Some Factors Associated with Income Generating Activities around Jozani Chwaka Bay National Park in Zanzibar

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Abstract

The contribution of Income Generating Activities (IGA) through Village Savings and Credits Associations (VSLA) groups implementation on poverty reduction among the rural community was one of the interested things to examine in this paper, in Southern and Central districts of Unguja. The primary objective of the paper is to determine factors associated with Income Generating Activities (IGA) among the VSLA groups. The population of this study was all IGA group members and non group members from all nine villages which are at Jozani - Chwaka Bay Conservation Project (JCBNP) area. The study applied two conceptual frameworks, namely determinants of total group income and the factors influencing participation in the IGA groups.

The study used two hypotheses, first hypothesis determining the impact of fine charge, interest, total share, economic activities and visitor contribution on total income of the group, while the second hypothesis measures the association between demographic determinants and participation into IGA's group. The results show that male and female contribution, and other economic activities were statistically significant at 5% level.

It is recommended that government should improve Jozani National Park be the world class tourism point, provide education to the villagers surrounding the forest on importance and targets of the IGA groups, support the group's production activities using modern technology, allocate portion of revenues collected from groups to support social economic activities within villages such safe and clean water projects, supply of electricity etc.

Introduction

United Republic of Tanzania including Zanzibar is one of the developing countries located in Eastern part of Africa with a population of 45 million (2012 Census). Majority of Tanzanians in the Mainland (more than 80%) and in Zanzibar (more than 75%) engage in peasant agricultural production and dwell in rural areas NBS and OCGS (2013). Savings and Credits Cooperatives Societies (SACCOS) have been established since 1980s after liberalization of the financial services. SACCOS have helped to provide the financial services to many clients who the formal financial institutions such as banks did not serve them (Magali, 2014).

The Jozani Forest Reserve has existed since the 1940s when the forest was logged and partly replanted to form a plantation. Only in the early 1990s did the Government of Zanzibar recognize it as a 'biodiversity hotspot' (Jambiya, et al, 2004). The global environmental goal of Jozani-Chwaka Bay Conservation Project (JCBCP) was to conserve the biodiversity of Jozani Forest and Chwaka Bay. The areas contain coastal swamp and coral rag forest that are unique and also important for the conservation of mangrove forest. More specifically, the goals identified by the project were to protect and sustain utilization of the biodiversity of the Jozani Chwaka Bay and to enhance the livelihood security of the nearby societies. In order to enhance livelihood security of the nearby societies, JCBCP was established to protect and sustain utilization of the biodiversity of the forest. The project initiated different activities including walking board, mangrove forest, red colobus monkey and natural forestry sustainability. These activities were introduced to increase household income and savings and hence the activities resulted to reduce pressure on natural resources and therefore making sustainable conservation of biodiversity.

In the same spirit, CARE in 1999 together with Department of Commercial Crops, Fruits and Forestry (DCCFF) introduced the informal microfinance system known as Village Saving and Credits Associations (VSLA). The role of CARE was to support financial and trained the groups surrounded by JCBNP in the year 2000's

CARE initiated substantial training as a requirement to the IGAs on savings and credits within the communities. Both men and women have benefited from the training. Moreover, women respondents from the focus group discussions stated that leadership/administrative training had been most useful in terms of allowing them to speak in any forum concisely and freely. It also involved maintaining records and accounts for their groups in a transparent and accountable manner which created trust in the system, conduct meetings more effectively and

resolve disagreements, generate more of their own resources (and savings) because people saw the benefits of the training and also to advise each other on development issues and problem solving. (Hartley et al, 2003).

Formulation of Income Generating Activities (IGA's) is time bound involving collecting Savings and Loan Association (SLA) from individual. It is usually formed by 15 to 30 people who save regularly and borrow from the group fund. Loans are repaid with interest, and have a period usually between one and three months for repayment. On a date chosen by the members, usually after a year, all the financial assets are divided among the members in proportion to each one's savings. This payout is called the "action audit". The groups normally re-form immediately and start a new cycle of savings and credit. During an intensive three-month phase, a trainer visits the groups every week and trains them on group dynamics. In a second three-month phase the trainer visits the groups every two weeks as they become more independent. After three months, the trainer comes only once in a month. After 12–18 months the trainer ceases to visit the group (Grant and Allen 2002).

The Jozani Chwaka Bay National Park is situated in central and southern districts of Zanzibar with total population of 76,346 and 39,242 respectively, Census (2012). The statistics show that 61% of Zanzibar people live below the basic needs poverty line and 22% live below food poverty line (HBS, 2010). Moreover, the distribution of households owning land for agriculture and grazing having four (4) acres was only 3.6 % in the Southern district and 34.1% having less than one (1) acre in Central district. The 2010 HBS, statistics show that the distribution of household connected with electricity in the Central district was 17.7 % and in the Southern district was 24.0 %. The statistics also show that distribution of household having access to banking was 4.9 % and 1.9 % in central and Southern districts respectively. The expenditure pattern of the household per month were Tshs. 194,298 and Tshs. 177,903 which is equal to the expenditure per capita of Tshs. 40,469 and 43, 309 in central and southern respectively. A study from 2010 HBS also revealed that the distribution of household income per month for these two districts were Tshs. 82,238 and Tshs. 83,061 respectively.

