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ARTICLES

**Research Articles**

- A survey on preservation methods of leftover vegetables among retailers of Bungudu Local Government Area Zamfara State-Nigeria** 28  
Garba, J.\* , T. Rabi, A. Yusuf, M. Aliyu, N. Musa and H. Muhammad
- Adaptation of farming practices by the smallholder farmers in response to climate change** 33  
Billah, M. M, Sarker, M. A, Miah, M. A. M and Kabir, K. H
- Roles of youths groups in rural community development in Ebonyi State, Nigeria** 41  
Iwuchukwu J. C, Ogbonna O. I and Agboti I. O
- Adoption of innovative teaching strategies in active learning and experiential learning by Egyptian agricultural technical schools instructors** 48  
R. Kirby Barrick, Brian E. Myers and Mohamed M. Samy
- Determinants of loan repayment performance: Case study of Harari microfinance institutions** 56  
Firafis Haile

*Full Length Research Paper*

## **A survey on preservation methods of leftover vegetables among retailers of Bungudu Local Government Area Zamfara State-Nigeria**

**Garba, J.\* , T. Rabi, A. Yusuf, M. Aliyu, N. Musa and H. Muhammad**

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This study aimed at investigating the different methods of preserving vegetable left over after market hours among retailers of Bungudu local government area of Zamfara state-Nigeria. Out of the total number of markets in the local Government ten villages were randomly selected and in each of the village market, six vegetables sellers were choose at random and administered with the questionnaire making the total of sixty respondents. Result showed majority of the respondents were male and fall within the age range of 20-40 (64%), most of them acquired only Qur'anic education and spend ≤1-15 years in the business. Their source of vegetables is through wholesalers and majority of them (55%) used local basket in preserving their left over after market hours, this followed by spreading (20%), heaping (12%), sun drying (8%) and use of jute sacking (5%). The present study revealed that methods used by the vegetable retailers were traditional thus spoilage can still be high, due to. The government should therefore, enlighten the vegetables sellers on other methods like refrigeration, chilling, pickling, salting, freezing etc. which could be through radio, television, firm shows, poster and personal contact. More funds should be provided and good road network linking rural areas to market should be put in place to control loss incurred during transportation.

**Key words:** Left-over vegetables, preservation, retailers, Bungudu.

### **INTRODUCTION**

Vegetables are edible annual crops usually managed under intensive or gardening system. They can be eating as rough, in paste and sometime involve cooking and essentially provides rich source of vitamins, minerals, proteins, carbohydrates in human nutrition as well as serving a medicinal purposes hence, referred to as protective foods (Kaushik et al., 2011; Datta 2013).

Vegetables are the best resource for overcoming micronutrient deficiencies and provide smallholder farmers with much higher income and more jobs per hectare than staple crops (AVRDC 2006), they also serve as foreign exchange earning to their growing countries. The crops are broadly classified into leafy and non-leafy vegetables with lettuce, cabbage, amaranthus and

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hibiscus as some of the leafy vegetables grown in the study area while the non-leafy includes tomatoes, pepper, pumpkin, water melon, garden eggs, onion and okra. They generally require sandy loam rich in organic with average pH of 6 and temperature range of 20 to 30°C with relatively high humidity and dry air with high temperature for leafy and no-leafy respectively (de la Peña and Hughes, 2007; Sani and Jaliya, undated) hence, usually grown in low land areas “fadama” after rainy season with little or no irrigation.

At harvest these crops are usually taken to market afresh and sell to retailers either by the farmers or through wholesalers then to a larger society. Considering the economic constrain of the Nigerian local populace and daily out-put at harvest of these crops which is far higher than their demand, the retailers do have daily left-over of these produce which tends to spoils due to their perishability when kept for more than a day therefore their preservation is necessary so as to avoid business lost. Preservation is a term which involves any process of preventing the growth of bacteria, fungi or any other micro-organisms in the food as well as retarding the oxidation of fats so as to prevent that food from spoilage (Wikipedia, 2014). Generally preservation techniques are categorized into traditional and modern; drying, freezing, smoking, pickling, canning and salting are some of the traditional preservation methods while modern methods includes vacuum packing, artificial food additives, pasteurization, irradiation, modified atmosphere, pascalization and biopreservation (Wikipedia, 2014). The present study therefore aimed at surveying various preservation techniques employed by vegetable retailers in Bungudu local government area of Zamfara state Nigeria.

## MATERIALS AND METHODS

The present study was conducted in 2010 in some selected market of Bungudu local Government area, Zamfara State. Bungudu lies between Latitudes 12° 15' N and longitude 6° 33' E in the Northern Sudan Savanna ecological zone of Nigeria. It has annual rainfall of about 800 mm to 1200 mm per annum; the rainfall period is usually from May to September. The temperature is usually high throughout the year and farming is the predominant occupation. Out of the total number of market in Bungudu local Government ten (10) villages were randomly selected and in each of the village market, six vegetables sellers were chosen at random and administered with the questionnaire making the total of sixty (60) respondents. The villages are Bungudu, Nahuche, Kwatarkwashi, Furfuri, Fantaru, Gada, Rawayya, Auki, Runji and Saye. The data obtained was analyzed using simple descriptive statistics which involves tables, frequency and percentage.

## RESULTS AND DISCUSSION

### Socioeconomic characteristics of the respondents in the study area

Result of socioeconomic characteristics of the respondents

(Table 1) showed majority were male (95%) with age range of 20 to 40 (64%) and married with average family size of three children per house hold. Qur'anic education was acquired by majority (52%) of the respondent while rest had formal (30%) and adult and non-formal (18%) education. Moreover, majority (70%) were having a range of  $\leq 1$  to 15 years' experience in the business while 25% were into the business for 16 to 30 years and 5% spent more than 30 years.

The present study signifies that vegetable retailing is a male dominant activity in Bungudu as its involves sitting down on the open places like market entry point, alongside roads and path (Irungu 2007) from dawn to sun set thus, female were restricted from this business being it an outdoor due the purdah system predominate the northern part of Nigeria (Dalhatu and Garba, 2012) hence most cases only divorced and widowed women participate in outdoor activities such as farming and business. The age distribution of the respondent excludes teenagers from this business which can be due to the fact that peoples of age below 20 years were mostly in Qur'anic, primary or secondary schools and were being taken care up by their parents or guardians. At age of 20 most of these youth are getting married making it necessary to find a means of income along with the dominance farming for their sustenance which contribute immensely to dropping out from formal schooling hence only few can desist from getting marriage at this tender age and continuous with their western education. The result also indicates that vegetable selling in the study area was dominated by youth and people of the middle age majority of which acquired only Qur'anic education with no formal schooling as farming and agro businesses are not attractive for the educated youth partly due to drudgeries involved while those at older age mostly handed over the family up keep to their eldest son. The years of experience in the business also revealed the dominance of the youth and middle aged people in the business.

### Source of the vegetables for the respondents in the study area

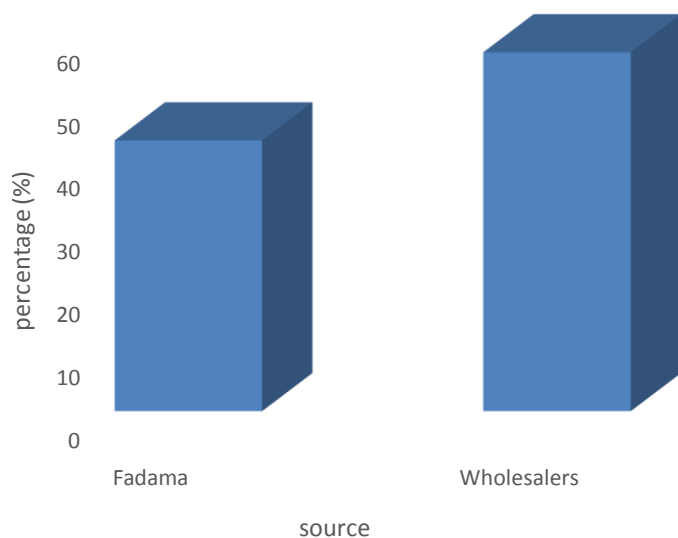
Figure 1 shows sources of vegetable for the respondents in the study area. Majority (57%) of retailers interviewed get their produce from the wholesalers while the remaining 43% purchases the produce directly from the farmers.

Purchasing through wholesalers has to be made with commission and along with cost of transportation it means an added cost to the total cost of produce therefore, for profit to be realized most often these produce has to be sell completely hence any leftover made if not properly preserved will spoil leading to a lost from the business. Irungu (2007) divided market traders into producers-wholesalers, producers-retailers, traders-wholesalers and retailers. Most producers wholesales

**Table 1.** Socioeconomic characteristics of the respondents in the study area.

Variables	Frequency	Percentage (%)
<b>Sex</b>		
Male	55	92
Female	5	8
<b>Age (year)</b>		
20-40	38	64
41-60	14	23
>60	8	13
<b>Educational background</b>		
Qur'anic	31	52
Adult and Non formal	11	18
Formal	18	30
<b>Business experience (year)</b>		
≤ 1-15	42	70
16-30	15	25
>30	3	5

n=60

**Figure 1.** Source of vegetable to the respondents in the study area.

their produce to the wholesalers in order to get time to undertake other activities and minimize transaction cost. Producers-wholesalers sold his produce to the retailers for profit maximization, minimizing cost and risk of spoilage. Traders-wholesalers are better endowed with capital compared to other suppliers thus buy the bulk produce at a market out-sketch while in other cases they will go to the farm and even harvest the produce for themselves, transport them and sell within short period of time in the same day. These enables producers to save

cost of harvesting, transportation and market fee but on the other hand increases the total cost of the produce to the retailers and consumers.

#### Sources of capital for the respondents in the study area

Table 2 present the various sources of capital for entrepreneurs and surprisingly all the respondent interviewed were never given/obtain financial assistance and /or loans from the government or financial institution thus, all are either getting the capital for their business through their personal serving, from their relatives, friends or taking the produce as loan from the farmers with an agreement of paying back after sells.

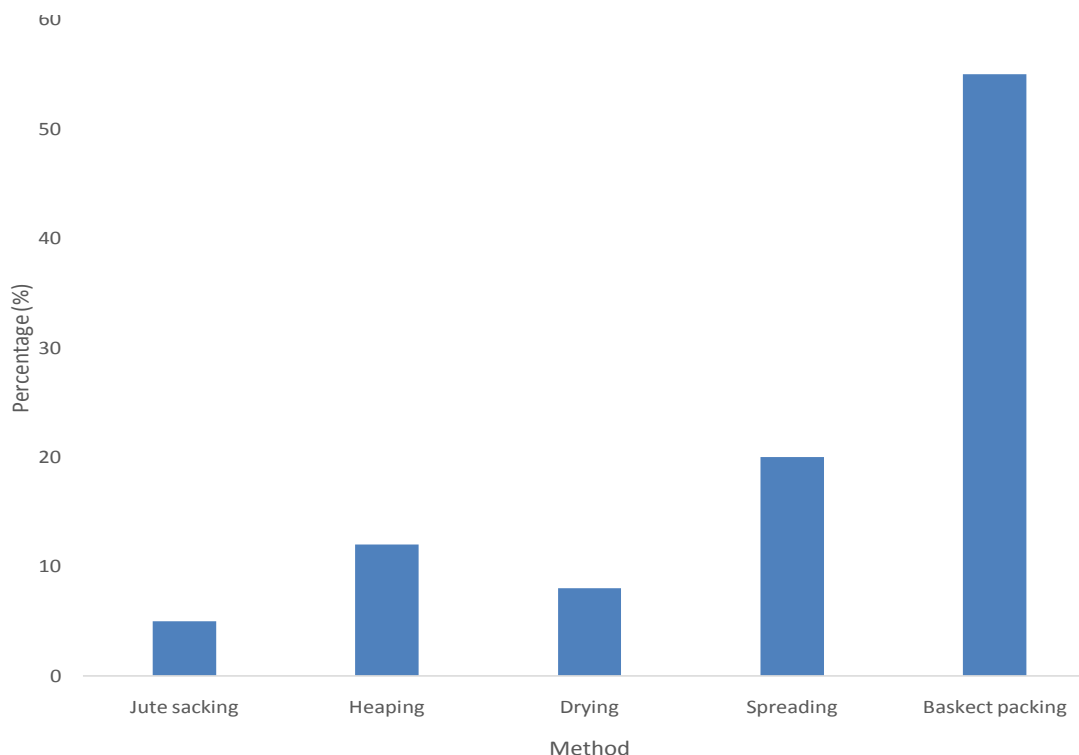
The inability of the farmers/entrepreneurs to access loan from the financial institution can be attributed to lack of sensitization from the banks, inadequate/no awareness by the farmers/entrepreneurs, poor/no organizational structure of the farmers/entrepreneurs. Normally banks provides agricultural loans to a group of farmers/entrepreneurs which formed co-operative societies with proper organizational structure put in place having in mind that these group of people will be remitting these loans at a time agreed upon unlike individual small holder farmer/business which will be very difficult to meet up the bank collateral hence will not get the loan. On the site of these farmers/entrepreneurs no proper enlightenment made for the importance of forming these co-operative so as to benefits from any assistance being made by the government or to obtain loans from the banks for



**Table 2.** Sources of capital for the respondents in the study area.

Capital source	Frequency	Percentage (%)
Government	-	-
Banks	-	-
Producers, relative and friends	60	100
Total	60	100

n=60.



**Figure 2.** Preservation methods of leftover vegetables in the study area

sustaining their business. That was why during the present most of the respondent interviewed were observed to have title capital for the business since it comes from their personal saving, friends or relatives leading to low purchase and consequent low profit.

**Preservation methods of leftover vegetables in the study area**

Majority (55%) of the respondents interviewed reported that they used local basket in preserving their vegetables while few (5%) used jute sacks and some (20%) used spreading methods of preservation, the rest of the respondents used drying (12%) and heaping (8%) methods of preservation as it was indicated in Figure 2.

