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Impact of Sustainable Livelihood Assets on Improving Household Income in Zanzibar: A Case Study of North a District

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Abstract: This study examines the impact of sustainable livelihood assets (SLAs) on improving a household income in Zanzibar: a case study of North A district. Specifically, the study examines the impact of financial capital on improving household income, impact of social capital in improving household income, impact of human capital on improving household income and impact of physical capital on improving household income in Zanzibar especially North A district. The researcher has mainly employed quantitative research approach with appropriate method of analysis for this study. The sample size for this study consists of 395 respondents and survey questionnaire was used as data collection instrument. To achieve a credible study a Multiple regression analysis was used to analyses the collected data from relevant respondents. At the 0.05 level of confidence, the study has revealed that four predictors (physical capital, financial capital, human capital and social capital) had a significant effect or impact on the outcome variable (household income improvement). The study concluded that household who show or have high level of physical capital, financial capital, human capital and social capital tend to improve their income easily. Finally, the study recommended that the head of households should increase their livelihood assets by educating the younger members of the households on the important of acquiring sustainable livelihood assets in their lives.

Keywords: Physical Capital, Financial Capital, Human Capital, Social Capital, Household Income Improvement

1. Introduction

In Tanzania, the sustainable livelihoods asset is thinking as potentially valuable in advancing the understanding of the complexity and socially embedded nature of people's lives [1]. Sustainable livelihoods frameworks and principles are used to eager and codify the complexity situation to be simple and to reduce the complexity of people lives so as to generate their income level [2]. The impacts of livelihood sustainability varied between one people to another as restricted by level of livelihood assets [3]. Increase of the income gap among the community may generate social problems in the end and enhance local benefits, and particularly, to engage those with lower levels of livelihood assets.

In Zanzibar, sustainable livelihood assets are of principal importance for survival of the people that can build households' livelihood resilience [4]. The creation of livelihood assets with this sphere is acknowledged as a key strategy of building community invulnerability against recurring poverty. Such endeavors result in the enhanced livelihoods and capabilities of vulnerable people [5]. Livelihood asset is a right-based construct to attain basic needs and assure rights at the household level. Scholastic communities define the livelihood security concept differently [6]. In Zanzibar fishery as sustainable livelihood asset play a significant role in the income generation for the most of the people living in a coastal area. Many inhabitants from coastal areas of Zanzibar engaged in fishing activities as their sustainable livelihood for income and subsistence need but Majority of them are still poor. Therefore, the primary goal of this study was to survey the effect of those

sustainable assets taking place in Zanzibar and how can influence the household's income.

2. Statement of the Problem

Household's incomes especially in rural area in Zanzibar are not well satisfied due to lack of policy on the acquisition of sustainable livelihood assets [7]. In such situation, the people that are mostly at risk of low income and ill health and injury [8]. According to Zanzibar Poverty Assessment (2017) state that around 36 percent of the heads of households with a monthly total income of less than TZS 200,000 had a secondary job, this is very low income. In 2000, the Revolutionary Government of Zanzibar launched Zanzibar Development Vision 2020 in line with social, political, cultural, and economic philosophy of the country to alleviate absolute poverty as well as improve household income and attain viable development. Various strategies were established in order to improving employment opportunities, enhancing income generation, wealth creation opportunities, and effective safety nets to help vulnerable people. Such strategies were; ZPRP, ZSGRP I, ZSGRP II and ZSGRP III.