Despite of some effort to sustain the livelihood of the rural community surrounded by JCBNP based on VSLA introduces by CARE still there was a challenge of capital as well as governance. The application of National Park policy caused added costs to the poor such as reduced mass of using forest products as well as forced allocation of Income Generating Activities (IGA's) group income. The establishment of VSLA groups contributed capacity building and marketing to the members which resulted to the development and success of income generating opportunities. However, there was no clear information on the determinants influencing the group's income and member participation in the group, therefore this paper is attempting to analyse these.

The Objective

The main objective of this paper is to determine factors associated with income generating activities around Jozani Chwaka Bay National Park in Zanzibar.
The specific objectives are:-
1. To determine whether the factors such as fine charge, interest, total share, economic activities, and visitor's contribution have significant impact to the total group's income.
2. To assess the determinants that influence the community members in participating in IGAs groups

Scope of the Study

The study used a cross sectional primary data design that was obtained from the IGA's groups which have been in operation for more than twenty two (22) years. The groups were selected from central and southern districts of Unguja in which VSLA were established.

Literature Review

According to Zanzinent Forum, (2004), Zanzibar has a good forest cover with the problem of deforestation (threatening isolated pockets of non-gazette forests). Some of the reasons leading to deforestation are settlement increase; agricultural activities, firewood collection, and uncontrolled harvesting of trees for building materials where by majority of community members are involved in these types of activities.

CARE international organization came up with a project to sustain the protection of natural forest around Jozani Chwaka Bay. The project was a formulation of IGAs and was known as a type of time-bound informal Accumulating Savings and Credit Association (ASCA). Members of a group were around 15 to 30 and made saving regularly and enabled them to borrow money from the group fund which was used for running their own businesses and for the households needs.

The loan was to be repaid with an interest and a fine charged for those who did not repay on time, usually after between one to three months. At the end of the cycle (usually 12 months) the fund is divided to members proportional to savings contributions. The groups normally re-form immediately and start a new cycle of savings and lending. The role of the group is to do other economic activities so as to enable them to collect more revenues. The group is motivated by the donor fund basket for those who come to visit the group. This is the contribution of the people outside the group.

IGA and Poverty Alleviation

The organized groups create and increase economic activities as well as financial services by providing loans. The result is accessibility to poor households to either alleviate poverty or slow it down (Ashe, 2000). The groups are known for providing useful sums of money to the poor households to start income generating activities and or improve their businesses (Ashe, 2000). The revenue generated is used to pay back the loan, cater for household basic needs and general improvement of people's living conditions. Loans also help members manage their life cycle events such as education, marriage, birth and home making; widowhood, old age and deaths (Micro Save Africa, 2000).

