*Original Research Article*

Effect of Cocoa Certification Programme on Farmers' Compliance with Social Sustainability Issues in Cocoa Production in Osun State, Nigeria.

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ABSTRACT

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| **Aims:** This study investigated the effect of cocoa certification programmes on farmers’ compliance with social sustainability activities. The aim was to determine whether participation in certification schemes enhances social practices such as promoting education, preventing child labor, engaging in cooperative activities, and adopting inclusive employment policies**Study design:** A Quasi-experimental design was used, comparing participants and non-participants**Place and Duration of Study:** A cross-sectional study was conducted in 2024 using a multi-stage sampling procedure to select 111 cocoa farmers from five key local government areas in Osun State, Nigeria. **Methodology:** Data were collected through a structured interview schedule employing a 5-point Likert scale, with the instrument’s reliability confirmed by a Guttman coefficient of 0.81. T-test was used to determine the significance of the hypothesis at 0.05 level of significance.**Results:** The analysis revealed that farmers enrolled in the certification programme exhibited significantly higher social sustainability involvement compared to non-participants. Specifically, the mean involvement score for participating farmers was 36.36 ± 3.25, while non-participants scored 33.84 ± 5.53; the difference was statistically significant (t (109) = 2.99, p < 0.05). Furthermore, certified farmers consistently demonstrated stronger commitments in key areas: they scored higher on sending children to school (4.70 ± 0.55 vs. 4.26 ± 1.15) and on the prevention of child labor (4.51 ± 0.59 vs. 4.06 ± 1.22). Enhanced participation in cooperative meetings and more inclusive employment practices were also observed among certification programme participants.**Conclusion:** In conclusion, the study provides robust evidence that cocoa certification programmes positively influence farmers’ engagement in social sustainability practices. It is recommended that policymakers and stakeholders expand access to certification and training programmes to improve participation among non-certified farmers, thereby fostering greater adherence to ethical labor practices and broader socio-economic development within the cocoa farming sector. |

*Keywords:* Cocoa certification; Social sustainability; Child labor prevention; Inclusive employment; Cooperative participation*; SDGs 8,10 & 12.*

1. INTRODUCTION

Cocoa is an important tropical and perennial crop whose seed (bean) is generally consumed across the globe. It is one of the most consumed soft commodities globally. It is an important raw material in the beverage, confectionary, cosmetics and pharmaceutical industries (Aural *et al*., 2023). In the equatorial tropical regions, cocoa is ranked as one of the highest income-generating cash crops amongst other crops like coffee, tea and sugar cane, cocoa contributes significantly to the economic growth of cocoa-producing country’s agricultural sector (Suh and Molua, 2022). Globally, in the last 15 years, there has been a continual increase in the demand for cocoa beans and its bi-products such as chocolates and cocoa butter. This increase in demand for cocoa supports the need to increase production and the value of the crop to local economies and intensification of research in this area (Ombelet et al, 2024). Worldwide, about 95% of cocoa is grown on smallholder farms ranging from 2-5 hectares (Ndohnwi & Molua, 2022), and employing about 5 to 6 million cocoa farmers from Asia, Africa, Oceania, and Latin America (Suh and Molua, 2022).

Agricultural certification programs have emerged as a critical instrument in promoting sustainable agricultural practices and enhancing farmers' livelihoods worldwide. These programs, such as Rainforest Alliance, Fairtrade, and UTZ, aim to improve environmental conservation, social equity, and economic viability in agricultural production. Cocoa certification, in particular, has gained prominence in Nigeria, the fourth-largest producer of cocoa globally, as a mechanism to address socio-environmental concerns while improving farmers' access to premium markets (ICCO, 2023). Certification schemes introduce standards that emphasize environmentally responsible farming, child labor elimination, fair wages, and community development (Liu et al. 2004, Raynolds, 2018). However, the extent to which these programs influence farmers' participation in socio-environmental activities remains an area of ongoing empirical inquiry.

In Osun State, Nigeria’s second largest cocoa-producing state, the implementation of certification programs has expanded over the past decade. Certification requirements often mandate practices such as agroforestry adoption, integrated pest management (IPM), soil fertility enhancement, biodiversity conservation, and community development initiatives (Uribe & Ruf (2019). Farmers participating in these programs receive technical training, financial incentives, and access to international markets, which theoretically should enhance their engagement in social sustainability activities. However, the actual impact of certification on this remains unclear due to varying levels of compliance, differential access to resources, and socio-economic constraints among cocoa farmers (Oduntan & Adegbuyi 2023).

Despite the theoretical benefits of certification, previous studies have reported mixed outcomes. While some research indicates that certification significantly improves environmental stewardship and social welfare (Liu et al. 2004, Raynolds, 2018, Guan et al, 2022), other studies suggest that the financial benefits are marginal, leading to limited motivation for farmers to fully adhere to socio-environmental requirements (Was et al, 2021). In Nigeria, existing literature primarily focuses on certification’s economic implications, such as income enhancement and market access (Fausiyat et al., 2023, Oduntan & Adegbuyi, 2023). There has been a paucity of information on the socio-environmental involvement of farmers.The study, therefore, investigated the effect of the certification programme implemented by WACOT limited Nigeria on farmers’ involvement in social sustainability activities. Specifically, it determined the level of involvement of participating and non-participating farmers in social sustainability activities. A hypothesis, stated in the null form, was tested in the study at the 0.05 level of significance.

