcees accounted for 13% of the cooperators these people by their status also play breadwinner roles in their families. On educational level, about 82% of the respondents had formal education while 18%

had no formal education. Participating effectively and efficiently in group activities required proper orientation and attitudinal adjustment on the part of the group members, and this is guaranteed through education. The above findings indicate that members of women cooperative societies in Abia were not just literate but had reached an educational threshold that empowers them to understand government policies on cooperative organization, also make qualitative contributions prior to collective decision making in their groups. This can also be an advantage in utilizing credit facilities and other innovative packages and services from government and other relevant agencies.

The table also shows respondents household size. About 25% of the respondent has a household size of between 2-4 people living together and eating from the same pot; while 49% had a household size of between 6 – 8 people living together while about 34% of the cooperation had between 10 – 12 people living together and eating from the same port. Even though large households creates more labour for agricultural activities, it is pertinent to point out that housing, feeding, health care and other basic human requirements are still largely the primary responsibilities of individual households in Nigeria. These findings agree with [11] who explained that household size is an important factor in any rural development intervention. Joining the cooperatives will help them to confront local challenges. The table indicated the income of the respondents per annum. Inequalities in income status of numbers of cooperatives societies are evident from data on member's average monthly income distinction. The inequalities are however, consistent with the observed differentials in educational attainment and diversification to off-farm activities.

The magnitude differential was, not very high. The lower and middle income group dominated membership of the cooperative groups in the state. This shows that there is simple opportunity for moderate financial investment and fulfilling financial obligations by members of all the women cooperatives.

Results on Table 2, show the cooperators land access structure. About 7.8% of the women cooperators owned fragmented pieces of farmland bought on outright sale basis. About 36.7% of the cooperators cultivates on pledged land, 2.8% cultivates on inherited land while 52.2% cultivates on borrowed land. Land is

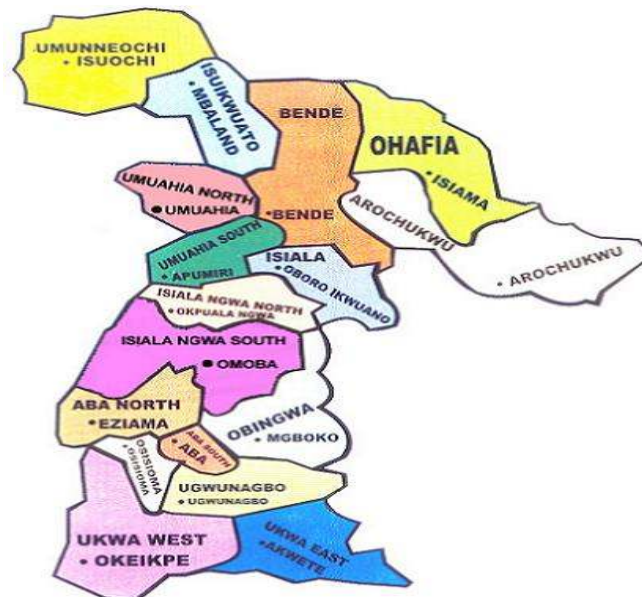
important for agriculture and particularly for food production. It is therefore a vital resource in Abia state whose economy is predominantly agricultural. Increasing agricultural innovations or subsidizing the agricultural sector is not enough in the absence of a veritable land distribution policy that takes into consideration the real actors involved in food production. Food security is thus also a question of space, as well as actors. With the formation of women cooperatives, the problems of cultivating lands for members to some extent will no longer a problem.

Results on Table 3 show activities carried out by the women cooperative societies in enhancing the livelihoods of its members. With the use of rating scale at the lowest discriminating point '3.0', the results show that all the activities contributed significantly toward the well-being of the members. This shows that farmers' cooperative societies also perform the role of spreading the teaching of agricultural extension and none economics services. It also increases the productive efficiency of members through sharing of farm inputs, bulk purchase and sale of farm produce [12]. Farmers cooperatives act as an anti-monopoly mechanism by cutting excesses margin of profit made by middle men and control through cooperative marketing [12]. This flow of products to statutory selling points will ensure that members receive a farm price relative to the quality of the products.