According to the World Bank (2001), poverty has various manifestations which can be linked to the lack of income and assets to attain basic necessities of life, such as, food, shelter, clothing and acceptable levels of health and education.
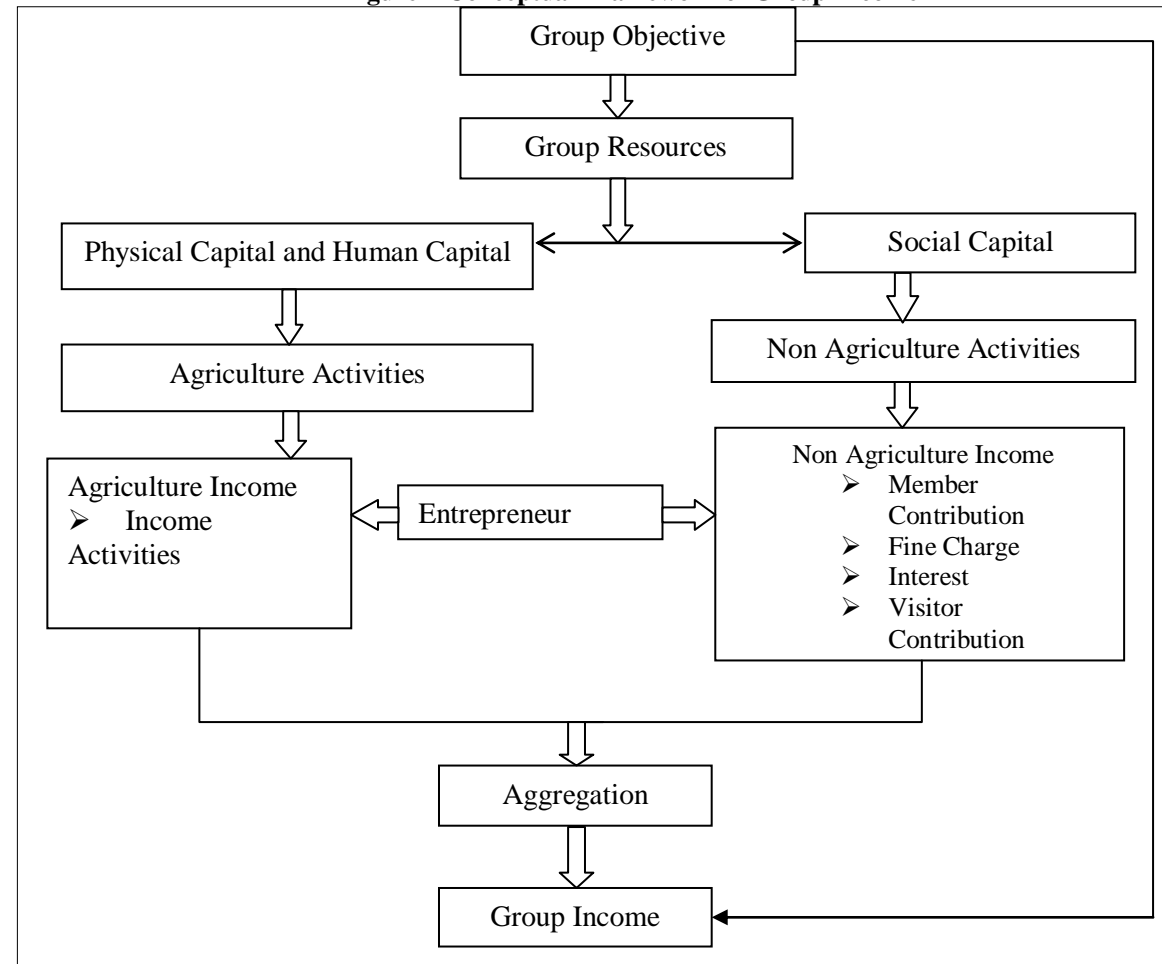
Conceptual Framework

Two conceptual frameworks were adopted for this study.

There exists some differences in the definition of a livelihood in the literature. As livelihood and income are not identical, they are however connected, because income "at a given point in time is the most direct and determinant outcome of the livelihood process". The livelihood technique highlights the role of the household's resources as elements of activities and things to see the connection between, activities and incomes. The IGA is assumed to exploit its utility which is a role of the consumption of goods and services, it is subject to constraints. According to its objective, the group allocates its resources to activities subject to factors from the group. These activities produce results which will meet the objectives. The activities as well as the income generated have an effect on the stock of resources available to the household in the future.

Figure 1 presents a conceptual framework, which diagrammatically presents theoretical idea behind this study. The figure describes the determinants of group as independent variables by showing the relationship to total group income. Figure 2 presents the main idea after observing that there was a relationship between impact of the community members involving in the savings and credits group so that the main demographic factors that influenced these community to participate in the groups can be shown.

Figure 1 Conceptual Framework of Group Income

➤ Variables that are chosen

Figure 2 Conceptual Framework on Determinants Influencing Participate on IGA
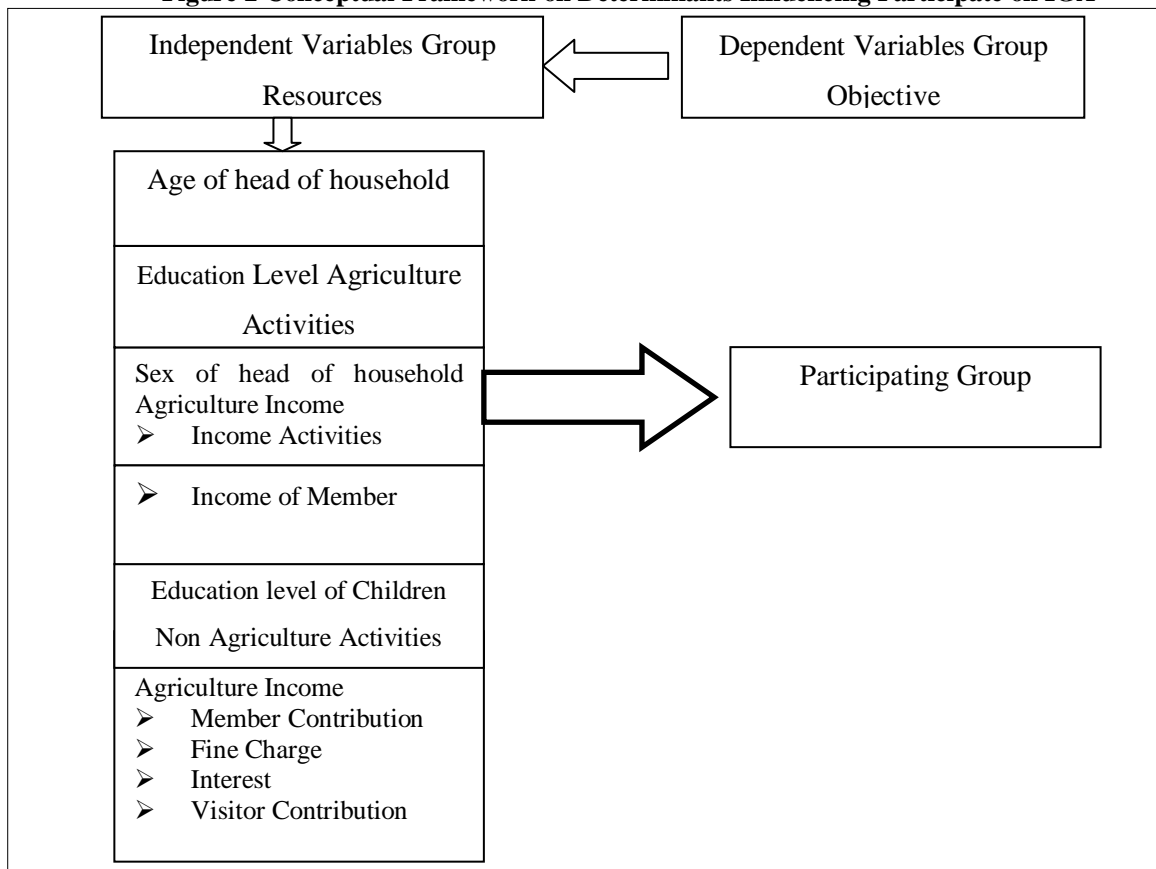
➢   Variables that are chosen