Preservation prevent spoilage through stopping physiological aging and enzymes action by controlling multiplication and activities of microorganisms (James and Kuiper, 2003). Basket packaging is used in the study area for vegetables such as tomatoes, okra, peppers and garden eggs. The method is simple and ensures enough ventilation with low damage when kept at low temperature. Jute sacking as reported by the respondents, is effective especially for leafy vegetables which include lettuce, spinach and amaranths because it provide complete protection from damage and drying since the jute sacks are wetted or covered and laid on the vegetables for the next sales. The fibre sacks used in been sprinkled with water and retains moisture for a long time to keep the products in their fresh state. Pumpkin, onion and water melon were heaped on the moisture free floor or any surfaces in good organized or arrange way.

Drying is the oldest method (Wikipedia, 2014) widely used in preservation and due to sunlight and wind blow, least cost and no any skills requirement the vegetable were cut into smaller sizes and exposed to sunlight and blowing winds leading to moisture loss hence ceased activities of microorganism. The method ensure long storage of vegetable and use during their cut-off period even though resulted into loss of aromas, vitamins and essential volatile minerals (Lee and Kader, 2000).

The major constraint of the respondents in the study area include lack of enlightenment for improvement of their business and whole being due to inadequate extension services which is the crucial tool in educating farmers/entrepreneurs. Also there are problems of competition which is unavoidable among the retailers which lead in proper marketing information, inadequate capital for sustaining the business, poor transportation resulting damage and contamination of the produce and over supply at harvesting period which led to fall in price.

### Conclusion

The present study revealed that methods used by the vegetable retailers were traditional and spoilage can still be high, due to inefficiency of the methods. The government should therefore, enlighten the vegetables sellers on other local methods such as refrigeration, chilling, pickling, salting, freezing etc. these could be through radio, television, films shows, poster and personal contact. It is recommended also that enough funds should be provided to these peoples through clubs and societies from government and/or financial institutions which will aid in increasing capital for the business as well as purchasing refrigerators along with generators needed for afore mentioned methods considering the unstable power supply from the national grid. Finally, good road networking should be put in place to link these rural areas of vegetable production with market place thereby controlling damage and lost incurred due to poor road condition.

### Conflict of Interest

The authors have not declared any conflict of interest.

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*Full Length Research Paper*

## Adaptation of farming practices by the smallholder farmers in response to climate change

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The study was conducted to determine the extent of adaptation of farming practices by smallholder farmers in response to climate change in coastal regions of Bangladesh. The data were collected from 80 randomly selected smallholder farmers with the objectives to identify the adaptation of farming practices, to determine the factors those influence adaptation of farming practices and to find out the constraints faced by the farmers in adapting farming practices. The findings of the study revealed that majority (75%) of the smallholder farmers made low to medium adaptation of farming practices in response to climate change. Correlation analysis indicated that among the selected socio- economic characteristics, respondent's education, annual family income, communication exposure, agricultural training and perception of climate change showed positive and significant relationship with their adaptation of farming practices. Step-wise multiple regression analysis explored that amongst six, four independent variables finally entered into the model and contribution of these factors (education, perception, communication exposure and training) accounted for 88% of the total variation in the extent of adaptation of farming practices. It was found that majority (76%) of the smallholder farmers had faced high to medium constraints in adapting farm practices in response to climate change.

**Key words:** Adaptation, farming practices, smallholder farmers and climate change.

### INTRODUCTION

Climate change and variability is commonly associated with food insecurity in many parts of the world. The relationship between climate change/variability and crop failure is not a new phenomenon, but in areas where infrastructure is limited, poor people are often vulnerable climate hazards (Ziervogel et al., 2008). The challenge climate change poses to the world's 500 million smallholder farms cannot be overlooked. Smallholder farmers provide up to 80% of food in sub-Saharan Africa and parts of Asia, manage vast areas

of land and make up the largest share of the developing world's undernourished people (ASAP, 2012). The Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) predicts that climate change is likely to have a significant effect on agricultural production in many African countries. Projected reductions in yield in some African countries could be as much as 50% by 2020, and net crop revenues could fall by 90% by 2100 (Boko et al., 2007). This amounts to a

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serious threat to food security and to the achievement of major developmental goals. The agricultural sector is a major source of livelihood in Southeast Asia. With agriculture's dependence on optimal temperature and water availability, climate change has been and will continue to be a critical factor affecting the productivity of crop. Major cereal crops such as rice and maize have experienced declining production potential due to heat and water stress (ADB, 2009). The IPCC states with high confidence that smallholder and subsistence farmers in developing countries are among those who will suffer the most from climate change impacts.

Bangladesh is an agro-based country and agriculture is the backbone of national economy. More than 80% of total population is directly or indirectly involved with agriculture. Agriculture contributes 19.29% to its GDP. More than 75% of foreign exchange is earned from agriculture based commodities (BBS, 2012). On the other hand, Bangladesh is extremely vulnerable to the impact of climate change, in part because it is a low-lying and very flat country, subject to riverine flooding and vulnerable to sea level rise. The confluence of the three great rivers, the Ganges, the Brahmaputra and the Meghna, makes the country a great deltaic plain. The extensive floodplains are the main physiographic features of the country. Both riverine flooding and sea level rise can result in inundation of crops; sea water, in particular, can result in salinization, causing permanent loss of currently productive agricultural land (Thomas et al., 2012). Climate change in Bangladesh is an especially serious concern since agriculture is such an important sector. It contributes roughly 20% to GDP, with crops representing 11.2%, livestock 2.7%, fisheries 4.5%, and forestry 1.8% (Bangladesh Economic Review, 2010). Furthermore, the sector provides employment and income to some of the poorest and most vulnerable members of society. Between 2000 and 2003, agriculture provided work to about 52% of the labor force (BBS Labor Force Survey 2011-2012).

Asian Development Bank (ADB) and International Food Policy Research Institute (IFPRI) (2009) studied the impact of climate change on agriculture in the countries of Asia and the Pacific, concluding that "a combination of indicator values representing exposure (change in temperature and precipitation), sensitivity (share of labor in agriculture), and adaptive capacity (poverty) identifies Afghanistan, Bangladesh, Cambodia, India, Lao PDR, Myanmar, and Nepal as the country's most vulnerable to climate change. "We cannot imagine a single moment without the contribution of agriculture but it is being destroyed by various natural and man-made events. Climate change is one of those events which are directly responsible for hampering this sector. Climate is commonly defined as the average weather for a long period of time for the given region. Climate change is a statistically significant change in the measurement of either the mean state or variability of the climate for a place or region over an extended period of time due to natural variability or as a

result of human interventions (Prevention consortium, 2007). Climate change is becoming the greatest threat in the history of humanity. Bangladesh is one of those countries that have been fighting against this global threat for the last few decades. According to a World Bank (WB) report, the losses associated with environmental degradation are estimated at more than 4.3% of Bangladesh's GDP and result in reduced the capacity of government's poverty alleviation programs (World Bank, 2006).

Bangladesh is a disaster-prone country and due to these unwanted events, the country experiences disasters of one kind or another (such as tropical cyclones, storm surges, coastal erosion, salinity intrusion, floods, and droughts) almost every year causing heavy loss of life and resources and jeopardizing the development activities (NAPA, 2005). The country is already beset with many problems like high population density, shortage of land to accommodate the people, food security, human health and so forth. The above mentioned types of disasters make the problems all the more complicated. In the foreseeable future, Bangladesh is likely to be one of the most vulnerable countries of the world in the event of climate change. Here smallholder farmers are very vulnerable to current and future climate risk (that is, drought, flood, cyclone etc.). This is evidence by the high loss of property and life in recent climate-related hazards around the country. Without the application of productivity improvements and adaptations, the agriculture sector in Bangladesh has to suffer. Significant losses, are threatening food security in that region (ADB, 2009).

Adaptation to climate change refers to adjustment in natural or human system in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunity (IPCC, 2007). The main goal of climate change adaptation is to reduce vulnerability and build resilience to the impacts brought by climate change (Brooks and Adger, 2005). Moreover, farmers have a long history of responding to climate variability. Traditional and newly introduce adaption practices can help farmers to cope with both current climate variability and future climate change (Bilow, 2010). Several adaptive practices are regularly considered by the smallholder farmers in the local agriculture but the relative success to overcome climatic condition and temporal variations of climatic elements gradually making coastal people vulnerable. Furthermore, adaptation generally takes place at the micro- and macro-levels: Farmers introduce practices at the local level, and the main factors influencing their diffusion are seasonal climatic variations, the agricultural production system, and other socioeconomic factors; the government, NGOs, or private companies introduce practices nationally, and long-term changes in climatic, market, and other conditions influence their establishment (Nhemachena and Hassan 2007). In this situation, the adaptive capacities of the people need to be gradually increased to understand the probabilistic climate vulnerabilities and its consequences over the agriculture and agriculturally based livelihoods

(CEGIS, 2005).

Several comprehensive studies of farmers' adaptation to climate change focus on a few study sites or regions in one or two countries (Osbahr et al., 2008; Osman-Elasha et al., 2006; Paavola, 2004; Thomas et al., 2007). Mbilinyi et al. (2005), for example, discuss indigenous knowledge about rainwater harvesting; Halsnaes and Traerup (2009) assess the economic benefits of mosquito nets, road infrastructure, and rice production; and Siedenburg (2008) analyzes the implications of local knowledge for the adoption of agroforestry practices. Adger et al. (2007) provide a broad overview of adaptation practices concerning different sectors of the economy in Africa, Asia, Oceania, the Americas, and Europe. Boko et al. (2007) give general examples of adaptation options in Africa that enhance citizen's social and economic resilience. Finally, Smit and Skinner (2002) developed a typology for classifying and characterizing agricultural adaptation options in detail, focusing on Canada.

However, the literature they reviewed contains no specific study to identify the adaptation practices and to determine the factors those influence adaptation of farming practices by small-scale farmers in Bangladesh.

Though several government programs have sought to address climate risks in Bangladesh, new ways and methods need to be developed that better inform farmers and help them to identify alternative, technically viable options for farm adaptation practices to mitigate the consequences of climate change (Toufiq, 2002). Thus, in this situation it is necessary to know the extent of adaptation of farm practices and also explore some potential factors that are influencing the adaptation of farming practices in response to climate change and that is why this study was drawn over this area.

## METHODOLOGY

### Locale of research

The study was conducted in two unions namely Padma pukur and Kashimari of Shyamnagar upazila under Satkhira district. Most of the farmers in this area are smallholders whose livelihood depends on various farming activities. Their farming activities are being changed and affected due to climate change. The area is mainly affected by salinity, sea level-rise, flood, cyclone etc. About 49.38% of the total farmers are smallholder farmers in Shyamnagar upazila and around 200 small farmers live in each village (BBS, 2006). The total target population was 400, out of which 20% population were selected from two villages as sample. Hence, the sample size was 80. Data were collected during April 2013 using structured questionnaire. Two FGDs and two KII were conducted in order to get in depth information on adaptation practices (Figure 1).

### Data collection

The total target population was 400, out of which 20% population were selected from two villages as sample. Hence, the sample size was 80. Data were collected during April 2013 using structured questionnaire. Two FGDs and two KII were conducted in order to get

in depth information on adaptation practices. In order to collect qualitative data, two group discussion sessions were arranged in the study areas. Each group contained 10 participants. The qualitative data helped the researcher to design interview schedule for the study. A personal interview was conducted with the 80 respondents through the interview schedule in April 2013.

The extent of adaptation of farming practices in response to climate change was the dependent variable of the study. The eight selected characteristics of the smallholder farmers namely age, level of education, household assets, annual family income, credit received, communication exposure, training received and perception of climate change were the independent variables of this study. The variable was measured on the basis of different aspects of adaptation. The adaptation score was computed on the basis of the respondents' adaptation on 15 aspects. A four point rating scale was developed to measure the extent of adaptation of the farmers namely frequently, occasionally, rarely and not at all score assigned for each of these responses were 3, 2, 1 and 0 respectively. Thus, score of a smallholder farmer in 15 items could range from 0 to 45.

### Data analysis

The collected data were coded, categorized, tabulated and analyzed scientifically. The local units were converted into standard units. The qualitative data were transferred into quantitative data by appropriate scoring techniques. The SPSS computer program was used for analyzing the data. Various descriptive statistical measures such as range, frequency, number, percentage, mean, standard deviation (SD), coefficient of variation (CV) and rank order were used for categorization and describing the variables. Pearson's product moment correlation coefficient ( $r$ ) was utilized both for data evaluation and hypotheses testing. To identify the factors influencing adaptation of farming practices a step-wise multiple regression analysis was conducted.

## RESULTS AND DISCUSSION

### Socio-demographic characteristics of the smallholder farmers

The findings of the study indicate that the highest portion of the respondents (42.5%) were young aged while majority (41.2%) of the respondents had primary education. The majority (95%) of the smallholder farmers had low to medium household assets and highest portion (85.0%) of the respondents had low annual income while most (63.8%) of respondents received low amount of credit. The study also reveals that majority (57.5%) of the farmers' maintained moderate type of communication exposure for adapting farm practices. In terms of training exposure, the findings indicate that majority (60.0%) of respondents received short duration training and the highest portion of the respondents (55.0 %) had observed moderate perception of climate change (Table 1).