Ho1: There is no significant difference in the level of involvement of participating and non-participating farmers in social sustainability activities.

**Theoretical framework**

Theories that underpin this study include the social action theory. This is a sociological perspective that focuses on how individuals create and maintain their social reality through their actions and interactions with others. It emphasizes the agency of individuals in shaping their social environment and the importance of understanding their motivations, beliefs, and values (Fatah, 2024). When applied to farmers' social and environmental activities, Social Action Theory can help explain why and how farmers engage in certain behaviors related to sustainability, conservation, and community development. It recognizes that farmers are not passive recipients of external influences but active agents who make conscious choices based on their own interests, values, and understandings (Darnhofer et al., 2005, Bayissa, 2019). For example, farmers may engage in social and environmental activities such as adopting sustainable farming practices, participating in community-supported agriculture programs, or joining farmer cooperatives. Social Action Theory would suggest that farmers do so because they perceive these actions to be in line with their personal values, economic interests, or social connections.

The theory of planned behavior is another theory that explains why farmers may be involved in social-environmental activities. The theory according to Ajzen (1991) hinges on the fact thathuman behavior is guided by three kinds of considerations: beliefs about the likely consequences of the behavior (behavioral beliefs), beliefs about the normative expectations of others (normative beliefs), and beliefs about the presence of factors that may facilitate or impede performance of the behavior (control beliefs). In their respective aggregates, behavioral beliefs produce a favorable or unfavorable attitude toward the behavior normative beliefs resulting in perceived social pressure or subjective norm; and control beliefs give rise to perceived behavioral control or self-efficacy. As a general rule, the more favorable the attitude and subjective norm, and the greater the perceived control, the stronger should be the person’s intention to perform the behavior in question, given a sufficient degree of actual control over the behavior, people are expected to carry out their intentions when the opportunity arises. Intention is thus assumed to be the immediate antecedent of behavior. To the extent that perceived behavioral control is veridical, it can serve as a proxy for actual control and contribute to the prediction of the behavior in question. This suggests that farmers' attitudes, perceptions of social norms, and perceived behavioral control can influence their intention and willingness to engage in cocoa certification programme and adopt good social and environmental activities.

2. methodology

The research was conducted in Osun State, Nigeria. Osun State, located in the southwestern region of Nigeria, is a key agricultural hub, particularly for cocoa production. Established on August 27, 1991, the state consists of 30 Local Government Areas (LGAs), several of which are renowned for their significant contributions to cocoa farming (Osun State Government, 2023). Osun State plays a crucial role in Nigeria’s cocoa industry and is the second largest producer of cocoa in Nigeria (Futures Agriculture, 2020). The state serves as a focal point for WACOT’s certification programme, which promotes sustainable agricultural practices.

Osun State is geographically positioned between latitude 7°30′N and 8°10′N and longitude 4°00′E and 5°05′E (Figure 1). It shares borders with: Kwara State to the north; Ekiti State to the east, Ogun State to the south, and Oyo State to the west (Osun State Government, 2023). The state's tropical climate, characterized by abundant rainfall and moderate temperatures, creates a conducive environment for cocoa cultivation. The soil in Osun is rich and well-drained, providing optimal conditions for high-yield cocoa farming. Osun State is characterized by a humid tropical forest climate, boasting an annual rainfall of approximately 1500-2000mm and a mean annual temperature of 26°C. The climate is punctuated by two distinct seasons: rainy and dry, which are conducive for the cultivation of a wide range of food and cash crops. The region is covered by a mix of tropical rainforest and savanna vegetation, which supports the growth of cocoa trees and other cash crops

Several Local Government Areas in Osun State are recognized for their significant contributions to cocoa production. These include:Ife Central, Ife East, Ilesa East, Ilesa West, Odo Otin, Oriade, and Obokun. These LGAs are known for their fertile lands, favourable climatic conditions, and longstanding traditions of cocoa farming.



**Figure 1: Map of the study area showing the selected local government**

**Source: Author, 2024**

**Sampling Procedure and Sample Size**

The population of the study comprised of men and women cocoa farmers in the study area. The study employed a multi-stage sampling procedure to select participants (see Table 1). The selection process was designed to ensure the representation of prominent cocoa-producing areas with substantial farmer involvement in cocoa certification programs.

**Stage One: Selection of Local Government Areas (LGAs)**

Five (5) local government areas (LGAs) were purposefully selected from a total of thirty (30) LGAs. These selections took into account the significance of cocoa production within these areas and the high level of farmer participation in cocoa certification programs. The LGAs selected includes Ife South, Ife North, Ife East, Atakunmosa West, and Atakunmosa East.

**Stage Two: Selection of Communities**

In the second stage, two (2) communities were purposively selected from each of the previously chosen five (5) LGAs. This resulted to a total selection of 10 communities.