Materials and Methods
Materials
The population of this study was all IGA group members in all nine villages which are at JCBNP area. These villages are Ukongoroni, Chwaka, Jozani/Pete, UngujaUkuu, Ukongoroni, Charawe, Bwejuu, Cheju and Michamvi. The Study area bay lies about 35 km south-east of Zanzibar township in Zanzibar's south and central Districts. It is a narrow neck of land between the Chwaka Bay in north and Uzi Bay to the south. It contains about 100 tree species from a total of 43 families covering an area of about over 2512 ha that includes the whole ground water forest, coral rag forest and salt marsh area (Salum and Layla, 2009).

Sampling Method and Sample Size
The total number of IGA's found in the region was 92 (i.e .92 respondents from all groups were interviewed); therefore we covered all the groups so as to get the precise information. The Primary Sampling Units (PSUs) used were the villages and ultimate sampling units were leader of the group and head of household for those house whose neither of the member is participating in the IGA group.
The sampling techniques that was employed to select the representative respondents who were not members of IGA groups was purposive sampling but must be a resident in the village where the group was found.

Data Collection
The study used primary data collected from the groups of central and southern districts in Unguja. Open and closed ended questions in the questionnaire were designed and used. There were two approaches used to collect data from the respondents, the first method was to collect directly from the group leader/chairman found in the IGA group which covered all groups.
The second method was to collect information from the community member who did not participated in any group. The same proportion of the respondents was picked which are 92 respondents. This made the total sample of the respondents to be 184. Table 1 gives the total sample by village.

Table 1: Number of Respondents

Village	Participant in IGA group			Total (%)
	Member of the Group	Not Member of the Group	Total	
Bwejuu	12	12	24	13.0
Charawe	7	7	14	7.6
Cheju	14	14	28	15.2
Chwaka	21	21	42	22.8
Jozani/Pete	10	10	20	10.9
Kitogani	7	7	14	7.6
Michamvi	9	9	18	9.8
Ukongoroni	5	5	10	5.4
Unguja Ukuu	7	7	14	7.6
Total	**92**	**92**	**184**	**100**

Data Analysis

A Statistical Package for Social Sciences (SPSS) and STATA software were used for the analysis. The first analysis was descriptive statistics. The second analysis was an inferential statistics, whereby econometric and logistic models were used to assess the determinants which influence income and participating on IGA. Statistical tests were conducted on estimated regression model by the use of t- test and F- test.

Variables included in the Analysis

Factors considered were education level, age, sex and marital status. Other determinants which might influence the community members to participate in the savings and credits groups were also looked into.

The Choice of Variables and Measurements

In Model 1 total income of the group is regarded as the dependent variable while fine charges, interest paid, visitor contribution, member share, and income of the group from other activities are the independent variables. The Model 2 considers participation into the IGA group as dependent variable while demographic characteristics are the independent variables.

Amount of Fine Charge and Interest Received by the Group

The total amount of money in TZS from fines and interest that were received by the group were considered as an indication for the suitability of operating and continuing existence of the IGA.