### Extent of adaptation of farming practices

The extent of adaptation of farming practices in response to climate change is the depended variable of this study. The adaptation score of the respondents ranged from 11 to 39 against the possible range of 0 to 45

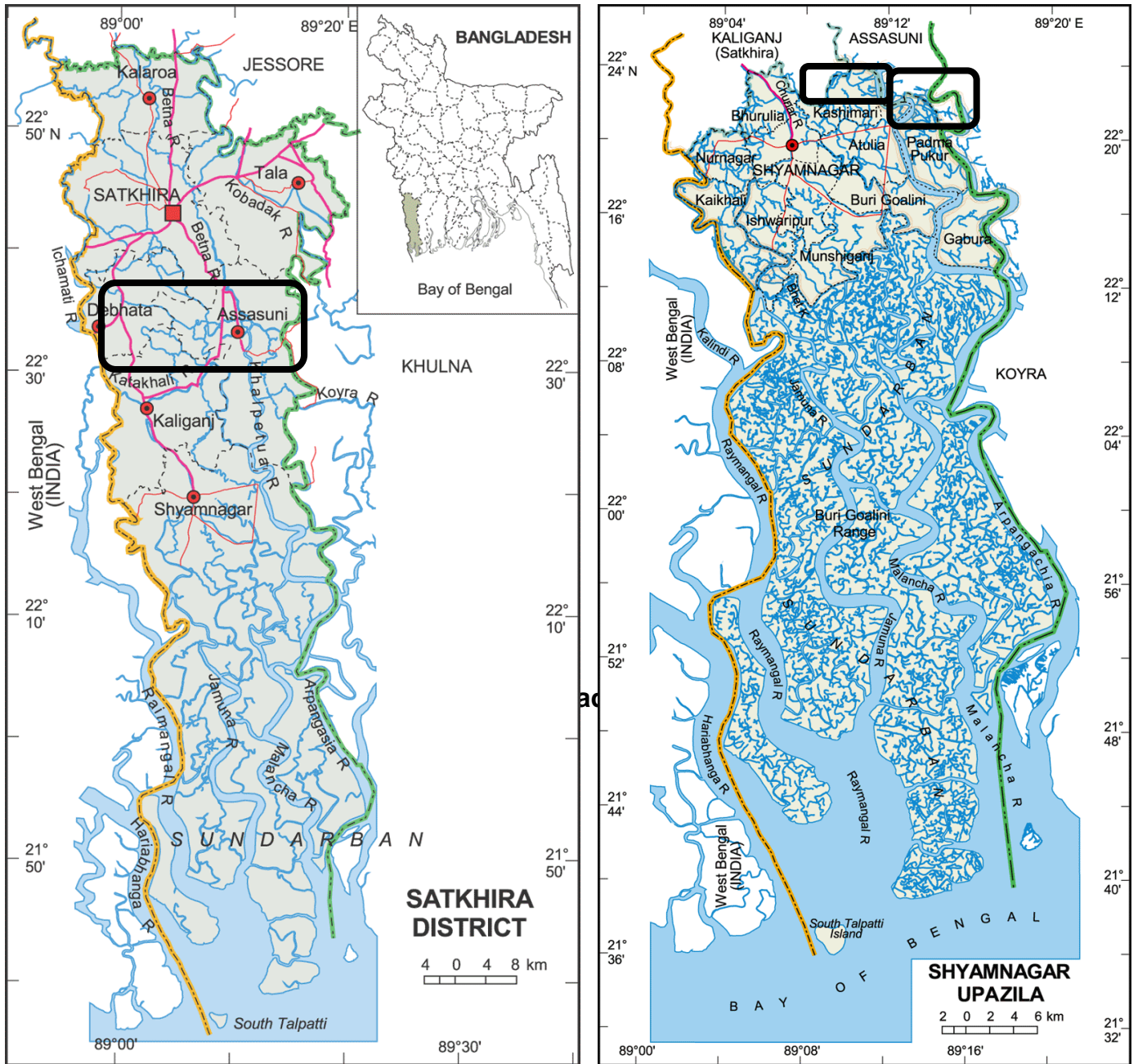


Figure 1. Map of Satkhira District of Bangladesh showing the study area of the Shyamnagar Upazila.

with an average of 25.74 and standard deviation 7.84. Findings indicate that majority of the respondents (53.8%) had medium farm adaptation compared to 25.0% had high adaptation and 21.2% had low adaptation of farming practices in response to climate change and it is shown in Table 2.

It is evident from the figure that amongst the fifteen long-term practices the homestead gardening (92%) belongs to the first position followed by moved to non farm activities (83%), crop diversification (62%), integrated

farming system (60%), find off farm jobs (57%) etc (Figure 2).

**Relationship between dependent and independent variables**

Table 3 shows that age of the smallholder farmers were negatively significant while household assets and credit received had no significant relationship with the farmers'

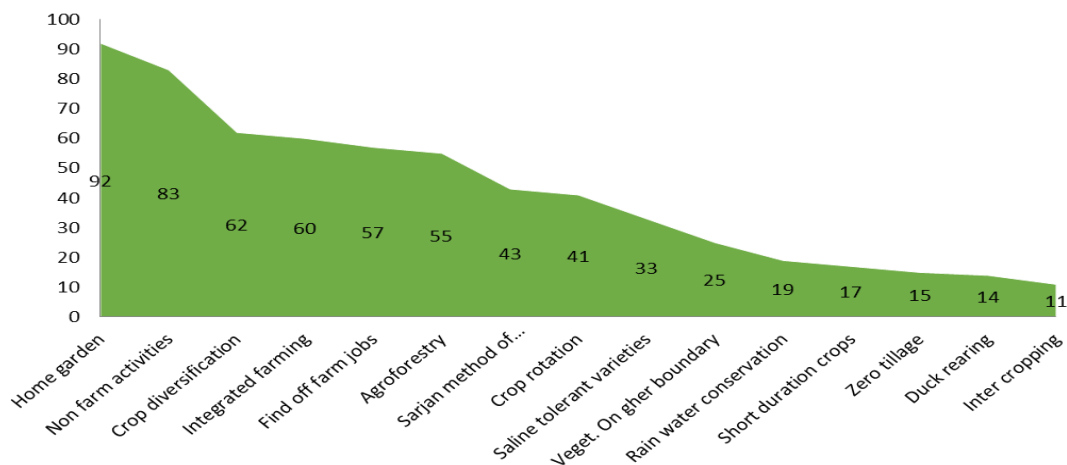
**Table 1.** Salient features of the selected characteristics of the farmers.

Socio-economic variable	Farmers (n=80)	
	Mean (Std. deviation)	(%)
<b>Personal data</b>		
<b>Age (years)</b>	42.98 (11.94)	-
Young (up to 35)	-	42.5
Middle aged (36-55)	-	40.0
Old aged (above 55)	-	17.5
<b>Level of education</b>	5.7 (3.95)	-
Illiterate (0)	-	11.2
Primary education (1-5)	-	41.2
Secondary education (6-10)	-	35.0
Higher education (above 10)	-	12.6
<b>Household assets (thousand)</b>	11.29 (10.43)	-
Low (up to 100)	-	65.0
Medium (101-200)	-	30.0
High (above 200)	-	5.0
<b>Farm data</b>		
<b>Credit received (In thousand taka)</b>	24.13 (20.78)	-
No credit (0)	-	13.4
Low credit (up to 35)	-	63.8
Medium credit (36-70)	-	20.0
High credit (above 70)	-	2.8
<b>Annual family income (thousand taka)</b>	48.26 (20.18)	-
Low income (up to 60)	-	85.0
Medium income (61-100)	-	11.2
High (above 100)	-	3.8
<b>Communication exposure (scale score)</b>	21.40 (6.77)	-
Poor exposure (up to 14)	-	21.2
Medium exposure (15-28)	-	57.6
High exposure (above 28)	-	21.2
<b>Agricultural training received (scale score)</b>	3.54 (3.24)	-
No training (0 days)	-	32.5
Short training (1-7days)	-	60.0
Medium training (8-14days)	-	6.2
Long training (above 14days)	-	1.3
<b>Perception of climate change (scale score)</b>	17.95 (5.47)	-
Low perception (up to 10)	-	12.5
Medium perception (11-20)	-	55.0
High perception (above 20)	-	32.5

**Table 2.** Distribution of the farmers according to the extent of adaptation.

Categories	No.	Percent	Mean	SD
Low adaptation (up to15)	17	21.2		
Medium adaptation (16-30)	43	53.8		
High adaptation (above 30)	20	25.0	25.74	7.84
<b>Total</b>	<b>80</b>	<b>100.0</b>		

Source: Author's Survey, 2013.



**Figure 2.** Adaptation practices followed by the smallholder farmers.

**Table 3.** Correlation analysis influencing adaptation practices of smallholder farmers.

Variables	Correlation co-efficient (r)
Age	-0.419**
Education	0.898**
Household assets	0.058
Income	0.691**
Credit	0.113
Training	0.832**
Communication exposure	0.834**
Perception	0.881**

\*\* = Significant at 1% (0.01) level with 78 degree of freedom.

adaptation practices. On the other hand, level of education, annual family income, communication exposure, training and perception of climate change were positively correlated with the farmers' adaptation practices in response to climate change.

### Factors influencing adaptation of farming practices

A step-wise multiple regression analysis had been applied to identify the significant explanatory variables that have effect on adaptation of farming practices. The results of the multiple regression analysis show that among the explanatory variables, four variables namely level of education, perception on climate change, communication exposure and training finally entered in the model and contribution together of these variables contribute to 88.2% of the total variance in respect to the effect on adaptation of farming practices (Table 4).

However, education solely contributes highest (80.4%) to explain the adaptation of farming practices of the farmers in response to climate change. It may be assumed

from the result of step-wise multiple regression analysis that farmers with more level of education have more rate of adaptation of climate smart farming practices. Farmers' perception on climate change, communication exposure to different extension media and more participation in training makes them potential and participatory in different adaptation practices in response to climate change.

### Constraints faced by the farmers in adapting farming practices

The results show that the highest portion of the respondents (38.8%) had faced medium constraints in adapting their farming practices, while 37.5% of the respondents had faced high constraints and only

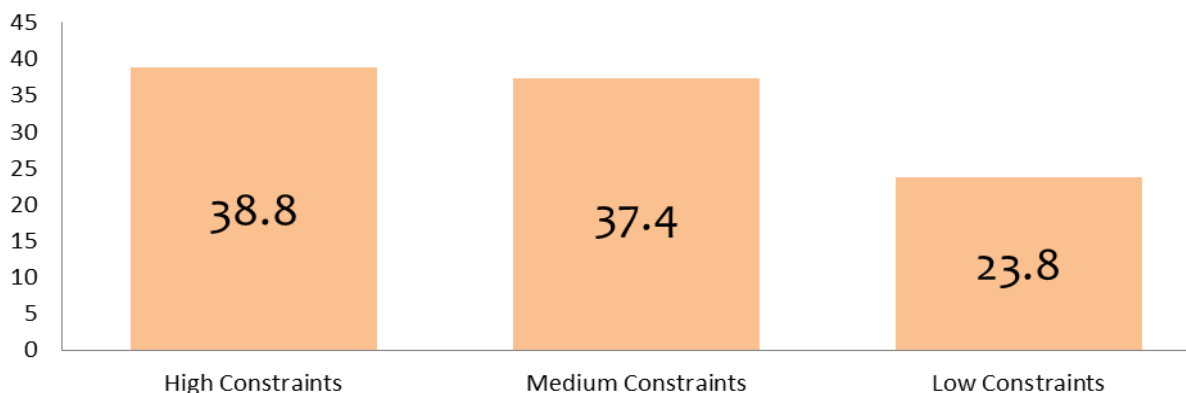
23.8% had faced low constraints. This means that the large portion (76.2%) of the farmers had faced medium to high constraints and they were in the categories of middle to old aged and for clear understanding a bubble chart is given (Figure 3). It is a general assumption that the middle



**Table 4.** Factors influencing adaptation of farming practices in response to climate change.

Model	Combination of independent variables	Co-efficient of determination	Adjusted R <sup>2</sup>	% of increase in Adjusted R <sup>2</sup>	F-value	t-value	Sig. level
1	Constant + Education	0.807	.804	80.4	325.39**	3.12	.01
2	Constant + Education + Perception	0.864	.860	5.6	244.35**	3.18	.00
3	Constant + Education + Perception +Communication	0.878	.873	1.3	181.76**	2.80	.00
4	Constant + Education + Perception + Communication + Training	0.888	.882	0.9	147.93**	2.33	.03

\*\*Significant at 0.01 level of probability.

**Figure 3.** Overall constraints faced by the farmers in adopting farming practices.

to old aged people are not educated enough, receive less training and information from different sources and are not curious enough to the adaptation of farming practices in response to climate change, so they are facing too much constraints compare to young categories in adapting farming practices in response to climate change. The smallholder farmers are strongly facing the problem of shortage of land (96%), lack of water (89%), unpredicted weather (85%), shortage of farm inputs (80%), lack of information (73%) and lack of credit (62%) etc.

## Conclusions

The findings of the study and the logical interpretation of their meaning in light of other relevant facts prompted the researcher to draw the following conclusion:

Average adaptation of farming practices score was found 25.74 which are not so satisfactory, because all aspects of adaptation of farming practices were not properly fulfilled by the farmers in higher extents. Thus, it can be concluded that such low to medium adaptation may not improve the livelihoods of the smallholder farmers. So, various income generating opportunities like establishment of agro-processed industry and small

cottage industry should be established for increasing the smallholder farmers' income. As a result, farmers can save more money, enlarge farm size and ultimately, increase adaptation of farming practices in response to climate change. Moreover, the study revealed that education, training, communication exposure and perception of climate change of the smallholder farmers had highly positive and significant relationship with their adaptation of farming practices in response to climate change. So, proper steps should be taken by various GOs and NGOs to educate the smallholder farmers and should be involved in conducting training program to upgrade the smallholder farmers' awareness and understanding of the knowledge about climate change and its effect on agriculture and how to cope up with new climatic condition for agricultural situation. Furthermore, four variables namely level of education, perception on climate change; communication exposure and training contribute to 88.2% of the total variance in respect to the effect on adaptation of farming practices. So, in future development program regarding adaptation of different climate smart technologies in response to climate change, these variables of the farmers should take in to consideration.

Findings showed that majority of the farmers (76%) had faced high to moderate extent of constraints

in adaptation of farming practices in response to climate change. So, various development agencies should motivate farming communities to adopt long-term climatic hazards mitigating measures and should provide adequate technical support, extension service in addition to education, income generating opportunity and training.