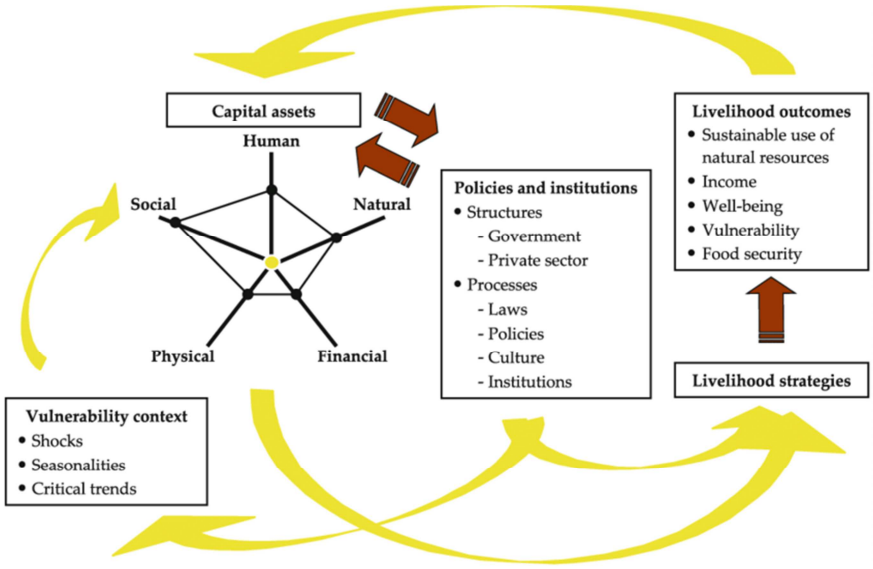
However, during the implementation of these strategies many challenges were identified that hindered the mission and vision of the development agenda of 2020. Significantly, among the key challenges mentioned include; a lack of a comprehensive framework to transforming the agricultural sector as the mainstay of the Zanzibar economy, lack of financial assistance in order to develop the business, and as such, their contributions are very little to improve household income. Therefore, it seems that many people in Zanzibar especially in rural area are engaged in different livelihood activities like fishery and agriculture for the sake of sustainable income and subsistence need. Most of household rural areas in Zanzibar are poor and they are depending upon livelihood asset for pushing their economy. Sustainable livelihood asset focus on increasing the range of assets and income to which a person or household has access, or on increasing access to particular types of capital. Thus, the study intends to answer the following four questions.

1) What is the influence of financial capital on improving a household income in Zanzibar?
2) What is the influence of social capital on improving a household income in Zanzibar?
3) What is the influence of human capital on improving a household income in Zanzibar?
4) What is the influence of physical capital on improving a household income in Zanzibar?

3. Literature Review

Theoretical and empirical literature review were captured in this study. Theoretically, the study is governed by;

Sustainable livelihood approach (Framework): The department for international development (DFID) has developed a 'Sustainable Livelihood Framework' (SLF) which is one of the most widely used livelihoods frameworks in development practice. The SLF was integrated in its program for development cooperation in 1997. DFID's biggest aim is the elimination of poverty in poorer countries. The sustainable livelihoods approach is a holistic approach that tries to capture, and provide a means of understanding, the fundamental causes and dimensions of poverty without collapsing the focus onto just a few factors [9]. In addition, it tries to sketch out the relationships between the different aspects (causes, manifestations) of poverty, allowing for more effective prioritization of action at an operational level. The Sustainable livelihood approach given that there is no set way of doing things aims to help poor people achieve lasting livelihood improvements sustainable livelihoods measured using poverty indicators.



Source: Olivier [10]

Figure 1. *The Sustainable Livelihood Framework.*

This framework helped facilitating understanding the various household assets in which the community is dependent upon. The sustainable livelihoods approach as enables a holistic appreciation of the various factors that together construct a household's asset base in a changing environment. This framework enables a range of quantitative and qualitative research methods to be analyzed, compared and triangulated. This study will use the sustainable lively hood approach because it provides a framework for research, which encapsulates many of the concepts related to the household capital accumulation relationship to the household's income escalated by the impact of sustainable livelihood assets.

Furthermore, a researchers have reviewed several research in relation to the sustainable livelihood assets as presented here under.

According to Sargani, et al [11] conducted study in Pakistan on the area of livelihood assets how these assets are adapted with the change. The researcher proposed a new paradigm for the sustainable livelihoods of smallholders based on the grounded theory, to exploit seven household assets and used mixed methodological approaches of growers' livelihood assets and climatic adaptation strategies based on farmers' livelihood concerns in Sindh province of Pakistan and to better understand smallholder farmers' sustainable livelihoods and applied a partial least square path modeling. Considering central critical paths, psychological assets (PsyA) entail meditational factors into the sustainable livelihoods index. The findings show that the essential support of the livelihood of farmers' social, cultural, economic, and human assets positively impacts sustainable livelihoods, though physical and natural assets depict a no significant impact on SLI. However, human and financial assets show comparatively substantial effects on smallholders' adaptation strategies; consequently, physical, social, and natural assets reveal significant impacts on farmers' livelihoods.