Econometric Model on Determinants of Group Income

The Group Income Regression Equation is postulated as

$$Yi = \beta_o + \beta_1 Msh + \beta_2 Fsh + \beta_3 FC + \beta_4 IR + \beta_5 VC + \beta_6 EC + \varepsilon_{i \ldots .1}$$

for $i = 1,2,3 \ldots 184$

Where, the dependent variable Yi is the total income of the ith group and the independent variables which were all measured in Tanzania Shilling are described as

β_j is a constant term if j=0 and for j = 1, 2,…., 6 are estimates of coefficients parameters

Msh is the total income of the group received as a saving from male participant

Fsh is the total income of the group received as a saving from female participant

FC is a total fine charge received by the group at particular period

IR is the total money of the group received as interest at particular period

VC is the total income received by the group from visitors

EC is the total income received by the group as earning from running other economic activities

ε_i is an error term of the model

Econometric Model on Determinants of Participating on Group Income

The second econometric model was developed using logistic regression techniques to assess the demographic characteristics that influence the community member to participate in the IGA. The mathematical equation is postulated as

$$ln(p/1-p) = \beta + \beta_1 Sex + \beta_2 M\_status + \beta_3 Edu\_Level + \beta_4 Income + \beta_5 Age + \mathcal{E}_i \ldots 2$$

The dependent variable is the binary outcome variable which measures whether household members participated into IGA groups or not. Therefore, it takes values 1 if the member participated and 0 otherwise. The independent variables that were used in the logistic regression model are described as

β_0 is constant term and β_j for j = 1, 2,…., are estimate of coefficient parameters

Sex   is sex of the respondent

M_status   is a marital status of the respondent

Edu_Level   is the highest education level of the respondent (dummy)

Income   is the total income earned by the respondent

Age   is age of the respondent

ε_i is an error term of the model

Results and Discussion

Statistics on Annual Revenue and Number of Visitors at JCBNP and JECA

Tourism trends for Jozani show that since 1999 both visitors and revenues have significantly increased. In 1999 tourist visits were about 14,002 and had contributed to USD 36,455.96. The income from the groups partly saved as Community Development Fund (CDF) has been issued to finance community-wide expansions in education, health, and water supply and this payment was made to improve community associations of JCBNP. The trends of visitors and collection of revenue have increased day to day since the project was initiated. Figure 3 shows a trend of the annual revenue collected.

Figure 3: Trend of Annual Revenue Collections
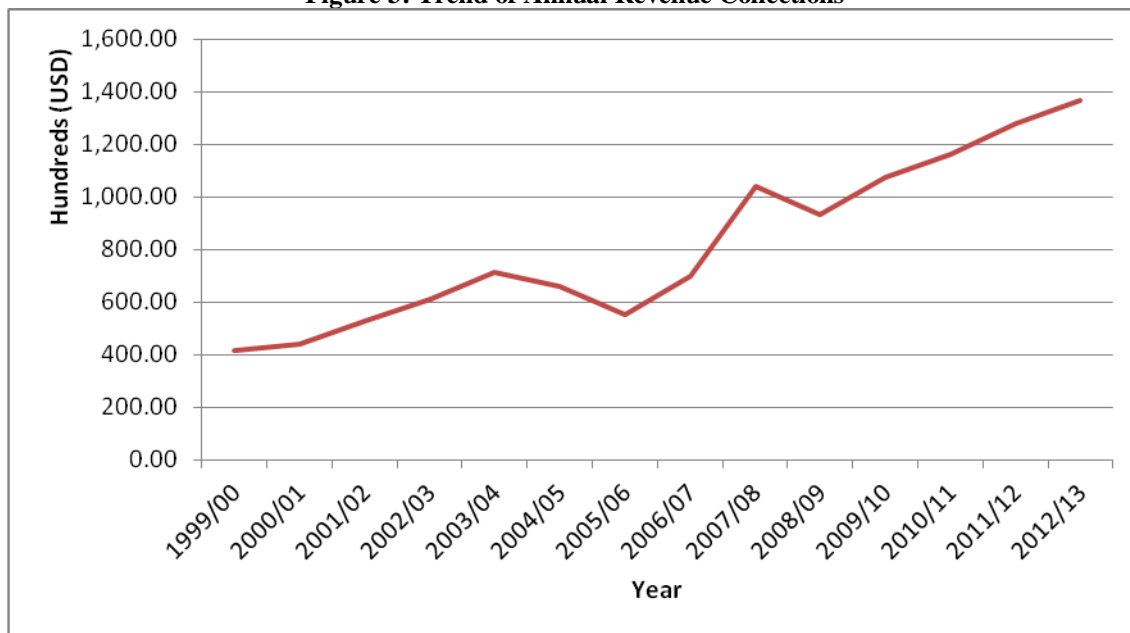
Source: JCBNP

The revenue collected is attained by carrying out different types of activities i.e. hand craft and small shop that are made by members of the Groups. These products were sold to foreigners who came to visit the park and JCBNP. Thus IGA groups members are running different economic activities such as businesses, handcrafts etc. and this has been important source of revenues for the group apart from the members shares.

Demographic Characteristics

The results show that out of 92 groups, 44 (47.8 per cent) were headed by males and 48 (52.2 per cent) were headed by females.