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*Full Length Research Paper*

## **Roles of youths groups in rural community development in Ebonyi State, Nigeria**

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**Youths are dynamic force for social transformation and rural community development. This study identified types of youth groups and their roles in rural community development; constraints to effective participation of youth in rural community development and strategies to improve effective participation of youths in rural community development. Multi-stage sampling procedure was used to select 60 respondents for the study. Data were analysed with frequency count, percentages and mean scores. Result shows that greater percentage (60.0%) of the youths was male and had mean age of 24 years. Majority (89.50%) of the respondents belonged to Afikpo youth organisation and their major roles included town hall building (86.40%), school development (81.40%) and market building (74.60%). Constraints to effective participation of youth in rural community development included limited access to finance (M=2.14; SD=0.88), inadequate skill (M=2.00; SD=0.76) and limited material benefit for the participants (M=2.14; SD=0.86). It was suggested therefore that the youths should be provided with skill (M=1.62; SD=0.63), sponsored (M=1.34; SD=0.58) and employed (M=1.32; SD=0.72).**

**Key words:** Youth, community development, roles.

### **INTRODUCTION**

Rural community developments (RCD) are measures which enable rural people to recognize their ability to identify their problems and use available resources to build a better life. Community development emphasizes self help, mutual support, the building up of neighbourhood, integration and the development of political decision makers (Smith, 2006). Youths can participate in community building of rural areas. The operational definitions of the term "youth" often vary depending on the specific socio-cultural, institutional, political and environmental factors. The concept of youth has been defined as the period in an individual life, which

comes between the end of childhood and entry into adulthood (Umeh and Odom, 2011). According to United Nations (2008) and World Bank (2010) about 50% of the developing world population are youths estimated at about 1.2 billion of age between 15 and 24 years. This indicates that youths constitute a serious development opportunity particularly in developing countries. The merging of community development and youth development has been at the core of recent youth engagement literature (Nitzberg, 2005). It has been at the core that youth must be fully engaged and involved in change efforts at the community level if they are to learn

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to function as effective members of society (Nitzberg, 2005).

For many years, Nigerian government has been preparing and implementing various plans aimed at bringing about the economic, social and cultural development of communities. However, the cost of continuing to implement these plans and improving social and economic services has been rising too fast in relation to government budget capacity. It is for this reason that community should engage in self help development projects in order to improve their welfare and bring about social and economic development in their respective communities. The development of community is a dynamic process involving all segments of the locality, including the often-overlooked youth population (Udensi et al., 2013). Despite the various government programmes (Agricultural Development Programmes (ADPs) 1975, Agricultural Credit Guarantee Scheme 1977, People's Bank of Nigeria, 1987 etc) approached and strategies aimed at improving the condition of the rural poor through agricultural development which is a precursor for rural development are faced with a myriad of problems (Umeh and Odom, 2011). The merging of community development and youth development has been at the core of current research literatures (Udensi et al., 2013; Nitzberg, 2005; Kubisch, 2005; Lynn, 2005; Brennan et al, 2006; Okwusi, 2008). Youths groups have not been viewed as essential contributors to society in terms of community development due to stereotypical images and misconception of their age and developmental capacity. The period of intense emotional changes during adolescence helps contribute to lower expectation of youth from adult and subsequent decreased opportunities for youth to participate in community activity (Gibbs, 2002).

According to Adesope (2007), the entirety of youths in both urban and rural areas needs to be mobilized for proper impact to be felt in their community. Most innovative community leaders are rediscovering that youth can be essential contributors to the well-being and vitality of the community. Projects that connect old people with youth, adults and children are now seen as the foundation upon which a healthy community can be built. But for this task to be accomplished, youth must no longer be relegated to the margins of the community life so that, their energetic, resourceful and innovative nature could be felt. According to Umeh and Odom (2011), despite various programmes of government involving the youth in rural and agricultural development aimed at across the states of Nigeria, there seems to exist a wide disparity in the agricultural and rural development activities of youths relative to adult members of rural communities in Nigeria. Also, despite the abundant human resource endowment to Ebonyi State, its people are still been classified as a poor state in areas of infrastructures (Nkwede and Nwovu, 2014). Therefore, it became pertinent to assess the contributions of youth to

rural community development in Ebonyi State.

### **Purpose of study**

The main purpose of this study was to assess roles of youths in rural community development in Ebonyi State, Nigeria. Specifically the study sought to:

1. Describe socioeconomic characteristics of the respondents;
2. Identify types of youth groups and their roles in rural community development;
3. Assess constraints to effective participation of youth in rural community development and
4. Identify strategies to improve effective participation of youths in rural community development.

### **METHODOLOGY**

The study was carried out in Ebonyi State, Nigeria. Population for the study consisted of the targeted youths. Multistage sampling technique was used for selection of respondents for the study. In the first stage, Afikpo north local Government Area (LGA) was purposively selected from thirteen LGAs in the state due to availability of numerous youth groups in the area. In the second stage, three town communities (Afikpo, Unwana and Amasiri) out of four town communities in Afikpo north LGA were randomly selected. Afikpo has five village communities namely: Nkpogoro, Ugwuegu, Itim, Ohaisu and Ozizza. Unwana has five namely: Pompido, Ezi akaa, Ezi otiinya, Ugwubebeku and Nkagbogo. Amasiri has also five village communities namely: Ezeke, Ndukwe, Ohachara, Amachara and Amuro. In the third stage, two village communities were selected from each of the town communities. In the last stage, ten youths were also purposively selected for each community making a total of 60 respondents.

Socioeconomic characteristics of the respondents were measured as follows: Age was measured as the actual number of years of the respondents. Sex was measured as male or female; marital status as single, married, widowed and divorced. The respondents were also asked to indicate their level of education as follow: No formal education, primary school attempted, primary school completed, secondary school attempted, secondary school completed, OND/NCE, HND/BSc, higher degree.

To identify types of youth organisation and their roles in rural community, respondents were asked to indicate the organisation they belong. Also, a list of roles was presented for the respondents to tick "yes or no" for the roles they played in the organisation.

To ascertain constraints that hinder effective participation of youth groups in rural community development, respondents were asked to indicate the constraints towards their effective participation to RCD. A 4-point Likert type scale of "to a very great extent (3)", "to a great extent (2)", "to some extent (1)" and "to no extent (0)" was used to measure their response. Responses with mean scores equal or above 1.5 were regarded as major constraints.

To ascertain possible strategies to improve the effective participation of youth groups in RCD, a three point Likert type scale of to a great extent (2), to some extent(1) and to no extent(0) was used to measure their responses. Responses with mean scores equal or above 1.0 were regarded as possible strategies that could be adopted.

Data were collected through the use of interview schedule. Data were analysed with frequency count, percentages and mean scores.

**Table 1.** Percentage distribution of respondents according to socio-economic characteristics.

<b>Socio-economic characteristics</b>	<b>Frequency</b>	<b>Percentage (%)</b>	<b>Mean</b>
<b>Age</b>			
15-19 years	8.00	13.30	24.32
20-24 years	25.00	41.70	
25-29 years	19.00	31.70	
30-34 years	8.00	13.30	
<b>Sex</b>			
Male	36.00	60.00	
Female	24.00	40.00	
<b>Academic qualification</b>			
Secondary school attempted	8.00	13.30	
Secondary school completed	24.00	40.00	
OND/NCE	15.00	25.00	
HND	8.00	13.30	
Higher degree	5.00	8.30	
<b>Marital status</b>			
Single	45.00	75.00	
Married	15.00	25.00	
<b>Primary occupation</b>			
Student	54.00	90.00	
Civil servant	6.00	10.00	
<b>Secondary occupation</b>			
Marketers	1.00	7.10	
Vendor	1.00	7.10	
Sewing	2.00	14.30	
Football	2.00	14.30	
Garden farming	5.00	35.70	
Teacher	1.00	7.10	
Trader	2.00	14.3	

## RESULTS AND DISCUSSION

### Socio-economic characteristics of the respondents

Entries in Table 1 show that a greater proportion (41.7%) of the respondents were between the ages of 20-24 years while 31.7% were between the ages of 25-29 years. The remaining 13.30% fell within the ages of 15-19 years and 30-34 years respectively. This implies that the respondents were still in their economically productive stage. The mean age of the respondents was 24.32 years, supporting the united nation assembly's definition of youths as those persons falling within the age of 15 and 24 years. Age is considered an important variable in rural community development because of its influence on people's attitude, skill and aspiration. Based on the finding the respondents are still in their active age and according to Ekwueme (2006), youths are those people in their active age that are considered productive. This

implies that the respondents can actively participate in rural community development.

Majority (60.0%) of the respondents were males while the remaining 40.0% were females. This implies that more males were involved in the roles youth play in community development in the area. Male youths will have more time and abilities to participate in RCD activities. Majority (75.0%) of the respondents were singles, while the remaining 25.0% were married. Since majority is single, it implies that the respondents will have more time and less family responsibility. This will help them to participate actively in the community development activities. Majority (40.0%) of the respondents had completed their secondary school, 25% were OND/NCE holders, 13.3% had attempted secondary school, and 13.3% were also HND holders' respectively. 8.3% were higher degree holders. Their exposures to education will likely enhance their roles in rural community development. Also, greater proportions (90.0%) of the respondents were

**Table 2.** Percentage distribution of the respondents according to membership and roles in a youth group.

<b>Youth group</b>	<b>Frequency</b>	<b>Yes (%)</b>
Afikpo youth organization	51.00	89.50
Ebonyi youth forum	48.00	81.40
Age grade	28.00	47.50
Christian young men organization	24.00	40.70
Young stars club	22.00	37.30
Christian young women organization	21.00	36.20
Nkwa umuagbogo	19.00	32.20
Ojanyaleri	14.00	23.70
Red cross	14.00	23.70
Rotaract club	12.00	20.70
Boys scout	9.00	15.30
Nkwanwite	9.00	15.30
<b>Roles</b>		
General sanitation	56.00	94.90
Town hall building	51.00	86.40
Social event	50.00	84.70
School development	48.00	81.40
Social control	44.00	75.90
Marketing building	44.00	74.60
Vigilante	28.00	57.50
Road construction	31.00	52.50
Filling of potholes	23.00	39.00
Palace building	18.00	30.50
Peace talk/parley	16.00	27.10

\*Multiple responses.

students; the remaining 10.0% were in civil service. Majorities (35.7%) of the respondents had garden farming as their secondary occupation, 14.3% were petty traders, footballers and into sewing. Marketers, vendors and extra mural lesson teachers scored the same 7.1% respectively. Having sources of income will enhance their financial contributions towards RCD.

#### **Youth groups and their roles in rural community development**

Majority (89.5%) of the respondents belong to the Afikpo youth organization, while the remaining 10.5% did not (Table 2). Greater proportions (81.4%) of the respondents belong to the Ebonyi youth forum, while the remaining 18.6% did not. Greater proportion (52.5%) of the respondent did not belong to the Age grade; while the remaining 47.5% did belong. Majority (76.3%) of the respondents did not belong to Red Cross while the remaining 23.7% did belong. Greater proportions (59.3) of the respondents do not belong to the Christian young men organization. Majority (68.8%) of the respondents

did not belong to Christian young women organization. This implies that the major youth organisations in the area were Afikpo youth organisation, Ebonyi youth forum and age grades.

Majority (94.9%) of the respondents youth group were involved in general sanitation while the remaining 5.1% were not. Also, 81.4% of the youth group role was school development while the remaining 18.6% were not. Majority (86.4%) of the respondents' youth group role were town hall building while the remaining 13.6% were not involved. Majority (74.6%) respondents' youth groups were involved in market building while the remaining 25.4% were not involved in market building. Majority (84.7%) of the respondents youth group role were social event while the remaining 15.3% were not. Majority (75.9%) of the respondents youth group were into social control measures and fill of pots holes and peace talk/parley scored the remaining 39.0 and 27.2% respectively. Greater proportion (69.5%) of the respondents' youth group was not involved in palace building the remaining 30.5% were involved. Greater proportion (52.5%) of the respondents youth groups roles were road construction while the remaining 47.5% were

**Table 3.** Distribution of respondents according to constraints to effective participation in rural community development.

Possible constraints	Mean	S.D
Lack of parents' consent	1.21	0.72
Disease	0.98	0.55
Class society	0.84	1.01
No peer consent	0.83	0.63
Family background	0.72	0.80
Migration of fellow Youths	0.47	0.72
Lack of amenities	1.57*	0.60
No basic knowledge	1.60*	0.65
Culture of the people	1.60*	0.62
Lack of awareness	1.71*	0.75
Stereotype	1.81*	0.61
Gender	1.97*	0.56
Lack of skill to offer	2.00*	0.76
Poverty	2.14*	0.88
Lack of material benefit	2.14*	0.86
Physical disability	2.22*	0.79

\*Major constraints.

not. This is in line with the findings of Udensi et al. (2013) in which youths were involved in market and town hall building. Since the youth groups perform some vital roles in RCD like: General sanitation, school development, town hall building and market building among others, it implies that the youth are aware and contribute their part in developing the State. According to Nkwed and Nwovu (2014), people of Ebonyi are mainly agrarian, hardworking, honest and industrious. Similarly endowed with rich cultural heritage, the people have peacefully and harmoniously coexisted for ages, justifying their sociocultural congruency and ancestral commonality. This implies that the communities in the state will improve if the youth and other members continue to engage in RCD with financial and material supports from external sources.

### Constraints to effective participation of youths in rural community development

Table 3 shows the constraints toward effective participation of youth in rural community development. The data show that physical disability ( $\bar{x} = 2.22$ ), poverty ( $\bar{x} = 2.14$ ), lack of material benefit ( $\bar{x} = 2.14$ ), lack of skill to offer ( $\bar{x} = 2.0$ ), genders ( $\bar{x} = 1.97$ ), stereotype ( $\bar{x} = 1.81$ ), lack of awareness ( $\bar{x} = 1.71$ ), culture of the people ( $\bar{x} = 1.6$ ), no basic knowledge ( $\bar{x} = 1.6$ ), lack of social amenities ( $\bar{x} = 1.57$ ) were their

major constraint towards effective participation in rural community development as they all have mean score more than 1.5. The table equally shows a higher standard deviation, greater than 1.0 showing that the youth's individual score as regard the constraints toward their effective participation are more spread apart; implying that their responses differed much from the mean score. The result is in line with that of other researchers who have identified various factors that are challenges to youth participation in community development programmes. Findings from a study by Okwusi (2008) and Udensi et al. (2013) revealed that improper and inadequate awareness, low level of exposure, non-challant attitude, insufficient training, lack of encouragement by chiefs and elders of the community, intermittent change of government, and selfishness on the part of the youth leaders were the factors that affected youth participation in development programmes. Adequate awareness programmes should be put in place to encourage youths to participate more in rural development projects. Also, training in the form of participatory seminars and workshops would help the youths to be more proactive.