Also, Xiao et, al.,[12] conducted study by relating the sustainable livelihoods with sustainable grassland use and conservation: A case study from rural households in a semi-arid grassland area, China. The data are collected from 427 respondents through questionnaire survey. They find that the pastoral livelihood strategies currently are dominated by pastoral husbandry (pure pastoral husbandry or dominant pastoral husbandry) and supplemented by concurrent household occupations (dominant non-pastoral husbandry and non-pastoral husbandry); the households' future livelihood strategy is mainly to expand pastoral husbandry. In particular, the ownership of social assets, geographical advantage, and 'production assets', which consist of natural, physical, and financial assets, have significant influences on pastoral households' current livelihood strategy but non-significant impacts on their future livelihood strategy. Human assets and informational assets significantly influence both current and future livelihood strategies of pastoral households.

Furthermore, Sun, et al., [13] in their study was determining the nature of the causal relationship between "social capital," as measured by household membership in formal and informal groups and household welfare in South Africa. Using a recently collected panel data set in South Africa's largest province, we estimate per capita expenditure functions and find a positive and significant impact of household-level social capital. For example, after controlling for fixed effects, social capital has no impact on per capita expenditure in 1993 but positive and significant effects in 1998. They interpret this as reflecting structural changes in the South African economy as it removes the many restrictions that underlay apartheid.

Notwithstanding, Wenjing [14] conducted study to investigate the contribution of sustainable live asset to small farmer in the society. Both, qualitative and quantitative approach were used in this study. The paper proposed a newly built framework for smallholder farmers' sustainable livelihoods by taking the Psychological capital (Psycap) into the sustainable livelihoods' assets. A total sample of 796 households is representing 26 counties in Three Gorges Reservoir Region (TGRR) in China. The Structural Equation Modeling using partial least squares (PLS-SEM) was adopted to explore the key factors and key paths affecting smallholder farmers' sustainable livelihoods. Results indicate that Psycap can effectively promote the performance of Human capital (Humcap) and Physical capital (Phycap), with both significant direct and significant indirect effects on sustainable livelihoods; Phycap and Humcap have significant impacts on the new sustainable livelihood index.

Apart from the above scholar, Mousa and Karwan [15] conducted study in Iran and were intended to examine the effect of wetlands on people's livelihood at Zarivar wetland. A mixed approach was used to conduct this study using survey questionnaire and focus group discussion. The result indicated that, the wetland has had a great effect on residence's life in five dimensions of livelihood capitals i.e. financial, natural, human, physical, and social. Among the livelihood strategies from the wetland, the strategy of diversity of livelihood and income activities had greater importance for local households. Also, a positive and significant relationship recognized between livelihood capitals arising from the wetland and household livelihood level. Regarding the results of path analysis, the natural capital has the greatest effect on people's livelihood showing the crucial role of livelihood capitals from the wetland in determining their livelihood level and dependency on functions and services of the existing ecosystem.

However, Xiaohu, et al., [16] conduced study in China in grain for green program to see what the contribution of environmental conservation programs to sustainable livelihoods in northern Shaanxi province. Survey questionnaire was used in this study and structural equation modeling was used to compare the livelihood components of participants and non-participants in the GGP. The study found that the GGP indeed does no harm to participants' lives.

Although participants suffer from a small reduction in natural capital due to a sharp decrease in their landholdings, they have much more off-farm income, subsidies, and financial and social assets than non-participants. Respondents' environmental perceptions of the GGP were significantly influenced by the number of available laborers, their education and health levels, off-farm income, subsidies, and the accessibility of transportation.