Age distribution shows that out of the 92 groups interviewed, respondents found to be in age group (36 – 45) years was 37(40.2 per cent), followed by people in age group (26 – 35) years 30 (32.6 per cent) and age group (46 – 55) years was 25(27.2 per cent). As for the information on marital status of the respondents, the results show that 12 (13 percent) were single, 42 (45.6 percent) were married and 38(41.4 percent) were widowed as shown in Table 2 below.

Table 2: Demographic Characteristics of Group Respondents

Demographic characteristics	Number Group leaders	Percentages
Sex		
Male	44	47.8
Female	48	52.2
Total	**92**	**100.0**
Age		
26 – 35	30	32.6
36 – 45	37	40.2
46 - 55	25	27.2
Total	**92**	**100.0**
Marital Status		
Single	12	13
Married	42	45.6
Widow	38	41.4
Total	**92**	**100.0**
Education		
Primary	53	57.6
Secondary	39	42.4
Total	**92**	**100.0**

Group Income by Source

The information presented in Table 3 shows income received by IGA based on different sources of activities. Findings show that females contributed more income compared to the males. Statistics reveal that on average female activities contributed TZS 2,075,076 per annum, followed by male share which contributed on average TZS 1,542,891. Income from other economic activities operated by the group contributed TZS 1,879,673. The statistics show that interest, fine charge and visitor contribution had very small contribution which was TZS 156,134, TZS 12,159 and TZS 9,146 respectively. The statistics also show that the total income received by the group on average was TZS 6,543,142

Table 3: Group Income by Source

Source of Income	Mean	Standard Deviation	Range	Minimum	Maximum
Male_ Share	1,542,891	901,817	4,791,000	405,000	5,196,000
Female_ Share	2,075,076	1,357,812	7,282,000	338,000	7,620,000
Activities	1,879,673	1,472,802	7,227,487	231,046	7,458,533
Interest	156,134	96,026	472,600	9,900	482,500
F_Charge	12,159	7,361	37,287	900	38,187
V_contribution	9,146	5,539	25,487	547	26,034
Income	6,543,142	3,517,415	20,420,600	1,255,000	21,675,600

Group Income by Village and by Source

Table 4 reveals that on average Unguja Ukuu generated more income compared to other villages about TZS 14,273,150 and Ukongoroni generated lowest income. However, the group which generated more income through other economic activities such as running business was Jozani/Pete which generated about TZS 3,539,695. Chwaka is among the leading one in terms of getting high amount of fine charges, about TZS 591,629 were generated followed by TZS 402,237 generated in Cheju. Groups found in Kitogani and Ukongoroni were observed to receive less amount of money contributed by members, it was about TZS 4,495,571 and 1,188,800 respectively.

Table 4: Group Income by Village and by Source

Village	No of group	Member Contribution	Fine Charges	Visitors Contribution	Income from Other Activities	Total Group Income
Bwejuu	12	8,316,600	103,958	12,995	3,187,042	11,620,595
Charawe	7	5,842,708	303,821	26317	2,788,546	8,960,392
Cheju	14	5,913,495	402,237	30,607	1,468,174	7,814,513
Chwaka	21	6,712,919	591,629	78,127	2,842,416	10,225,091
Jozani/ Pete	10	5,527,300	287,420	35,927	3,539,695	9,390,342
Kitogani	7	4,495,571	112,389	14,049	2,674,983	7,296,992
Michamvi	9	9,811,306	289,088	36,136	3,199,978	13,336,508
Ukongoroni	5	1,188,800	59,440	7,430	1,709,978	2,965,648
Unguja Ukuu	7	10,860,245	135,753	16,969	3,260,183	14,273,150

Determinants to the Group Income
Results from Regression Analysis

The Group Income Regression Equation is postulated as

$$Yi = \beta_o + \beta_1 Msh + \beta_2 Fsh + \beta_3 FC + \beta_4 IR + \beta_5 VC + \beta_6 EC + \varepsilon_{i \ldots .1}$$
for $i = 1,2,3......184$

Where, the dependent variable Yi is the total income of the ith group and the independent variables which were all measured in Tanzania Shilling are described as

β_j is a constant term if j=0 and for j = 1, 2,…., 6 are estimates of coefficients parameters
Msh   is the total income of the group received as a saving from male participant
Fsh   is the total income of the group received as a saving from female participant
FC   is a total fine charge received by the group at particular period
IR   is the total money of the group received as interest at particular period
VC   is the total income received by the group from visitors
EC   is the total income received by the group as earning from running other economic activities
ε_i is an error term of the model

The results of the regression equation are presented in Table 4. They show that variables male contribution, female contribution and economic activity were statistically significant at 5% level while interests rate, fine charges and visitors contribution are not statistically significant. The findings imply that per unit change for male, female and economic activity taken into account other variables remaining constant independently the total group income is increased by 0.239, 0.484 and 0.233 respectively.