### Possible strategies that could be adopted to improve the effective participation of youth in rural community development

Table 4 show the mean scores of respondents to the possible strategies that could be adopted to improve their effective participation in rural community development.

**Table 4.** Mean and standard deviation of the responses of youths on possible strategies to improve the effective participation in rural community development.

Possible strategies	Mean	S.D
Implanting self-esteem in youth through training	1.62*	0.63
Giving tangible incentive	1.57*	0.54
Enlightening youths of the new technology	1.57*	0.54
Enlightening youths of the importance of community development	1.57*	0.54
Improving their technical skill	1.54*	0.57
Encouraging youths to form groups	1.39*	0.56
Sponsoring youth programs	1.34*	0.58
Proper upbringing of yours by parents	1.34*	0.48
Provision of employment for the youths	1.32*	0.72
Encouraging youth with information	1.30*	0.50
Parents motivation	1.25*	0.61
Provision of formal education	1.25*	0.55
Provision of proper basic infrastructure	1.13*	0.54
Empowering youths by organizing workshops and training programs	1.02*	0.56
Religious intervention	0.71	0.73

\*Possible strategies.

These strategies were; implanting self esteem in youths ( $\bar{x} = 1.62$ ), giving tangible incentive ( $\bar{x} = 1.57$ ), enlightening youths of the trend in technology ( $\bar{x} = 1.57$ ), enlightening youths of the importance of community developments ( $\bar{x} = 1.75$ ), improving their technical skill ( $\bar{x} = 1.54$ ), encouraging youths to form groups ( $\bar{x} = 1.39$ ), sponsoring youth programs ( $\bar{x} = 1.34$ ), proper upbringing of youths by parents ( $\bar{x} = 1.34$ ), provision of employment for the youths ( $\bar{x} = 1.32$ ) encouraging youth with information ( $\bar{x} = 1.30$ ), provision of formal education ( $\bar{x} = 1.25$ ), parents motivation ( $\bar{x} = 1.25$ ), provision of proper basic infrastructure ( $\bar{x} = 1.13$ ), empowering youths by organizing workshops and training programs ( $\bar{x} = 1.02$ ) were all strategies that could be adopted to improve the effective participation of youths in rural community development as they all scored above 1.0. The table equally shows that the standard deviations were all less than 1.0 showing that the respondents' individual scores as regards their opinion on the possible strategies that could be adopted to enhance their effective participation did not differ much from the mean score.

## CONCLUSION AND RECOMMENDATION

Youths have been identified as vital groups for community development. They play major roles including

providing leadership and selfless services for building of schools, town halls and markets. If properly harnessed, youths participate actively in community development. However, constraints to youth's involvement in community development include: lack of awareness of the importance of the roles in CD; no basic knowledge of CD; lack of needed amenities; migration of fellow youths, among other. Hence it was recommended that:

1. There should be education and enlightenment for youths to participate in RCD; they should be made to understand the benefits of self help in RCD;
2. There should be necessary amenities such as schools, accessible roads and hospitals to encourage hospitals to encourage youths to stay in rural areas;
3. There should be improved funding and support from government and related agencies in order to enhance activities of youths in RCD.

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*Full Length Research Paper*

# Adoption of innovative teaching strategies in active learning and experiential learning by Egyptian agricultural technical schools instructors

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**Agricultural Technical School (ATS) instructors in Upper Egypt have been engaged in professional development workshops intended to improve classroom and laboratory teaching by implementing active learning strategies and workshops designed to enhance student learning through real-life experiences via internships. The adoption of these new innovations has been successful; however, through assessments of concerns the ATS instructors have indicated that there is need for additional information and workshops, and that implementing multiple innovations into their programs is a concern. The leaders of innovation in the ATS system (Ministry personnel, headmasters, others) need to be aware of the levels of concern of the ATS instructors and design implementation strategies to ensure that changes can be made in the adoption process through support and additional workshops.**

**Key words:** Active learning, internships, professional development, stages of concern, Egyptian agriculture technical schools.

## INTRODUCTION

Since 2005, four professional development workshops focusing on active learning strategies have been conducted for Agricultural Technical School (ATS) instructors in Upper Egypt through the Value-Chain Training project. Since 2007, professional development workshops focusing on implementing internship programs have also been conducted for ATS instructors. The project is funded by USAID through the Midwest Universities Consortium for International Activities (MUCIA). The Concerns Based Adoption Model [CBAM]

(Hall and Hord, 2006) provides a framework to evaluate one aspect of the effectiveness of this work. Specifically, the Stages of Concern (SoC) indicates what aspects of the innovations (active learning strategies and internship programs) ATS instructors are focusing on in the implementation of the strategies. By identifying the ATS instructors' areas of concern in this implementation, future professional development sessions can be better designed to help instructors progress through the model to full implementation of active learning and internships in

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the ATS curriculum.

## Conceptual framework

### *Active learning*

Active learning, as defined by Bonwell and Eison (1991), is engaging students in doing things and in thinking about what they are doing. Davis (1993), in her book *Tools for Teaching*, wrote that learning is an active process where new knowledge is acquired in relation to previous knowledge, and that information becomes meaningful when it is presented in a recognizable framework. Active learning involves providing opportunities for students to meaningfully reflect on the content, ideas, issues and concerns of the subject (Myers and Jones, 1993).

Many faculties believe that all learning is inherently active; therefore students are actively involved when listening to a formal presentation (Bonwell and Eison, 1991). However, research by Chickering and Gamson (1987) suggests that students must also read, write, discuss and/or be engaged in problem solving activities to be actively involved. Active learning engages students in higher-order thinking (analysis, synthesis, evaluation) (Bonwell and Eison, 1991; Stanford University, 1993). Using active learning strategies helps students develop skills in handling concepts within the discipline, reflect upon ideas, and reflect on how to use those ideas (Stanford University, 1993).

Various authors have described active learning strategies that can be used in the classroom (McKinney, 2010; Bonwell and Eison, 1991; Stalheim-Smith, 1998; McKeachie and Svinicki, 2006). A major purpose of the value-chain training project for agricultural technical school instructors in Egypt has been to provide teachers with examples of how they can use active learning strategies in their classrooms. Egyptian ATS teachers are not formally prepared to teach, having attained an education in a technical field of agriculture. If the overall purpose of the project is to be achieved, that is, to prepare work-force ready graduates, teachers must engage students in higher order thinking by utilizing active learning strategies in their classrooms and labs. Therefore, teachers need to learn new strategies and develop new skills in teaching (Seeler et al., 1994).

### **Experiential learning**

Experiential learning has been an integral part of agricultural education programs in the United States for many years (Roberts and Harlin, 2007). However, prior to the implementation of the Value-Chain Training project, this pedagogy had not been adopted by ATS instructors in Egypt. It is theorized that educational principles transcend the borders of the United States and are

therefore applicable in the ATS system in the Arab Republic of Egypt, which was the focus of this part of the project. ATS instructors were provided in service training that addressed planning, conducting, supervising and evaluating internship programs.

Experiential learning activities such as internships are relevant for teaching career skills to students. Osborne (1994) stated that experiential learning made students better able to transfer knowledge, understand problems in agriculture, develop their self-confidence, connect practice and principle, improved psychomotor skills, develop problem solving skills, retain more knowledge, and become interested in learning. Joplin (1981) posited characteristics of experiential learning, including personal and student-based, process and product orientation, and evaluation. Kolb (1984) described a four-stage model of experiential learning, including concrete experience, reflective observation, abstract conceptualization, and active experimentation. "Students learn through real-life experiences and experience influences how they learn because experiences shape a persons' schema by building knowledge and past experiences to influences future experiences" (Knobloch, 2003:25).

A need exists for including experience-based programs in all program areas of the agricultural technical schools in Egypt. Workshops provide training for the ATS instructors so that they can ultimately provide better instruction to their students. Content in the ATS programs typically lacks real-life experiences outside of school, not utilizing the local resources necessary to conduct experiential learning activities (MUCIA, n.d.). The agricultural concepts and business skills that students need to learn cannot be synthesized from books, but require active participation (Roberts, 2006).

### **Stages of concern**

In order to determine how successful a professional development session is in bringing about a desired change, a number of factors can be considered. One of these is teacher concern regarding the innovation, which has been assessed in past research through the Stages of Concern Questionnaire (SoCQ) (George et al., 2006). Derived from Francis Fuller's CBAM, the stages of concern profiles provide explanations regarding the developmental progression that individuals go through when adopting an innovation. These concerns typically begin with self-related concerns, and then progress to task-related concerns and finally impact-related concerns (Hall and George, 1979). The seven stages, shown in Table 1 (Hall and Hord, 2006), were originally identified through various research endeavors conducted by the staff members of the Research and Development Center for Teacher Education of the University of Texas at Austin in 1969. Innovation users can move through these stages according to their developmental familiarity with

**Table 1.** Seven stages of concern.

Stage	Title	Description
6	Refocusing	The individual focuses on exploring ways to reap more universal benefits from the innovation, including the possibility of making major changes to it or replacing it with a more powerful alternative
5	Collaboration	The individual focuses on coordinating and cooperating with others regarding the use of the innovation
4	Consequences	The individual focuses on the innovation's impact on students in his or her immediate sphere of influence
3	Management	The individual focuses on the processes and tasks of using the innovation and the best use of information and resources
2	Personal	The individual is uncertain about the demands of the innovations, his/her adequacy to meet those demands, and/or his/her role with the innovation
1	Informational	The individual indicates a general awareness of the innovation and interest in learning more details about it. The individual does not seem worried about himself or herself in relation to the innovation
0	Unconcerned	The individual indicates little concern about or involvement with the innovation

Adapted from George et al. (2006).

the innovation. While this developmental pattern is not a certainty, it remains fairly consistent (George et al., 2006). The SoCQ has been utilized repeatedly in order to examine teacher concerns across academic settings (Christou et al., 2004; Gwele, 1997; Shoulders and Myers, 2010).

George et al. (2006) stated that validity testing of the SoCQ has been performed by testing the relationship of the scales to one another and to variables from other concerns theories. George et al. utilized correlational matrices and factor analysis to determine that "the seven scales [in the SoCQ] tapped seven independent constructs that could be identified readily with the seven Stages of Concern proposed by the Concerns-Based Adoption Model (CBAM)". George et al. (2006) reported coefficients of internal reliability for each of the seven Stages of Concern which ranged between an alpha of 0.64 and 0.83 for the Stages of Concern Questionnaire. Santos (1999) stated an alpha score of 0.7 or greater is acceptable. George et al. also reported test-retest correlations for the SoCQ, which ranged between  $r = 0.65$  and  $r = 0.86$ . These reported reliability scores fall within the acceptable range of reliability estimates as stated by Santos with the exception of Stage 0. Stage 0 has been under revision to help improve the reliability (Hall and Hord, 2006; George et al., 2006).

Plans for conducting future professional development activities for ATS instructors in the areas of internships and active learning strategies can be based on what is discovered in this study. By addressing the attributes of these teachers, programs can be developed for subgroups of teachers on traits identified through the

Stages of Concern assessment.

### **Purpose and objectives**

The purpose of this research was to assess Egyptian Agricultural Technical School (ATS) instructors' implementation of active learning strategies in their classrooms and implementation of student internships in their programs. In order to meet the purpose of this study, the following objectives were investigated:

1. Describe the population of ATS instructors who have participated in the MUCIA active learning and internships professional development sessions.
2. Determine the Stages of Concern of ATS instructors who have participated in the MUCIA professional development sessions.
3. Examine relationships between Stages of Concern and years of involvement with the innovative strategies, level of use of the innovations, experience conducting training for other instructors, years of teaching, and involvement with other teaching innovations.

### **METHODS**

#### **Implementation of active learning**

#### **Population**

The population for this part of the study was Egyptian ATS instructors

who had participated in at least one MUCIA professional development workshop on active learning strategies. The researchers obtained a list of participants ( $N = 230$ ) from the MUCIA Cairo Office Chief of Party. The workshops included instruction in and demonstration of 17 active learning strategies that could be used by ATS instructors in their teaching. The active learning strategies taught included: Lecture, discussion, carousel brainstorming, case studies, clarification pauses, cooperative groups, concept maps, daily journal, frequent short quizzes, jigsaw procedure, learning cycle, muddiest point, magnetic diagrams, one-minute paper, field exercise, problem solving techniques, and think/pair/share.

### Data collection

A descriptive census survey design was used in this study. The researchers used a paper questionnaire to collect the concerns of Egyptian ATS instructors towards the implementation of active learning strategies. The researchers utilized the Stages of Concern Questionnaire (SoCQ) developed by George, et al (2006). Stages of Concern (SoC) are a diagnostic component of the Concerns Based Adoption Model (CBAM) which addresses the affective side of change (Hall and Hord, 2006). The feelings and perceptions of participants are known as concerns. The stages were developed based upon research on the evolution of concerns throughout the change process and depict a progression of concerns through which people move during the implementation process. Knowing the concerns of teachers can help judge implementation of change or can be used to develop focused workshops, provide individual coaching, and create strategic plans to more effectively facilitate change.

The questionnaire was composed of 35 Likert-type questions that assessed the concerns of the individuals involved in the educational innovation change process, the integration of active learning strategies into their teaching. This questionnaire allowed respondents to indicate the relevance and intensity of their concerns towards active learning strategies. In addition to the SoCQ, demographic questions were included to better describe the population and differences among subgroups.

The instrument was translated into Arabic by staff of the Value-Chain Training program in Cairo, since most ATS instructors are only partly fluent in English. Minor modifications were made to some wording to help in the translation. The instrument was then translated back into English to reaffirm that the Arabic version replicated the original instrument.

A total of 162 usable responses were received. Teachers who were no longer teaching were not included in the study; likewise, headmasters and education supervisors were deleted from the participant list. The instrument was administered by Value-Chain Training staff, resulting in a complete set of responses from participants who had completed a workshop and were still teaching.