The capital used by the cooperators were sourced from personal savings (22.8%), family and friends (23.3%), cooperative societies (52.8%) and micro finance banks (1.1%). The implication of this result is that microfinance Banks have not significantly contributed to rural farming as their credit facilities are not readily available to farmers in the study area. This also indicates that the Banks have no significant impacts as their credit facilities are not readily available to the farmers.

Financial services such as savings, credit and insurance provide opportunities for improving agricultural output, food security and economic vitality of household. From the results on Table 4, cooperative societies provide such opportunities to its members. Table 4, also revealed the extension services received by the respondents in the study area. On the average about 38.9% of the respondents receive agricultural messages through extension agents on best practices to improve their yields.

The same table further reveals that 11.1% of the respondents receive market information pertaining to world market prices, 20.6% of the respondents claimed that they receive farm inputs for the extension on agents as a reduced price, while 19.4% stated that extension agents provide training or how to add value to their products in order to attract higher incomes, finally 7.8% stated that the extension agents link them



**Fig. 1. Map of Abia State, Nigeria**

Source: [www.abiastate.gov.ng](http://www.abiastate.gov.ng)

**Table 1. Distribution of cooperators based on their socio-economic characteristics**

Age	Ntiga	Okpualangwa	Amaorji
35 – 40	10 (16.7)	18 (30)	42 (70)
45 – 50	36 (60)	18 (30)	14 (23.3)
55 – 60	14 (23.3)	24 (40)	4 (6.7)
<b>Marital status</b>			
Married	42 (70)	32 (53.3)	46 (76.7)
Ever married	-	8 (13.3)	-
Single	18 (30)	20 (33.3)	14 (23.3)
<b>Educational level</b>			
Non formal	6 (10)	-	16 (26.7)
Primary	24 (40)	32 (60)	28 (46.7)
Secondary	26 (43.3)	22 (36.7)	16 (26.7)
Tertiary	8 (13.3)	1 (3.3)	-
<b>Household size</b>			
2 – 4	22 (36.7)	8 (13.3)	-
6 – 8	30 (50)	16 (26.7)	42 (70)
10 – 12	8 (13.3)	36 (60)	18 (30)
<b>Income N000</b>			
<del>N</del> 100 – <del>N</del> 200	36 (60)	20 (33.3)	42 (70)
<del>N</del> 300 – <del>N</del> 400	20 (33.3)	34 (56.7)	18 (30)
<del>N</del> 500 – <del>N</del> 600	4 (6.7)	6 (10)	-
<del>N</del> 700 – <del>N</del> 800	-	-	-

Source: Field data, 2013

**Table 2. Distribution of respondents based on land access by location**

Variables	Ntiga	Okpualangwa	Amaorji	Total frequency	Total percentage
Own land	8 (13.3)	-	6 (10)	14	7.8
Pledged	24 (40.0)	20 (33.3)	22 (36.7)	66	36.7
Inheritance	4 (6.7)	-	1 (3.3)	5	2.8
Borrowed	24 (40)	40 (66.7)	30 (50)	94	52.2

Source: Field data, 2013

**Table 3. Mean response of cooperators on activities of the women cooperatives**

Variables	Excel	VG.	AA	SA	NS	Total	Mean
Attract Government programmes	390	200	114	28	-	732	4.06
Give loans to members	215	220	93	102	-	630	3.50
Provision of farm-inputs	900	-	-	-	-	900	5.00
Marketing of produce	270	140	126	56	21	613	3.41
Saving mobilization	190	204	149	62	11	616	3.42
Educating members	360	128	84	90	3	665	3.70
Mobilization of members towards government projects	240	216	120	80	8	664	3.70
Extension services	180	176	105	84	23	568	3.16
Improving quality of farm products	340	168	105	56	7	678	3.8

Source: Field data, 2013

up to agro-chemical industries. Agricultural research institutes are being challenged to deliver research outputs that will improve agriculture in Nigeria. However, one obstacle to the realization of this delivery to farmers is the high extension agents (EAs): Farmers ratio which stood at 1: 2500 [13] therefore, re-thinking new options and ways by which agricultural research out to farmers become imperative hence many

women arrange and farm cooperative societies as cost-effective and a practical channel to address the needs and demands of rural women.