The value of coefficient of determination (R-Square = 0.8746), which is used to determine the strength of the econometric model shows that 87.46 % of the variables used in the model explain the dependent variable while 12.54 % there are other variables outside the model that explain the relationship of the dependent variable.

Table 4: Regression Results of Total Income by the Independent Variables

Multiple Linear Regression			Number of observation = 92 F (6, 85) = 98.83 Prob> F = 0.0000 R-Squared = 0.8746 Adj R- Squared = 0.8658	
Independent Variables	**Coefficient**	**Standard Error**	**t**	**Significance**
Constant	1.965995	.6053016	3.25	0.002
LnMale_Share	.2390982	.058398	4.09	0.000
LnFemale_Share	.4842266	.053125	9.11	0.000
LnActivities	.2335347	.0327696	7.13	0.000
SqrtInterest	-.0000942	.0008553	-0.11	0.913
SqrtF_Charge	.0009655	.0030843	0.31	0.755
Sqrt V_Contribution	-.0012613	.0016088	-0.78	0.435

Impact of other variables (fine charge, interest, total share, economic activities and visitor contributions) on Total Group's Income.

This section aims at testing if there is an association between group income and participation in IGA's group.

The Chi square Test and Cross Tabulation

Table 5 below shows the relationship between dependent variable and independent variables. Out of nine independent variables, four variables were found to have significant relationship with participation to the group namely sex of respondents, age of respondents, marital status of respondent and education of the respondents. These four variables were used in binary logistic regression model and the remaining five which didn't have significant relationship with dependent variable were dropped from the model.

Table 5: Cross Tabulation of Dependent Variable by the Independent Variables

Variables	Group Member	Not Member	Totals	χ2 (P value)
Sex of Respondent				
Male	44	31	75	
Female	48	61	109	3.804 (0.050)*
Total	92	92	184	
Age of Respondent				
26 – 35	30	24	54	
36 – 45	37	33	70	
46 – 55	25	23	48	12.979 (0.005)*
56+	0	12	12	
Total	92	92	184	
Marital Status				
Married	60	39	99	
Widowed	19	18	37	
Single	13	35	48	14.565 (0.001)*
Total	92	92	184	
Age of Spouse				
less to 24	29	25	54	
25 – 34	19	17	36	
35 – 44	13	19	32	
45 – 54	13	16	29	2.235 (0.693)
55 and above	18	15	33	
Total	92	92	184	
Household Sizes				
1 – 4	28	29	57	
5 – 8	54	50	104	
9 +	10	13	23	0.563 (0.755)
Total	92	92	184	
Education of Respondent				
None	0	5	5	
Primary	53	33	86	
Secondary (O level)	39	54	93	12.071 (0.002)*
Total	92	92	184	

* Statistically significant at 5% level

Binary Logistic Model for Selected Variables

Table 6 shows the binary logistic model results for the four tested independent variables. The results show that, out of four variables, only three variables namely sex, marital status and education were found to have impact or influence for participation into the group while one (age) didn't show any impact towards participation of the group.

If we compare sex of respondents male were 1.804 times higher to participate in the group than females and statistical significant at p - value of 0.050 level.

In marital status, the married respondents were 4.142 times higher to participate in the group as compared to single respondents, and the widowed respondents were 2.842 times higher to participate as compared to the singles as indeed expected.

As for education level, those who didn't have any education had zero impact for participation to the group as compared to those who had secondary education, and those had primary education were 2.224 times higher to participate than those who had secondary education.

Logistic Regression Model

The logistic regression model is applied whenever the dependent variable is binary (also called dummy) which takes values 0 or 1. Logistic regression is a nonlinear regression model that forces the output (predicted values) to be either 0 or 1, but it estimates the probability of the dependent variable to be 1 (Y=1 rather Y = 0) given a certain value of X which is the probability that some event happens.

The logistic regression model is given as $\ln\left(\frac{p}{1-p}\right) = \beta_0 + \sum_{j=1}^{k} \beta_j X_{ij}$

for i = 1, 2, 3……………n and j = 1, 2, 3…k

p   is the probability of household being food secure,

Xij   are factors used to determine food security of household i

βjs   are parameters to be estimated

β0   is a constant term

So in this study the Logistic Regression model was used for analysis. This is because the study's dependent variable is household food security whose responses are binary or dummy i.e. if a household is food secure it is assigned value 1 and it is assigned value 0 if not. The odds ratio were used to predict the extent to which the household food security status will change as a result of a unit change of an independent variable.