### Implementation of Internships

#### Population

The population for the second part of the study was Egyptian ATS instructors who had participated in the initial MUCIA professional development workshop on internships in July 2007. The researchers obtained a list of participants from the MUCIA Cairo Office Chief of Party. The workshops included instruction in 23 competencies that could be used by ATS instructors in implementing an internship program for their students.

#### Data collection

A descriptive census survey design was used in this study. The researchers used a paper questionnaire to collect the concerns of Egyptian ATS instructors towards the implementation of internships. The researchers again utilized the Stages of Concern Questionnaire (SoCQ)

developed by George et al. (2006) as described in the previous section and followed the same protocol in preparing the instrument in the Arabic language.

There were 80 participants in the July 2007 workshops. For this study, a total of 59 usable responses were received, which represented the entire accessible population. Teachers who had participated in the workshop but were no longer teaching were not included in the study; likewise, headmasters and education supervisors were deleted from the participant list. The instrument was administered by Value-Chain Training staff, resulting in a complete set of responses from participants who had completed a workshop and were still teaching.

### Data analysis

For both parts of the study, responses were analyzed using the calculations recommended by George et al. (2006) and developed in Excel format by Scott and Persichette (2006). Raw scores in each stage of concern were averaged by different groupings according to variables identified in the objectives. In order to perform accurate analysis, average raw scores of different variable groups in each stage of concern were converted into percentile scores. Examination of group data can be done through averaging raw scores before converting to percentile scores, as percentile scores do not have equal intervals. The 2006 Stages of Concern Questionnaire publication by George, Hall, and Steigelbauer, as well as the Excel program, provides the raw score-percentile conversion chart and can be utilized for producing individual and group profiles (George et al., 2006). This percentile chart was utilized throughout the previously-mentioned validation studies and has proved to be representative of various innovations (George et al., 2006). When analyzing percentile scores, the higher the score, the more intense the concerns are at that stage. Because percentile scores in each stage of concern are dependent on one another, analysis was conducted through the use of a concerns profile. The concerns profiles create visual images of the average concern intensities of a group of respondents, as recommended by George et al. (2006) and are the most interpretive and most frequently used method for analyzing SoCQ data. The use of percentile scores is not recommended for statistical analysis due to the violations of assumptions on which the tests are based, so data were only analyzed through descriptive measures (George et al., 2006).

## RESULTS

### Active learning

#### Description of the population

Participants in the active learning study were teachers in one of the program areas offered at the Agricultural Technical Schools in Upper Egypt: Horticultural production, laboratory technician, agricultural mechanization and land reclamation, fish production and processing technology, food processing and pastry, and animal and poultry production. The teachers were employed in 34 different schools. The average age of the participants was 41.4 years, with a range of 25 to 58 years. The typical teacher had taught 14.9 years, with a range of 1 to 32 years.

#### Stages of concern

Regarding the adoption of use of active learning teaching

**Table 2.** Adoption of active learning strategies stages of concern.

Highest stage of concern	Second highest stage of concern							Row $f^a$	Row % <sup>b</sup>
	0	1	2	3	4	5	6		
0 Unconcerned	0	14	4	10	0	5	5	38	20
1 Informational	0	0	12	3	1	7	4	27	14
2 Personal	1	10	0	3	0	15	6	35	18
3 Management	3	1	2	0	0	3	1	10	5
4 Consequence	1	0	1	1	0	2	1	6	3
5 Collaboration	0	4	18	1	5	0	7	35	18
6 Refocusing	3	4	9	1	2	20	0	39	21

<sup>a</sup> Individuals with ties for highest or second highest stage of concern were recorded in multiple categories resulting in total frequency to be higher than total number of participants in study. <sup>b</sup> Does not equal 100% due to rounding.

strategies, the largest number of participants ( $n = 39$ ; 21%) indicated their most intense level of concern being in Stage 6 closely followed by Stage 0 ( $n = 38$ ; 20%). Those indicating a high intensity of concern in Stage 6 can be interpreted as those individuals have addressed the majority of their informational, personal, and management concerns and are now focusing on how to adapt and modify the innovation (active learning strategies) to best fit their own situation. In this stage the participants are no longer just applying the innovation as it was taught to them, but they have developed a deeper understanding of the principles undergirding the innovation and are seeking to apply those principles in the personalization of the innovation and thus providing more ownership to the individual. Many of the teachers with the highest stage of concern in Stage 6 reported their second highest stage of concern being in Stage 5: Collaboration ( $n = 20$ ). This finding further reinforces the notion that these teachers have developed more ownership over the innovation and are working to help others implement the innovation and are seeking how to reap more benefits from that innovation.

It should also be noted that an almost equal number of teachers reported their highest stage of concern in Stage 0: Unconcerned as did those reporting the highest stage as Stage 6: Refocusing. This high level of concern in Stage 0 indicates that these teachers believe that there are many other tasks or innovations also drawing upon their time. It is not an indicator of level of use of the innovation. The second highest stage of concern reported by this group was in Stage 1 ( $n = 14$ ). A high ranking of Stage 1 is indicative of teachers who want to know more about an innovation. It is not an indicator of level of knowledge, only that these individuals seek more information regarding the innovation itself; what it is, how to apply it.

Based on observations of the data, a trend regarding the relationship between Stage 2: Personal and Stage 5: Collaboration was noted. The largest number of individuals who noted their highest intensity of concerns was found in Stage 2 stated their second highest level of

concern was found in Stage 5. Furthermore, the largest number of those reporting their highest level of concern in Stage 5 noted the second highest stage of concern at Stage 2. The interplay between concerns regarding collaboration with other teachers and the impact that collaboration and adoption of the innovation will have on individual demands and rewards warrants further investigation (Table 2).

## Internships

### *Description of the population*

Participants in the internships study were also teachers in one of the program areas offered at the Agricultural Technical Schools in Upper Egypt: Horticultural production, laboratory technician, agricultural mechanization and land reclamation, fish production and processing technology, food processing and pastry, and animal and poultry production. The 59 teachers were employed in five different schools. The average age of the participants was 42 years, with a range of 25 to 58 years. The typical teacher had taught 11.2 years, with a range of 3 to 27 years. Nearly all of the teachers are male.

### *Stages of concern*

More teachers indicated Stage 0: Unconcerned as their highest stage of concern ( $n = 26$ ; 36%) regarding the adoption and implementation of internship programs. Reporting a high intensity of concern in Stage 0 is indicative of teachers feeling that there are several other tasks and innovations that they are being asked to implement at the same time. A high score in Stage 0 cannot be used as an indication of level of use of the innovation or even the desire to implement the innovation. Concerns of this type are best addressed by limiting the number and scope of innovations teachers are asked to adopt at any given time. To support this

**Table 3.** Implementation of internship programs stages of concern.

Highest stage of concern	Second highest stage of concern							Row $f^a$	Row %
	0	1	2	3	4	5	6		
0 Unconcerned	0	3	7	11	1	2	2	26	36
1 Informational	1	0	10	1	1	1	0	14	19
2 Personal	1	4	0	1	0	5	0	11	15
3 Management	1	1	2	0	0	0	0	4	5
4 Consequence	0	0	0	0	0	0	0	0	0
5 Collaboration	0	1	4	0	4	0	1	10	14
6 Refocusing	0	2	2	0	1	3	0	8	11

<sup>a</sup> Individuals with ties for highest or second highest stage of concern were recorded in multiple categories resulting in total frequency to be higher than total number of participants in study.

conclusion, the second highest stage of concern indicated by more teachers who rated Stage 0 as their highest stage was Stage 3: Management. High levels of concern in Stage 3 can indicate that individuals are focused on the process and tasks of using an innovation and how to best utilize the information they have on the innovation.

It should also be noted that 19% ( $n = 14$ ) teachers indicated that their most intense concerns regarding the implementation of internship programs are found in Stage 1: Informational with a majority of those showing their second highest level of concern being in Stage 2: Personal. This combination of highest levels of concern is indicative of teachers who want more information about the innovation with at least some of that information addressing the individual demands of the innovation and the individual reward structure for implementation of the innovation (Table 3).

## DISCUSSION

Results of the Stages of Concern analysis will be used in determining additional in service educational needs of Agricultural Technical School instructors who have participated in past activities as well as in planning future workshops for other instructors. Teachers indicated a need for more information and assistance. Additional workshops should be designed and offered to address those needs. Follow-up classroom observations and mentoring by headmasters and others may be helpful as well.

Since concerns were noted regarding the value of using active learning strategies, research needs to be conducted that would show differences in student achievement between groups that are taught using active learning techniques and groups that are not. Positive results of that investigation may help alleviate the concern that adopting the innovation is not worthwhile.

A holistic evaluation of the findings leads to the conclusion that many of the barriers facing the integration

of active learning strategies and internship programs in the Egyptian Agricultural Technical Schools are contained within the culture of the system. ATS instructors do not have opportunities to be rewarded financially or professionally for excelling in teaching. Since the ATS instructors revealed some resistance to adopting the innovation of active learning strategies and internships, a reward system could be implemented that recognizes improvements in teaching, such as materials and supplies for the program or opportunities to participate in other professional development activities. Further, issues regarding the acceptance of the innovations by others can be addressed by providing additional information and/or workshops for school headmasters and Ministry of Education personnel. It is this area of acceptance from the school culture that shows indications of being one of the biggest barriers facing implementation of these innovations. Further investigation is needed to understand both the formal and informal support and reward structure in place at the ATS. This understanding is key to assisting instructors wishing to improve their teaching to succeed in the education system in the area of professional and financial advancement and security.

Results of the Stages of Concern analysis will be used in determining additional inservice educational needs of Agricultural Technical School instructors who have participated in past activities as well as planning future workshops for other instructors. Based on the analysis of the group concern profiles, four conclusions can be drawn:

- (1) As ATS teachers became more involved in the innovations, they tended to progress through the stages of concern as posited by Hall and Hord (2006).
- (2) Teacher groups with the most experience and involvement with the innovations showed the highest concern levels in later stages of the concern model while those with less experience had highest concerns in the earlier stages, as also reported by Warner and Myers (2013), Shoulders and Myers (2011), and Thoron et al. (2010). This also reinforces the position stated by Hall

and Hord (2006) that professional development experiences need to be built to assist teacher progress through the stages. Teachers who had the most years of experience with the innovations tended to also be the teachers who conducted the training on the innovation for other teachers, as also noted in Bellah and Dyer (2009). Further investigation is needed to verify the impact of the train-the-trainer model on those that do not have the opportunity to act as a workshop trainer.

(3) Early users tended to have high personal and/or management concerns regarding implementing the innovations. In many of the group concerns profiles it was found that teachers that were early in the use or had not yet used the innovations had high concerns in how the innovation would impact them, both personally and professionally. These concerns could include things such as social standing with other teachers, teacher self-efficacy, job security, and other related issues. They were also highly concerned on the logistics of implementing the innovations as also found by Thoron et al. (2010). These findings are consistent with the work of Bellah and Dyer (2009), Balschweid et al. (1998) and Barrick et al. (2011). The teachers focused on how to manage the process. Further research should be conducted to identify the specific aspect of the innovations that is of most concern to these teachers and then develop professional development opportunities to address those concerns.

(4) Total years of teaching experience did not tend to impact concern level regarding the innovation.

Overall trends did not emerge by analysis of group concern profiles of teachers based on years of experience. Early career teachers did show some signs of greater personal and management concerns regarding the innovations than other groups, which is consistent with previous research conducted domestically (Warner and Myers, 2010; Warner and Myers, 2011; Warner and Myers, 2013; Shoulders and Myers, 2010) and internationally (Myers et al. 2010), but no substantial trends were discovered. Thus it can be concluded for this group of individuals, total teaching experience was not a major factor in concern level regarding the adoption of the innovations.

(5) Teachers in the first or second year of another innovation implementation had high personal concerns. This conclusion is consistent with that of Hall and Hord (2006) and Warner and Myers (2011). It is often challenging for teachers to manage implanting multiple innovations at the same time. Teachers showed high personal concerns which can stem from their fear of retributions from administrators and other teachers for failing to implement an innovation championed by that individual. Further, introducing multiple changes into the classroom can be disruptive to the students. Further investigation should be conducted to determine the other innovations being implemented and the drivers of those innovations.

The concerns faced by Egyptian ATS instructors in

managing innovations are similar to those faced by American agriculture teachers (Warner and Myers, 2010; Shoulders and Myers, 2010; Baker et al., 2004). Thus, American agriculture teacher educators should become more involved in international professional development to apply and continually assess the effectiveness of professional development models to assist in the adoption and implementation of new instructional techniques.

The findings of this research provide valuable insight to the leaders of the innovations in Egyptian Agricultural Technical Schools. Further, leaders of other educational innovations can garner insight on the adoption process to ease the implementation of other ideas. This information should be used by program leaders to develop professional development opportunities and other support mechanisms for teachers involved in this project.

### Conflict of Interest

The authors have not declared any conflict of interest.

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*Full Length Research Paper*

## Determinants of loan repayment performance: Case study of Harari microfinance institutions

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The study was conducted in Eastern Hararghe Zone of the Harari Regional State, Ethiopia. This study is intended to assess factors affecting loan repayment performance of Harari Microfinance Institution. The survey was conducted in three Kebele Associations having the maximum number of borrowers, by selecting 120 sample households through systematic random sampling between defaulters and non-defaulters of the MFI. Out of 120 borrowers, 50% were defaulters, and the remaining half was non-defaulters. Pre-tested structured interview schedule was used to collect primary and secondary data. Key informant interviews and focus group discussions were used to generate the necessary qualitative data. The collected data were analyzed by employing descriptive statistics and logistic regression (binary logit). A total of fifteen explanatory variables were included in the empirical model and out of these, nine were found to be statistically significant to influence the dependent variable. These significant variables are: Saving habit of borrowers, loan size, perception of borrowers on repayment period, source of income, availability of training, business experience, business type, family size, and the purpose of saving were found influencing loan repayment performance as evidenced from the model statistic (significant at 1, 5 and 10%). The econometric result revealed that the probability of default increases as the family size increases, when the borrower has negative perception on repayment period, less training, low business experience, poor saving habit and only single source of income. On the basis of the study findings, some recommendations were made to improve loan repayment performance in the study area. The strategy would be: Reducing family size through expanding family planning program, increasing borrower's perception on repayment period through training, selecting business-experienced borrowers. The study also recommends a plan to assist borrowers in the study area to increase their business entrepreneurs' skills through appropriate infrastructure, enhanced lendable funds in the microfinance institutions and business training for borrowers, enhanced loan amount and addressing challenges facing the microfinance institution.