In addition to that, Rauf, et al., [17] they assessed the impact of the Billion Trees Afforestation Program (BTAP) on the livelihood of local household in Khyber Pakhtunkhwa Province (KPK). Primary data from 360 local inhabitants were collected and analyzed using descriptive and econometric methodologies that include ordered logic model and ordinary least squares (OLS) respectively. In specific, a wealth index, household income, and five assets of sustainable livelihood have been considered to measure the impact of BTAP. The study found that there is a strong and positive contribution of BTAP to the improvement of a rural community's livelihood. Results showed that BTAP based households earn 4% more income and possess around 35% more assets. These findings suggest that BTAP has considerable effect on increase in livelihood assets. This study continues the discussion with several practical implications of this along with recommendations for future research.

Although, Zada, et al., [18] conducted study on the impact of small-to-medium size forest enterprises on rural livelihood in Khyber-Pakhtunkhwa. Questionnaire survey was used to collect data from sample size of 350 household heads. The ordinary least squares (OLS) and ordered logit model. Household income, a wealth index, and five capitals of sustainable livelihood have been considered to gauge the impact of SMFEs. The results of the study reveal that there is a strong positive association between SMFEs and improvement in a rural community's livelihood. The results further showed that households engaged in SMFE-related activities earn 3% more income and possess about 24% more assets. These findings are robust for various dimensions of sustainable livelihood and show positive effects of SMFEs on livelihood assets.

Stacey [19] concentrated on how coastal livelihoods in Indonesia are enhancing from recent initiatives on gender, women and sustainable livelihoods in small-scale fisheries. Specifically, in this paper, drawing from an evaluation of the effectiveness of 20 livelihood development projects implemented in coastal communities in Indonesia since 1998, and the report was on how gender considered in these projects. The paper assessed whether and how gender was included in project rationales, and how men and women were included in project activities. The study found that, despite the women being reached by many project activities, particularly efforts to increase women's productive capacity through training and group-based livelihoods enterprises, 40% of the projects had no discernible gender approach and only two of the 20 projects (10%) applied a gender transformative approach that sought to challenge local gender norms and gender relations and empower women beneficiaries.

4. Methodology

Research design: A quantitative research design was used. This is because the quantitative researcher went to the site (home, office) of the participant to conduct the research; this enabled the researcher to develop a level of detail about the individual or place and to be highly involved in actual experiences of the participants [20].

Study area: This study was carried out in Unguja North A District. The reason behind the selection of this District is because it comprises large population who are engaging into different livelihood activities so as to eradicate themselves from poverty and to improve their income.

Population of the Study: The target populations for this study were the head of households in North A district in Zanzibar. The reason for selecting head of households is because there is usually only one person assuming the role of head in a house who takes key decisions relating to residency requirements, economic, production, food consumption, inheritance, child rearing, and combination of income or production decision [21]. Therefore, the total population will be 31,244 numbers of head of households in North A Unguja.

Sampling techniques and sample size: A simple random sampling technique was used in selecting the respondents for the questionnaire survey. This method was used because it enables the researcher to represent not only the overall population and avoid bias among respondents being selected. This is because every member has equal chance to be selected in the study. A total of 395 respondents were considered as appropriate this study.

Data Collection Methods: This study used self-administered questionnaire as it enabled the researcher to collect data from relatively large sample size. Also, this instrument limits the biasness from the interviewer, and protected the privacy of respondents.

Data analysis Techniques: A regression analysis technique was employed the impact social, human and financial capital on the income improvement of households.

$$IHI = \beta_0 + \beta_1 FC + \beta_2 SC + \beta_3 HC + \beta_4 PC + e$$

IHI: Represents the dependent variable which is Improving Household Income

β_0: Represents a constant factor or the intercept

β_1, β_2, β_3 and β_4: Coefficients of independent variables

FC: Represents an independent variable, Financial Capital

SC: Represents an independent variable, Social Capital

HC: Represents an independent variable, Human Capital

PC: Represents an independent variable, Physical Capital

e: Represents an error term

5. Study Findings

a) Demographic Profile of the Respondents

This part gives brief account of what was concerned in this study. The part based on the characteristics of the

respondents related to their, age, gender, marital status, educational level, occupational status and the discussion of each characteristic follows bellow.

