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Factors influencing the adoption of Sustainable livelihoods: a case study of smallholder cocoa farmers in the Eastern Region of Ghana

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Introduction

The amount of cocoa beans produced in Ghana has fluctuated over the years (Dormon, Huis, & Leeuwis, 2004). Over the past years, cocoa production has been a major economic activity for over 700,000 households in Ghana (Djokoto et al., 2016). The exportation of cocoa beans yields much income to the country, however, the quantity exported has not been fixed as the years go by. It either increases, decreases or stabilizes over the years (Dormon et al., 2004). The Eastern Region of Ghana is known to be cocoa's historical region with a great landscape and resources, allowing farmers to explore other avenues besides cocoa farming (Teye and Nikoi, 2021). The Ghana Cocoa Board in collaboration with World Cocoa Foundation (WCF), Sustainable Smallholder Agri-Business Program (GIZ), Crop Life, and the European Union have trained farmers in the Asamankese Cocoa District between 2010-2018 to provide them with basic business skills training and business services such as Beekeeping, Palm kernel oil extraction, Cassava processing, Palm Oil Extraction, Livestock, Poultry, Mushroom production, Snail rearing, Soap making, Ginger production, and off-farm activities. These skills and training are termed as Sustainable Livelihood Programmes (SLPs), which are aimed at boosting farmers' sources of income, food security, and assets acquisition (Witjaksono, 2021) therefore, this study sought to explore the factors that determine the adoption of SLP.

Material and Methods

To improve upon the quality of the phenomena under study, pragmatic research philosophy draws inferences from both the positivist and interpretivist philosophical approaches (Cameron, Mixed, & Sig, 2015). Since much is not known about SLP in the area under study, and there is not enough data to support this study, an exploratory research design was employed (Stebbins, 2019). The

study was carried out in the Asamankese Cocoa district because farmers have been consistently trained on SLP since 2010 hence, farmers know the concept and have practical skills. With Asamankese being a district capital in the Eastern Region of Ghana, the district has over 70% of its population as cocoa farmers. Out of the 2,892 farmers that were trained on SLP, 300, using the Krechie and Morgan sampling table were randomly selected for the study using the lottery method. Semi-structured questionnaires, interviews, observational checklists, and focus group discussions were the instruments used to gather primary data. Data collected was analyzed using Statistical Package for Social Sciences (SPSS version 24) and content analysis.

Binary Logistic regression was used to analyze the various factors that influenced SLP adoption. The responses of the farmers to the factors that influence their decision to adopt CSA were coded 1 adoption and 0 non-adoption. The regression model is stated below:

SLP=$\beta_0 + \beta_1 E_1 + \beta_2 E_2 + \beta_3 SC + \beta_4 P + \varepsilon i$

Where SLP represents Sustainable Livelihood Program adoption; E_1, Economic; E_2, Environmental, SC, Socio-cultural; P, Personal; I, Institutional, and ε the error margin.

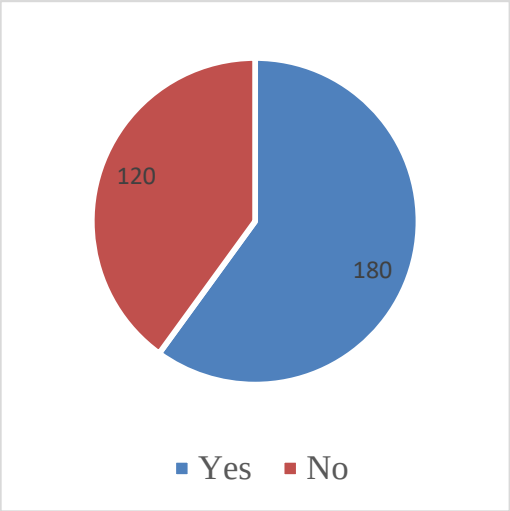
Results and Discussion

"*I have been farming for over 20 years and I can attest to the fact that for the past 5-10 years, cocoa production has been decreasing due to a lot of factors. This should let all cocoa farmers adopt an alternative source of income but we do not have the financial support"*

40-year-old farmer

At a Cronbach's alpha value of 0.81, it was revealed that there was an internal consistency among the benefits enlisted for farmers to determine whether they agreed or not. The high level of consistency among the benefits of SLPs is consistent with the aims of GIZ and the Ghana Cocoa Board on SLPs *(ESMS* , 2018). As presented in figure1, the majority (60%) of the respondents had not adopted Sustainable Livelihoods (SLs) at the time the study was conducted. This represents a greater portion of the population, leaving a smaller percentage (40%) to practice the programme.