Table 5: Binary Logistic Results for Selected Variables

Variables	Coefficient	Std Error	Wald	Sig Test	Exp(B)	95% C.I.for EXP(B)	
						Lower	Upper
Sex of Respondent							
Female (RC)							
Male	0.590	0.304	3.773	0.050*	1.804	0.995	3.271
Age of Respondents							
26 - 35 (RC)							
36 – 45	-0.109	.364	089	.765	.897	.440	1.830
46 – 55	-0.140	.398	.123	.726	.870	.399	1.897
56+	-21.426	11603	.000	.999	.000	0.000	
Marital Status							
Single (RC)							
Married	1.421	0.384	13.665	0.000*	4.142	1.950	8.799
Widowed	1.044	0.462	5.105	0.024*	2.842	1.149	7.032
Secondary Education							
None	-20.877	17974.843	0.000	0.999	0.000	0.000	
Primary (RC)	0.799	0.306	6.844	0.009*	2.224	1.222	4.047

* Statistically significant at 5% level

RC-Reference category

Conclusions and Recommendations

Conclusion

Tourism trends for Jozani specify that since 1999 both visitors and revenues have significantly increased. In 1999 tourist visits was about 14,002 and had contributed to USD 36,455.96.The trends of visitors and collection of revenue were increasing day to day since the project was initiated. The revenue collected is obtained by doing different activities i.e (hand craft and small shop) that were made by members of the groups. Findings show that on average Unguja Ukuu generates more income compared to other villages about TZS 14,273,150and Ukongoroni was least far least generated income. However, the group which generated more income through other economic activities such as running business was Jozani/Pete which was about TZS 3,539,695. Group found in Chwaka was the leading one in terms of receiving high amount of fine charge, about TZS 591,629 were generated followed by TZS 402,237 found in Cheju. Groups found in Kitogani was observed to receive less amount of money contributed by members, it was about TZS 4,495,571.

The distribution of villages by sex of respondents was analyzed and the results show that the proportion of the respondents from Chwaka is higher compared to all other villages which counted to 22.1%, this is due to that many households in Chwaka were influenced to form the IGA groups and so were member of the group. Cheju was the second Village which had 15.2% proportion of the respondents, followed by Bwejuu, Jozani/Pete, and Michamvi, which had proportions of 13.0%, 10.9% and 9.8% respectively, while Ukongoroni was the least Shehia with only 5.4% proportion of respondents.

The results show that the variables male's contribution, female's contribution and economic activity were statistically significant at 5% level and the rest were not statistically significant.

The findings implies that per unit change on variables of male, female and economic activity while other variables remained constant, the total group income increased by 0.239, 0.484 and 0.233 respectively.

The value of coefficient of determination (R-Square = 0.8746), which used to determine the strength of the econometric model shows that 87.46 % of the variables used in the model explain the dependent variable while 12.54 % there are other independent variables outside the model explain the relationship of the dependent variable. In binary logistic model results for four tested independent variables show that, out of four variables only three variables namely sex, marital status and education were found to have impact or influence for participation into the group while three didn't show any impact towards participation of the group.

In comparing to sex of respondents males were 1.804 times higher to participate in the group then female and statistical significance level was a different at p - value of 0.050. The component of marital status, the married respondents were 4.142 times higher to participate in the group as compared to single respondents, and the widowed respondents were 2.842 times higher to participate as compared to the single. The education level, those who don't have any education had zero impact for participation to the group as compared to those had secondary education, and those who had primary education were 2.224 times higher to participate than those who had secondary education.

Recommendations

1.   The study recommends to government and other stakeholders especially on tourism sector to take special effort to make Jozani National Forest Park be the world class tourism point. This is due to the fact that the forest attracts many tourists coming to Zanzibar as number of tourists visiting the forest increase significantly every year, but also the revenue collected from the forest increases every year. Status of the forest to world class tourism rank will call for more visitors and more revenues in return, but also will create job opportunities to the villagers surrounding the park.

2.   Educate and encourage the villagers surrounding the forest on importance and targets of the IGA groups so as to influence and call for many other villagers to join into the groups. It might be possible that low participation of the villagers into the group is due to lack of knowledge and awareness on IGA groups, bad ideology that such groups focus mainly to females who are not primarily responsible to serve the family basic needs, but it can also be due to lack of trust on such group so the villagers are worrying about their money.

3.   The study found that only few participants had education at secondary level but majority fall below it, so the study recommends the formulation of education program for the participants especially those who had never attended any formal education. This will help to maintain the group as more members become educated and so capable, but also will develop the groups very formal and not mere local.

4.   The study recommends on the provision of funds and capacity building to support the groups in their production activities. This is recommended since large part of revenue collected by the groups were obtained from production activities, however many such groups are working locally such that they use much resources with little output, hence it is very useful to support the groups to work with modern technology. This is followed by supporting the groups to secure permanent market to sell their products locally and internationally.

5.   Last but not least the study recommends for portion of revenues collected from the forest to be allocated for supporting the social economic activities to the villages surrounding the forest such as provision of safe and clean water, supply of electricity, good education, better health services, and agriculture facilities and so on. This will generate belief and trust for these villagers to feel that they are part of the forest, hence will guard it against any harm that will destroy its nature and beauty such as cutting and burning of trees, killing of animals etc.

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