Table 1. *Demographic Profile of the Respondents.*

Variables	Categories	Frequency	Percentages
Age	21-25	8	2.0
	26-30	16	4.1
	31-35	138	34.9
	36-40	108	27.3
	41 – 50	79	20.0
	51 – 60	34	8.6
	61 and above	12	3.0
Marital status	Married	230	58.2
	Single	114	28.9
	Widow	28	7.1
	Divorced	23	5.8
Education level	O 'Level	3	0.8
	A 'Level	3	0.8
	Certificate	95	24.1
	Diploma	154	39.0
	Bachelor degree	132	33.4
	Post graduates	8	2.0
Gender	Male	217	54.9
	Female	178	45.1

The summarized results from Table 1 indicates that, out of 395 respondents equal to 100%, 8 respondents equal to (2.0%) ranges from 21 – 25, 16 (4.1%) ranges from 26 – 30, 138 (34.9%) ranges from 31 – 35, 108 (27.3%) ranges from 36 – 40, 79 respondents equal to (20.0%) range from 41-50, 34 respondents equal to (8.6%) range from 51-60 and those who were 60 and above were 12 respondent equal to (3.0%). Therefore, the analysis revealed that respondents were dominated by the large number of age groups of 31 to 35. This is working age group and is the good age of main power in every activity in any country. On the side of marital status, the table 1 show that, out of 395 respondents equal to 100%, 230 respondents made (58.2%) were married, 114 (28.9%) were single, 28 (7.1%) were widow and those who were divorced were 23 (5.8%). This is indicated that, most of the respondents who were involved in answering questions in this study were married since, covered more than 67.8% of the total respondents. This is due to the fat that, the cultural heritage of Zanzibar, people can get married in early years as long as he/she is matured, thus why, most of respondent obtained in this study were married. The educations status of the respondents indicated that, 3 respondents equal to (0.8%) were having O' level education, 3 (0.8 %) were having A 'level education, 95 (24.1%) were in a certificate level, 154 (39.0%) were having diploma education, 132 (33.4%) were having bachelor degree and 8 respondents (2.0%) were having post graduate education. Therefore, the results of the study indicated that, most of the respondents involved in this study were having certificate and diploma levels of education, since, it they cover by more than 60%. Finally, gender of the respondent displayed that, total of 395 respondents equal to 100% were asked in this question. 219 respondents equal to (55.4%) were male and 176 respondents equal to (44.6%) were female. These results clearly indicated that the most respondents who were participated in this study question were male, since Male is a group which is most participated in activities like fishing and so on rather than female.

b) Impact of Sustainable Livelihood Assets on Improving Household Income in Zanzibar

Multiple regression was used in this study in order to strengthen or validate the result archived from descriptive analysis. It is used because it allows prediction of a single dependent continuous variable from a group of independent variables. It can be used to test the predictive power of a set of variables and to assess the relative contribution of each individual variable. Also, multiple it explores the relationship between one continuous dependent variable and a number of independent variables or predictors (usually continuous). There are four independent variables in this study, these are; Financial Capital, Social Capital, Human Capital and Physical Capital; one dependent variable which is improving a household income. Therefore, a multiple regression analysis was used in order to show if Financial Capital, Social Capital, Human Capital and Physical Capital have impact on improving a household income and the following results were presented below;

The results of standard multiple regression as displayed in Table 2 below indicated that the independent variables physical capital, financial capital, human capital, social capital accounted for 64% of the variability in improving household income in Zanzibar ($R^2 = 0.640$). The adjusted R square value was 0.636. Therefore, these findings substantiate that only 64% of variability in improving household income could be explained by factors like variables physical capital, financial capital, human capital, social capital. The remaining 36% of variability depends on other unexplained factors.

Table 2. *Model Summary*[b].

R	R Square	Adjusted R Square	R Square Change	F Change	Sig. F Change
.800[a]	.640	.636	.640	173.356	.000

a. Predictors: (Constant), Physical Capital, Financial Capital, Human Capital, Social Capital
b. Dependent Variable: Household Income Improvement

Apart from the table 2 above, the following Table 3 below displays the coefficients' columns for the standard multiple regression conducted for this study.