**Key words:** Binary logit, loan repayment, microfinance, performance, policy makers.

### INTRODUCTION

Poverty and food insecurity are the main challenges and fundamental issues of economic development in Ethiopia.

According to an estimate made by the Government of Ethiopia at the beginning of the year 2000, the estimated

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drought-affected people requiring food aid were about 8 million. The major causes of low economic growth and high incidence of poverty in Ethiopia include lack of income, assets, employment opportunities, skills, education, health, social infrastructure, and inappropriate policies (Alemayew, 2008).

Currently, the country has one commercial and two specialized government-owned banks and 14 private commercial banks, one government-owned insurance company and eleven private insurance companies. There are also 30 micro-financing institutions (MFIs) established by private organizations (NBE, 2010).

Microcredit helps the poor to be involved in income generating activities that allow them to accumulate capital and improve their standard of living. As quoted by the late Milton Friedman, Nobel Prize winner (Economics 1976), "The poor stay poor not because they are lazy but because they have no access to capital" (Smith and Thurman, 2007, p. 1). Many of the poor people around the world are already benefiting from microfinance.

According to the Micro start Project document of UNDP (1999), the economically active poor in Ethiopia who can potentially access financial services are about 6 million. Out of this, about 8.3% of the active poor have gained access to the licensed MFIs. Despite constraints of microfinance industry in Ethiopia such as poor communication, infrastructure, weak legal systems, banking sector and technical capacity when compared with other Sub-Saharan countries, the sector has been growing at a significant rate (Abafita, 2003).

The positive impacts of MFIs on the socio-economic welfare of the poor can only be sustained if the MFIs can achieve a good financial and outreach performance. Throughout the world, financial sustainability of MFIs has been one of the issues that have recently captured the attention of many researchers. The financial sustainability of MFIs is a necessary condition for institutional sustainability (Hollis and Sweetman, 1998; Baskar, 2011; Ramesh, 2013). As has been argued "unsustainable MFIs might help the poor now, but they will not help the poor in the future because the MFIs will be gone" (Schreiner, 2000: 425). Moreover, it has been reported that it may be better not to have MFIs than having unsustainable ones (Ganka, 2010). Therefore, a thorough investigation of the various aspects of loan defaults, source of credit and conditions of loan provision are of great importance both for policy makers and the MFIs. Hence, this study was undertaken to analyze the extent to which urban credit functions and how loan repayment performance rates are associated with different institutional as well as personal and socio-economic and characteristics of borrowers in Harari Peoples' Regional State, Ethiopia.

It is obvious that many rural credit schemes have sustained heavy losses because of poor loan collection. And yet a lot more has been dependent on government subsidy to financially cover the losses they faced through loan default. But such dependence will not prove helpful

for sustainability. MFIs should rather depend on loan recovery to have a sustainable financial position in this regard, so that they can meet their objective of alleviating poverty (Alemayew, 2008).

Knowledge on determinants of loan repayment is undoubtedly important for the lender. Empirical studies in this connection are however limited in Ethiopia, though recently researchers are showing interest on such studies. As regards the determinants of loan repayment, Mengistu B. (1997) conducted a study on the Market Town Development Program (MTDP) credit scheme for Bahir Dar and Awassa towns using a binomial probit model. For Bahir Dar, the author found out that expectation of repeat loan and numbers of workers employed by the credit institutions were positively related to full loan repayment; while loan diversion and access to additional credit sources are negatively related to repayments. One important element to be understood clearly when it comes to credit-based development is repayment behavior of the borrowers. There is a need to study how micro finance institutions are functioning in Ethiopia with specific reference to lending and recovery of loans for various purposes.

## METHODOLOGY

The study was conducted in Harari regional state. In this study, Harari region was purposely selected because maximum number of borrowers is present in the region. Multistage sampling had been used for this study since it accommodates different techniques at a time.

At the first stage, from the total 19 kebeles of the region, only three Kebele Associations with the highest number of customers were selected purposively to study the loan repayment performance of the institutions. Accordingly, three Kebele Associations: *Hakim*, *Aboker* and *Shenkor* were selected. There were 800 households present in the sampled Kebele Association. Secondly, stratified sampling was employed to select respondents from among defaulters and non-defaulters with equal sample size of 60 households drawn each from the two strata. Finally, systematic random sampling technique was employed to select 120 sample households out of 800 borrower households. Ratio sampling was used to fix the number of sample borrowers selected from each Kebele Association. Qualitative and quantitative data were collected through different methods.

### Qualitative and quantitative methods

Participatory tools like focused group discussion, key informant interview, direct observation and case studies, were used for collecting qualitative data.

### Key informant interview

Key Informant interview was used to obtain basic information on community and organizational profile. The informants were selected in consultations with Kebele and Woreda's administration and micro finance officials.

Quantitative data was drawn mainly through household survey apart from secondary sources.

## RESULTS AND DISCUSSION

### Sex distribution of sample

The study showed 14.2% of the creditworthy borrowers were male, which was lower than the corresponding figure (85.8%) for female. Moreover, only 85% of the female were defaulters while the corresponding figure for the male (15%) were non-defaulters. The study implies that being male/females were not related to loan repayment performance as expected, although the difference was not statistically significant. This result is in agreement with the findings of Retta (2000) and Fikirte (2011).

### Distance of borrowers from the institutions

The survey result clearly showed about 69.16% of the sample respondents' residence and businesses' were near Harari MFI whereas 30.8% were not near to Harari MFI. As result, indicated distance of borrowers from the offices does not affect the repayment rate of borrowers. This implies that being far and/ near to the microfinance institutions was not related to loan repayment performance as expected, although the difference was not statistically significant. This result is in agreement with the findings of Abafita (2003) and Fikirte (2011); but was inconsistent with the findings of Assefa (2008).

### Educational level of the borrowers

Result of the study clearly showed 92.4% of the sample respondents were literate with different educational level whereas 7.5% of the sampled borrowers were illiterate. The result from the data indicates that non-defaulters have better educational background than defaulters. The mean average school years of the total respondents were 5.00 while average class years of non-defaulters and defaulters were 3.98 and 1.97 respectively. However, there was no significant difference between non-defaulters and defaulters with respect to educational levels on loan repayment performance of the Harari microfinance institutions. This result is in agreement with the findings of Retta (2000) and Fikirte (2011).

### Age of the borrower

The mean age of defaulters and non-defaulters were 35.72 and 39.45 respectively. The result of t-test indicated that there is statistically significant difference ( $t\text{-test} = 94.867$ ) between the mean age of defaulter and non-defaulters at 10% significance level. This result is in agreement with that of Abafita (2003).

### Family size

The basic sampling unit for this analysis is the family household, which had an average family size of 3.4, less the national average of 4.7 persons (CSA, 2008). The mean average family size of defaulter and non-defaulter was found to be 3.35 and 2.969 respectively. Statistically there is a significant mean difference ( $t=2.772$ ) at 10% probability level on their family size between defaulters and non-defaulters. This result agrees with the findings of Retta (2000) and Abafita (2003). However, it is inconsistent with the study made by Berhanu (2005) and Sileshi (2010).

### Number of dependents in the household

The study showed 27.8 and 74.2% of the sample borrowers were dependent and non-dependent respectively. The household that have dependent' family sizes are less percents than the non-dependent family sizes. Household dependents, which can determine the amount of the labor force in the household, are expected to bring about variation in decision behavior of households as to which repayment performances are increased (Sengalawe, 1998). The household size of the total sampled households ranges from 2 to 13 persons with mean and standard deviation of 6.3 and 4.2 persons respectively. Out of the total sampled households, 65.7% of them have a household size of above 6 people per household.

Number of economically active household members who live and work for the household also determines the labor available in the household which in turn determines the loan repayment performance of households. Households with more economic status may decide to use the loan which is effective and efficient in loan repayment performance. As the number of dependents increases, the borrower needs more money to fulfill their requirements in addition to the obligation of loan repayment. As a result he/she may divert the loan to meet the needs of those dependents families. This result is in agreement with the findings of Retta (2000). However, it is inconsistent with the study made by Abafita (2003).

### Marital status of respondents

The study showed that 67.5% married household heads, while only 5.8% of them were unmarried/single. The rest of household heads were widowed and divorced, 8.3 and 18.3% respectively. Marital status of the households also determines household's access to information and resource and hence on the use of loan received from office. This result was in agreement with the findings of Retta (2000) and Abafita (2003). However, it is inconsistent

with the study made by Belay (1998) and Sileshi (2010).

### **Saving purpose of sample**

The study showed that as regards saving purpose of the clients, about 42.5% of the respondent saved their money for future use, 43.3% of the respondents saved their money for the emergency, 2.5% of the respondents saved their money for consumption, 2.5% saved their money for repayments of the loan and 9.2% saved their money for personal. Regarding its relationship with loan, correlation test using Pearson chi-square, statistically there was a significant mean difference ( $t=3.052$ ) at less than 5% probability level on their saving purpose of defaulters and non-defaulters. This result is in agreement with the findings of Retta (2000) and Abafita (2003). However, it was inconsistent with the study made by Belay (1998).

### **Savings habit of sample respondents**

Results of the study showed that 80.8% of the beneficiaries reported that it had a positive effect (save), while 19.2% no effect (not save) reported that it had a discouraging effect on their loan repayment performance. Statistically there was a significant mean difference ( $t=19.417$ ) at less than 1% probability level on their saving habit of defaulters and non-defaulters. This result is in agreement with the findings of Retta (2000), Abafita (2003) and Zeller (1996).

### **Lack of training and follow up**

In order to effectively implement what the members of microfinance planned, training and follow up play a significant role. The informants, however, indicated that they were having two days training when they got the money, but after that nobody came to them to give any kind of support including training. There were also discussants (members) in a focus group discussion that indicated they were given training once. It was stated that 'They- officials of microfinance institutions" gave us training once at the beginning, after that nobody appeared to see what we have done'. In support of this, another participant in a discussion said that, 'At the beginning we were promised to get continuous training and support, but nothing was done'. Studies also showed that paying less attention to training was taken as one of the drawbacks of microfinance institutions. Jaffari et al. (2011) indicated that low attention given to client's skill development as a weakness of microfinance institutions.

Lack of follow up was also among the reasons that became obstacle to the performance of members of microfinance institutions. The members in group discussion

shared the same idea that at the beginning of their project, they started following them but immediately stopped it. The discussants argued that it was one of the limitations that led them not to be effective as expected. A woman who was member of MFI stated that, 'There is nobody that followed us to see the improvements we made or the problems we faced'. In support of this, the other discussant also said that, 'Let alone giving support, they did not ask us how we used the money'. A 35 year old woman who was a member explained the situation as, 'Giving loan does not have any meaning unless they follow, encourage and support us when we need it. This situation makes us feel that the money is simply given as a gift'.

The lack of follow up of microfinance institutions were also manifested in a way that debts were not collected from members regularly and they did not have enforcing mechanisms of collecting the money lent. There were discussants who said that they were never requested to repay the debt so that they spent the money they prepared for other purposes. 'My life has been changed for better. However, I am not happy because I wanted to repay my debt and take more but nobody requested me to repay' as mentioned by a woman from a microfinance institution in the study area.

A participant in a focus group discussion also indicated that she did not pay because she felt that as there was no interest that it did not matter whether she paid it or not, but she was paying the saving money. Most informants mentioned that they were not requested to settle their debt, but nevertheless some members had already repaid their debts. This showed that the microfinance institutions in the study area did not have organized schedule to collect the debt from the clients. Moreover, from the information collected it could be concluded that continuous training was not given to clients so that they were constrained to effectively run their business.

### **Perceptions of borrowers on repayment period**

The study showed 51(42.5%) of the sample respondents are of the opinion that the repayment period is not suitable. Of these borrowers, 69(57.5%) recommended a repayment period that is longer than a year while the rest recommended a repayment period that is less than a year, as suitable, which is a significant difference at less than 1% significance level ( $\chi^2= 39.231$ ). This result was in agreement with the findings of Berhanu (1999) and Abafita (2000).

According to non-defaulters, they benefited by fully and timely paying their loans. Some of the benefits are: freedom from penalty, building of good relationship with the loan provider, access to the next higher loan and to make family stable. On the other hand, according to defaulters the reasons for not repaying their loans are;

shortage of working capital and problem in workplace and improved use of loan, which is also another reason for default (Norell, 2001). Low supervision by the loan officers of the institution and personal problems of borrowers like illness were also stated in Norell (2001) as one of the reasons for default.

### **Business experience of borrowers**

The study showed that the average business experience of non-defaulters was about 6.5 with maximum and minimum of 12 and 1 years respectively. On the other hand, the average business experience of defaulters was 2.5333 years with maximum and minimum years of 6 and 1 in that order. This study has identified about 11.3% of the respondents have less than 10 years of business experience, whereas around 3.3% of them had more than 40 years experience. Therefore, non-defaulters had more years of business experience than defaulters. This variable has significant impact at less than 1% significance level (t-test -4.216) between defaulters and non-defaulters. This result was in agreement with the findings of Berhanu (2005), Berhanu (2008) Berhanu and Fufa (2008).

### **Business information**

The study showed that 69(57.5%) of borrowers had got information, whereas 51(42.5%) were not, which is a significant difference at less than 5% significance level ( $\chi^2 = 7.673$ ). In fact, information is one of the most important parameters which help borrowers become aware of a microfinance enterprise. It plays a vital role in the success of business. Through this, borrowers can understand the advantages and disadvantages of the information on microfinance. It can initiate borrowers to try the new practice on their own business place. Borrowers can get information either formally or informally (such as from neighboring farmers, friends, relatives, elders, etc). This study agrees with Sileshi (2010).