Respondents' categorization based on dietary diversity measures revealed that about 27 percents of the cooperators were food secured while 73% were food insecure. The reason attributed to this is that income of many rural

women are too low hence the reason to join cooperative societies as a way of gaining access to productive resources to increase their income and well being.

The result in Table 6 shows estimated results of the probit regression analysis of the relationship between respondents' food security status and their membership of cooperatives. Other household socioeconomic variables were also included as regressors in the model. The chisquare ( $\chi^2$ ) was highly significant at 1% level of probability indicating goodness of fit. From this Table 6, it is revealed that age, marital status, educational level, household size, membership of

cooperatives and income are major determinants of food security in the study area. The coefficient of age was negatively related to food security indicating that food security status of the respondent decreases as their age increases. Also the coefficient of educational level was positive and significantly related to food security at one percent level. The implication of the result is that the higher the educational level of the respondent the more food secure they are. Household size was positive and significantly related to food security indicating that respondents with large household size are more prone to food insecurity than those with small size. This is because as household size

**Table 4. Distribution of respondents based on access to credit and extension services**

Variable	Ntiga	Okpualangwa	Amaorji	Total frequency	Total percentage
<b>Sources of capital</b>					
Personal savings	16 (26.70)	7 (11.7)	18 (30)	41	22.8
Family and friends	8 (16.3)	12 (20)	22 (36.7)	42	23.3
Cooperative societies	36 (60)	39 (65)	20 (33.3)	95	52.8
Micro fiancé Bank		2 (3.3)		2	1.1

**Access to extension services**

Variable	Ntiga	Okpulangwa	Amaorji	Total frequency	Total percentage
<b>Sources of capital</b>					
Timely agricultural information on best practices	30 (50)	24 (40)	16 (26.67)	70	38.9
Market Management Information	14 (23.3)	6 (10)	-	20	11.1
Provision of farm inputs	6 (10)	18 (30)	13 (21.7)	37	20.6
Teaching value addition	8 (13.3)	12 (20)	15 (25)	35	19.4
Linkage to Agro-industries in the state	2 (3.3)	-	12 (20)	14	7.8

**Table 5. Distribution of respondents by food security status N = 180**

Food security status	Frequency	Percentage
Food secure	48	27
Food insecure	132	73
Total	180	100

Source: Field survey, 2013

**Table 6. Socio-economic factors influencing the food security status of the cooperators**

Parameters	Estimate	Std Error	z- value
X <sub>1</sub> = Age	-.114	.089	-1.783 *
X <sub>2</sub> = Education	-.313	.086	3.658***
X <sub>3</sub> = Marital status	-.001	.048	-.031
X <sub>4</sub> = House hold	-.024	.036	-6.62***
X <sub>5</sub> = Religion	-.036	.035	-1.031
X <sub>6</sub> = Membership of cooperative	-.072	.042	1.728*
X <sub>7</sub> = Income	-.029	.047	6.620***
X <sub>8</sub> = Farm size	-.037	.051	.732
X <sub>9</sub>	.028	.051	.556
Intercept	-3.369	-.578	-5.824***

Source: Field data, (2013); \*\*\* significant at 1%; \*\* significant at 5%; \*significant at 10%

increases, income per head decline and the less food secure the household become. Moreover, respondents belonging to cooperatives are more food-secured than those not belonging to cooperatives. This is as a result of the ease of those belonging to cooperatives having access to credit facilities to meet their households' need. Based on this result we reject the null hypothesis which stated that, there is no significant relationship between the socio-economic characteristics of the respondents and being a member of the cooperative society.

## 5. CONCLUSION AND RECOMMENDATION

Based on the findings of the study, the paper concludes that belonging to cooperative societies enhances well-being of its members. This is attributed to the fact that those belonging to the women cooperatives were more food secure than those not belonging to any form of cooperatives. Hence it is recommended that cooperatives need to be properly guided and organized especially at their formative stages having seen it as a veritable channel of meeting the needs of the rural women.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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