Table 3. *Coefficients Table for physical capital, financial capital, human capital, social capital on household income improvement.*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.378	.152		2..486	.009
	Financial Capital	.210	.055	.182	3.826	.000
	Social Capital	.149	.049	.143	3.041	.003
	Human Capital	.295	.052	.260	5.642	.000
	Physical Capital	.354	.058	.323	6.105	.000

Dependent Variable: Household Income Improvement

With reference to Table 3 above, at the 0.05 level of confidence, the study has revealed that four predictors (physical capital, financial capital, human capital and social capital) had a significant effect or impact on the outcome variable (household income improvement). In other words, the results of predictor variables as seen in Table 3 above are as follow: - financial capital ($\beta = 0.182$, $t = 3.826$, $p < 0.05$), social capital ($\beta = 0.143$, $t = 3.041$, $p < 0.05$), human capital ($\beta = 0.260$, $t = 5.642$, $p < 0.05$), physical capital ($\beta = 0.323$, $t = 6.105$, $p < 0.05$).

The estimate multiple linear regression equation becomes:

$$IHI = \beta_0 + \beta_1 FC + \beta_2 SC + \beta_3 HC + \beta_4 PC + e$$

Constant=0. 378: shows that if physical capital, financial capital, human capital and social capital all zero rated, household income improvement prospected 0.378

β_1= 0.182: reveals a unit change of increased financial capital outcome in 0.182 units rise in household income

β_2= 0.143: reveals a unit changes of increased social capital outcome in 0.143 units rise in household income

β_3= 0.260: reveals a unit changes of increased human capital outcome in 0.260 units rise in household income

β_4= 0.323: reveals a unit changes of increased physical capital outcome in 0.323 units rise in household income

Basically, the effect of physical capital, financial capital, human capital and social capital on household income improvement in Zanzibar was in a positive direction. This situation indicates that the increase of scores in these predictor variables results in the increase of scores in the outcome variable [22, 23]. This condition entails that household who show or have high level of physical capital, financial capital, human capital and social capital tend to improve their income easily. Therefore, these findings provide the opportunities for household and other members in the family to improve their level of income by acquiring high level of physical capital, financial capital, human capital and social capital.

These findings are consistency with the study of Xiao et, al [12] who conducted study by relating the sustainable livelihoods with sustainable grassland use and conservation: A case study from rural households in a semi-arid grassland area, China. The data are collected from 427 respondents through questionnaire survey. The findings indicated that social assets, geographical advantage, and 'production assets', which consist of natural, physical, and financial assets, have significant influences on pastoral households' current livelihood strategy but non-significant impacts on their future livelihood strategy. Human assets and informational assets significantly influence both current and future livelihood strategies of pastoral households. Also, Sun, et al., [13] in their study was determining the nature of the causal relationship between "social capital," as measured by household membership in formal and informal groups and household welfare in South Africa. Furthermore, Wenjing et al., (2020) conducted study on how livelihood assets contribute to sustainable development of smallholder farmers. Results indicate that Psycap can effectively promote the performance of Human capital (Humcap) and Physical capital (Phycap), with both significant direct and significant indirect effects on sustainable livelihoods; Phycap and Humcap have significant impacts on the new sustainable livelihood index.

6. Conclusion

The study examines the impact of sustainable livelihood assets (SLAs) on improving a household income in Zanzibar; on the basis of the four research questions, findings obtained and evidence presented it is concluded that**,** the influence of financial capital, human capital, social capital and physical capital on improving household income were in a positive direction. This situation indicates that the increase of scores in these predictor variables results in the increase of scores in the outcome. This condition entails that household who show or have high level of physical capital, financial capital, human capital and social capital tend to improve their income easily. Therefore, these findings provide the opportunities for household and other members in the family to improve their level of income by acquiring high level of physical capital, financial capital, human capital and social capital.

7. Recommendation

To examine the impact of sustainable livelihood assets (SLAs) on improving a household income in Zanzibar: a case study of North A district, the researcher recommended the following suggestions based on the finding of this study. Households should increase their human assets by educating the younger members of the households, this will enable their knowledge and skills to be improved and thus have the capability to work and produce financial asset and other assets that will enhance a sustainable livelihood outcome. Households should improve their participation in social activities such as religious groups, farmer’s organizations,

cooperatives etc., this builds membership and trust and enables people to help others solve their problems and as well share knowledge skills and ideas.

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