### **Business types**

The result of the study showed that the sample respondents were engaged in various business activities. Out of the valid cases, 9.2, 6.7, 3.3, 33.3, 4.2, 6.7, and 36.7% participate in service providers, shop and kiosk, tailoring, food processing, metal work, charcoal and groundnut trade, baltina and petty, respectively. From this, one can understand that the most important business activities on which borrowers of the area participated were food processing, petty trade and baltina, which is a significant difference at less than 5%

significance level (t= 16.309). This result agrees with the findings of Fikirte (2011) and Abafita (2003). However, it is inconsistent with the study made by Belay (1998).

### **Other source of income**

According to the survey results, about 46.7% of the total respondents had only one source of income which is from the business financed by the loan. Household's source of income position and resource ownership was found to be important in loan repayment performance. The average source of income of the sample households was 2752.07 Ethiopian birr. The maximum annual source of income was 7000 Ethiopian birr while the minimum was 200. On average, non-defaulters had higher monthly source of income (about 3277.19 Ethiopian birr) as compared to defaulters who on average had only 1701.83 Ethiopian birr. Analysis of mean monthly source of income between defaulters and non defaulters had also indicated that there was significant mean difference (t =-3.581) at 1% significance level. Concerning this variable, most empirical study shows that the effect of additional income on household's repayment decision is positive and significant. To mention some, for example, Norell (2001) and Fikirte (2011) reported positive influence of household's income on loan repayment performance. This result does agree with the findings of Jama and Kulundu (1992).

### **Business status of borrowers**

According to the survey, results showed that about 33.3% of defaulters business was successful but due to many reasons they were not willing to pay their loans on time. In contrast, 33.3% of non-defaulters' business were not successful; however, they were paying their loans from other income sources (Table 1). There was significant difference ( $\chi^2 = 12.958^{**}$ ) at 5% probability level on business status of borrowers. This result agrees with the findings of Retta (2000) and Amare (2005).

Qualitative data were collected through Focus Group Discussions (FGDs) and informal discussions with households, loan officers and key informants during transect walk within sample Kebele Association.

### **Econometrics result**

Here, econometric analysis was carried out in order to identify factors that affect the loan repayment performance of Harari microfinance institutions. As previously explained, binary logit models were employed to estimate the effects of hypothesized explanatory variables on the loan repayment performance of

**Table 1.** Summary of continuous variables by loan scheme.

Variables in descriptions	Defaulters (60)		Non-defaulters (60)		Total sample		t-value
	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.	
Family sizes in number	3.35	2.969	4.05	3.160	3.70	3.079	1.61 <sup>†</sup>
Loan size (birrs)	16965	34902	5596	5800	15666	19800	0.3581***
Source of income (birrs)	1701.8	705	3277.1	1145	2552	1450	2.297**
Business experience in years	5.95	5.564	7.45	6.644	7.12	8.432	4.216***
Contact made with lending institution in days	2.18	2.15	5.19	5.26	3.95	4.5	1.539**
Distance from market (min)	195.40	40.52	158.52	30.06	230.60	43.45	3.835**

\*\*\*, \*\* represent the level of significance at 1 and 5%, respectively.

**Table 2.** Multicollinearity test for continuous explanatory variables.

Variables	Collinearity statistics	
	Tolerance	VIF
EDLOR	0.822	1.216
AGBOW	0.807	1.239
HHS	0.896	1.116
LOANSI	0.859	1.164
BUEX	0.791	1.265
BUINF	0.866	1.154
BUTS	0.913	1.095
MRST	0.781	1.280
SOIN	0.906	1.104
SAVP	0.910	1.099

Source: Own computation.

beneficiaries in the Harari microfinance institutions.

### **Analysis of factors influencing loan repayment performance**

As discussed previously, the binary logit econometric model was selected for analyzing the factors influencing the loan repayment performance of the borrowers. Prior to running the logistic regression analysis, both the continuous and discrete explanatory variables were checked for the existence of multicollinearity and high degree of association using variance inflation factor (VIF) and contingency coefficients, respectively. The VIF values for continuous variables were found to be very small (much less than 10) indicating absence of multicollinearity between them (Table 2). Likewise, the results of the computation of contingency coefficients reveal that there was no serious problem of association among discrete variables (Table 3). For this reason, all of the explanatory variables were included in the final analysis. More specifically, nine (9) continuous and six discrete explanatory variables were used to estimate the binary logit model.

Contingency coefficient values ranges between 0 and 1, and as a result chi-square variable with contingency coefficient below 0.75 shows weak association and the value above it indicates strong association of variables. The contingency coefficient for the dummy variables included in the model was less than 0.75; thus did not suggest multicollinearity to be a serious concern depicted in Table 3. The results of VIF and contingency coefficient computed from the survey data are presented in Tables 2 and 3 respectively.

### **Logit model**

Logistic regression model was used to satisfy second objective of the study 'to assess the factors that affect the loan repayment performance' in the study area'. Based on the result of multicollinearity diagnostics' tests for both continuous and dummy explanatory variables, no variable was found to be highly correlated or associated with one of other variables. The likelihood ratio test statistic exceeds the Chi-square critical value with 12 degrees of freedom. The result is significant at less than 0.01 probabilities indicating that the hypothesis that all the coefficients except the intercept are equal to zero is not tenable. Likewise, the log likelihood value was significant at 1% level of significance.

Another measure of goodness of fit used in logistic regression analysis is the Count R2, which indicates the number of sample observations correctly predicted by the model. The Count R2 is based on the principle that if the estimated probability of the event is less than 0.5, the event will not occur and if it is greater than 0.5 the event will occur (Maddala, 1983, cited as Sileshi, 2011). In other words, the  $i^{\text{th}}$  observation is grouped as a non-defaulter if the computed probability is greater than or equal to 0.5, and as a defaulter otherwise. The model results show that the logistic regression model correctly predicted 71.5 of 120, or 84.8% of the sample borrowers. The sensitivity (correctly predicted non-defaulters) and the specificity (correctly predicted defaulters) of the logit model are 83.3 and 88.3%, respectively. Thus the model predicts groups, defaulters and non-defaulters fairly

**Table 3.** Multicollinearity test for discrete variables.

Variables	AVTR	RESFHH	FSANDOH	BPORP	SEXOBO	SHB
AVTR	1.000	0.053	0.070	0.131	0.196	0.319
RESFHH		1.000	0.006	0.074	0.013	0.159
FSANDOH			1.000	0.026	0.197	0.098
BPORP				1.000	0.025	0.251
SEXOBO					1.000	0.121
SHB						1.000

Diagonal number represents dummy variables in column one. Source: Own computation.

accurately.

Out of the fifteen variables hypothesized to affect the loan repayment performance of borrowers, five were found to be statistically significant. The maximum likelihood estimates of the logistic regression model shows that family size (HHS), Borrowers perception on repayment period (BPORP), Availability of training (AVTR), Business experience (BUEX) and Source of income (SOIN) were factors affecting the loan repayment performance of borrowers in the study area. More specifically, the coefficients of borrowers perception, availability of training, source of incomes are statistically significant at less than or equal to 1% significance level. The variables, family sizes, business experience were statistically significant at 5% level of significance. On the other hand, the coefficients of ten explanatory variables, namely, sex of borrowers (SEXOBO), distance of household (RESFHH), age of borrowers (AGBOW), dependent family sizes (FSANDOH), loan sizes (LOANSI), Business information (BUINF), Business types (BUTS) and Marital status (MRST) of borrowers were less powerful in explaining loan repayment performance of the sample borrowers. Regarding the signs of the coefficients of non-significant variables, all but business information have the expected signs. In what follows, the results of the model estimates are interpreted in relation to each of the statistically significant variables.

In total, fifteen independent variables were used for estimation. To analyze factors influencing the loan repayment performance of the borrowers, binary logit model was estimated using a statistical package known as SPSS version 16.0 (Table 4).

#### **Family sizes (HHS)**

The coefficients of this variable were hypothesized to influence loan repayment performance negatively. The result of this model estimates was contrary to *prior* expectation that the family sizes have a significant and positive impact on loan repayment performance. The variable was significant at 1% probability level, possibly due to one of their family members being engaged in source of other income activities, which might help them

earn additional income. Besides, engaging in diversified 'economic activities might reduce family dependency ratio, which is defined to be the ratio of economically dependent members to economically active members. Other things being constant, the odds ratio in favor of non-defaulting increases by a factor of 0.195 for those borrowers who has active age family. This result of the study is completely in agreement with the study conducted by Abafita (2005), Berhanu (2005) and Sileshi (2010).

#### **Borrower's perception on repayment period (BPORP)**

The coefficient of this variable is hypothesized to influence loan repayment performance either positively or negatively. If repayment period is suitable, the client should perform better. The model results show that contrary to the *a priori* expectation, this variable has a significant positive impact on loan repayment performance. The variables are significant at less than 1% probability level. This might be due to the fact that those borrowers have positive perception for repayment period tend to develop repayment and become friendly with the lender, which results in reluctance to fulfill their loan repayment obligation. Hence, they do not bother about the consequences arising from the dalliance in loan repayment. On the other hand, those have not positive perception towards repayment period, the more dalliance for repayment of loan and become defaulters. Other factors being kept constant, the odds ratio favoring loan repayment performance increase by a factor of 17.611 for borrowers who had positive perception on repayment period. This result does agreement with the findings of Retta (2000) and Abafita (2003). However, it is inconsistent with the study made by Belay (1998).

#### **Availability of training (AVTR)**

The coefficient of this variable is hypothesized to influence loan repayment performance positively. It is one of the important requirements for the success of microfinance institution (Assefa et al., 2005).



**Table 4.** The maximum likelihood estimates of the binary logit model.

Variables	Estimated coefficients	Odds ratio	Wald statistics	Significance level
Constant	18.483	0.000	0.000	0.000***
SEXOB	-9.23	2.516	0.759	0.384
RESFHH	-0.049	0.952	0.005	0.946
EDLOR	-247	0.781	0.519	0.471
AGBOW	-0.853	0.426	1.716	0.190
HHS	1.636	0.195	6.217	0.013**
FSANDOH	-19.999	0.000	0.517	0.915
SHB	-0.165	0.848	0.019	0.891
LOANSI	0.573	0.1.773	1.306	0.253
BPORP	2.869	17.611	5.080	0.000***
AVTR	2.256	9.546	6.703	0.010***
BUEX	0.612	1.844	3.906	0.048**
BUINF	-0.288	0.779	0.171	0.679
BUTS	0.026	1.026	019	0.892
SOIN	1.019	2.772	5.279	0.022**
SAVP	-0.258	0.773	0.449	0.773
Pearson Chi-square			94.412***	
-2log likelihood ratio			71.412***	
Correctly predicted (Count R2 )			85.00	
Sensitivity			83.3	
Specificity			88.3	
Sample size			120	

\*\*\*Significant at 10, 5, and 1% significant level, respectively.

If the lender provides various training, the clients will be able to understand the rule and regulation easily. They also develop skill on how to do business and money utilization. Training is needed not only for clients but also for loan officers. In both cases, it has a positive contribution to the repayment rate. Norell (2001) also agrees on the importance of training due to decreasing default rate. The model results show that to the *a priori* expectation, this variable has a significant positive impact on loan repayment performance. This might be due to the fact that those borrowers take trainings that have hints on the activities that should be performed and become friendly with the lender, which results in reluctance to fulfill their loan repayment obligation. Moreover, borrowers who do not take trainings were not successful. Hence, they do not bother about the consequences arising from the dalliance in loan repayment. Other things being kept constant, the odds ratio favoring loan repayment performance increase by a factor of 9.546 for borrowers who were trained. This result does agree with the findings of Assefa et al. (2005) and Norell (2001). However, it is inconsistent with the study made by Fikirte (2011).

#### **Business experience (BUEX)**

The coefficient of this variable was hypothesized to

influence loan repayment performance positively. The result of this model has positively influenced loan repayment performance as sign of consistency with the *priori* expectation. Positive relation shows that longer experience in business, better knowledge, attitude and skill is developed on the operation and conduct of using microfinance enterprise as source of poverty reduction and methods of production. Additionally, micro entrepreneurs who have been in business longer are expected to have more stable sales and cash flows than those who have just started. Thus, those who have run their businesses longer may have higher debt capacity. The variable is significant at 5% levels. The odds ratio in favor of practicing business increases the non-defaulters by a factor of 1.844 for an increase in business experience by one year. This result completely agrees with the studies conducted by Berhanu and Fufa (2008) and Zeller (1998).

#### **Source of income (SOIN)**

The coefficient of this variable was hypothesized to influence loan repayment performance either positively. This is consistent with the *priori* expectation. The result of the logit model reveals that this Variable affects loan repayment performance positively at less than 1% level of significance. The possible explanation is that borrowers

may use such cash flows from non-business activities and sources such as income from other members to make loan repayments. Thus borrowers with higher household incomes may have a higher chance of repaying their loans. The odds ratio favoring loan repayment performance increase by a factor of 2.772 for borrowers who had other sources of income. This result was in complete agreement with the studies conducted by Berhanu (2005) and Abraham (2002).

## Conclusion

Microfinance institutions mainly give services to those who are very poor especially women. This is because it has been a means that poor people utilize in their own businesses so that their livelihood can be improved. There were microfinance institutions that were working in urban districts of Harari regional state. The study conducted in these areas identified that microfinance members have been changed for better. However, there were constraints that became a bottle neck that challenged them not to utilize the services effectively.

Insufficient loan amount, lack of training and follow up, unavailability of nearby market and high cost of inputs, saving habit, saving purpose, experience and perceptions of borrowers on repayment period were the major constraints of members. Thus, the study concluded that the microfinance institutions have to consider the loan size, training and follow up. The microfinance institutions also have to look for ways that the members could market what they produce and have to schedule programs on the time that debts are collected and the clients should be aware of it.

## Conflict of Interest

The authors have not declared any conflict of interest.

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The background of the page is a photograph of a blue tractor pulling a red combine harvester through a field of harvested crops. The sky is clear and blue. The text is overlaid on a semi-transparent dark blue rectangular area.

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