Figure 1: Adoption of SLP



Various research conducted in the field of cocoa production between 2021 and 2022 has revealed a reduction in produce (TV3, Ghana) hence, a wakeup call for farmers to chance on alternative sources of livelihood. Although farmers are very familiar with the numerous benefits of adopting SLs (Table **1**), their rate of adoption seemed to be hindered by a lot more factors as shown in table 2.

"I am a cocoa farmer. I rear cattle and also process gari and palm nuts into finished products. In seasons where cocoa quality is low, we solely depend on these avenues as a means of survival. I have been able to save some money and take good care of my family as well. The training has been helpful"

45-year-old adopter

Table1: Benefits of Sustainable Livelihoods

Benefits of SLs	**Strongly agree**	**Agree**	**Neutral**	**Strongly Disagree**	**Disagree**
Improves assets acquisition	48	192	55	3	2
Sustainable use of natural resources	33	185	80	2	0
Improves farmers income	110	125	65	0	0
Source of employment	75	105	105	0	0

Cronbach's alpha = 0.81 *Standardized Cronbach's alpha = 0.81* *N of items = 4*

Source: Field Survey, 2022

Results from the Focus Group Discussion revealed that adopters of Sustainable Livelihoods (SLs) have been able to increase their level of income, increase food security, and livelihood at large. This finding is consistent with the findings of Djokoto et al., (2016) which revealed that farmers who adopt alternative sources of livelihood tend to increase their income, assets and social-wellbeing.

Table 2: Factors Influencing SLs adoption

Factors	B	Std. Error	Odds	Sign(p)
Environmental	0.13	0.05	1.62	0.002**
Economic	3.25	0.42	1.21	0.033**
Sociocultural	2.31	0.41	2.23	0.026**
Personal	0.8	0.41	1.12	0.017**
Constant	-0.01	-0.12	2.41	0**
Nagelkerke R^2= 0.41	*α=Dependent variable: SLs*	*df=7 Statistically significant at 0.01*, 0.05**, 0.10****		

Source: Field Survey,2022

A binary logistic model was employed to determine the various factors that hindered farmers' decisions and willingness to adopt it. Elements of the model include B which denotes unstandardized Beta which interprets the x and y relationship of the model. For a variable to be considered significant, the odd of the model should be more than 1, and P to be less than 0.05 as seen in the table above (Weniga Anuga, Gordon, Boon, & Musah-Issah Surugu, 2019). For instance, farmers who faced environmental challenges have a 16% chance of adopting SLs. R^2= 0.41 explains that the combined independent variables explain about 41% variation in SLP adoption.

Some of the economic factors the study revealed were: financial availability, demand for produce, access to labor, and access to inputs.

"*I wish I could rear either snails or livestock in addition to my cocoa farm but I do not have enough time to be attending to them all the time especially when it is the cocoa season"*

36-year-old farmer

Conclusions and Outlook

Adopters of SLs have been able to increase their income, food security, and livelihood as a whole. Farmers have admitted that cocoa production has decreased in time past and this is a reason enough for them to find alternative sources of income and livelihood. The findings of the paper revealed that farmers are aware of the various benefits of SLPs from the training and even from those who have adopted it. However, factors such as financial availability, state of land ownership, personal values on the environment, demand for time, and others were the various factors that hindered farmers' willingness and decision to adopt SLPs.

If farmers are given start-up capital by the government or NGOs, if they are taught how to balance their time both on-farm and off-farm, if free inputs are supplied and if many more factors hindering SLP adoption are considered, farmers would adopt SLs and not depend solely on cocoa production.

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