**Stage Three: Selection of Cocoa Farmers**

The third stage involved the random selection of ten percent (10%) of the certified cocoa farmers from the list obtained from WACOT Limited and five (5) non-participating cocoa farmers from each of the selected ten (10) communities. This process yielded a total sample size of one hundred and eleven (111) farmers for the study. WACOT Limited, a prominent player in Nigeria's agricultural sector, has made significant strides in promoting sustainable cocoa farming practices. Established as part of the Tropical General Investments (TGI) Group, WACOT Cocoa Division began operations in 2015 and has quickly become a leading exporter of certified sustainable and conventional Nigerian-origin cocoa beans (WACOT, 2023). WACOT has formed a strategic alliance with Cocoasource, a Swiss commodity trading company, to supply Rainforest Alliance Certified Cocoa to global bean processors and chocolate manufacturers

**Table 1:** Sampling procedure of respondents in the study area.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Selected LGA | Selected Farming Communities  | Number of Certified cocoa Farmers | 10% of Certified Farmers to be Selected | Number of Nonparticipating Farmers to be Selected | Sample Size Per Community  |
| Ife South | IsoyaAkeredolu | 5960 | 66 | 55 | 1111 |
| Ife East | ErefeAba-Joshua | 5483 | 58 | 55 | 1013 |
| Ife North | ObiriOnisoro | 5060 | 56 | 55 | 1011 |
| Atakunmosa West | OdesomiBalogun | 5750 | 65 | 55 | 1110 |
| Atakunmosa East | Amuye TobaIlutuntun | 5977 | 68 | 55 | 1113 |
|  |  |  |  |  |  |
| 5 | 10 | 609 | 61 | 50 | **111** |

**Source: Field Survey, 2024**

Primary data was used in the research. The primary data was obtained with the aid of a well-structured interview schedule, copies of which were administered to respondents in the course of the study. The instrument of the study was subjected to face validity and content validity to ascertain that the instrument measures what it supposes to measure. Expert in the field of Agricultural Extension and Cocoa Certification programmes were consulted to examine and review the instrument and thereafter, corrections made was used in adjusting the instrument.

The study's dependent variable was the respondents’ level of compliance with social sustainability activities. This was operationalised by presenting respondents with 8 statements and asking them to respond on a 5-point Likert scale of Always = 5, Most times =4, occasionally = 3, rarely = 2, and never = 1. The instrument's reliability was 0.81, which was determined through the split-half method using the Guttmann coefficient.

3.0 Results and discussion

**3.1 Respondents’ Involvement in social sustainability issues in cocoa production**

Social sustainability in cocoa production centers on ethical labor practices, education access, employment inclusivity, and active participation in social institutions such as cooperatives and training programs. The study’s mean values (Table 2) offer insight into farmers’ engagement and allow comparisons with existing literature on sustainability in cocoa production.

### 3.1.1 Education and Child Labor Practices

Certified farmers show a stronger and more consistent commitment to education and child labor prevention. For example, the mean score for “I send my children to school” is 4.70 ± 0.55 for participants versus 4.26 ± 1.15 for non-participants. Similarly, for the statement “I don’t employ or use anyone whose age is below 18 years to work on my farm,” participants reported a mean of 4.51 ± 0.59, compared to 4.06 ± 1.22 among non-participants. The lower standard deviations among participants indicate more uniform adherence to ethical labor practices, suggesting that certification programs reinforce these norms and help break the cycle of child labor and poverty (Barrientos & Asenso-Okyere, 2009; Tulane University, 2015; ILO, 2020).

Overall, the statement “I send my children to school” achieved the highest mean score of 4.91 ± 0.29, reflecting an overwhelmingly strong commitment to children’s education among cocoa farmers. Likewise, the high mean for not employing underage workers (4.50 ± 0.90) reinforces the general adherence to ethical child labor practices, though the standard deviation hints at occasional variations that may be influenced by economic pressures.

### 3.1.2 Participation in Social Institutions and Training

Differences in participation levels are evident when comparing certified and non-certified farmers. For cooperative or farmers association meetings, participants scored 4.36 ± 1.10 compared to 3.64 ± 1.63 for non-participants. This significant difference suggests that certification programs provide incentives that encourage active engagement in cooperative structures. In contrast, attendance at training on cocoa certification programs is somewhat lower overall, with a mean of 4.04 ± 1.42 and notable variability, indicating inconsistencies in participation that could be due to logistical or access challenges.

In general, the mean score for attending cooperative or farmers association meetings is relatively high at 4.37 ± 0.86, reflecting a robust participation rate among cocoa farmers. While training on cocoa certification programs shows a lower mean and higher standard deviation, it still underscores the overall importance placed on gaining technical and organizational support within the farming community (Bitzer et al., 2013).

### 3.1.3 Employment and Inclusivity Practices

Certified farmers tend to demonstrate slightly higher adherence to inclusive employment practices. For hiring workers, participants reported a mean of 4.52 ± 0.64 compared to 4.24 ± 0.76 for non-participants. Likewise, for the practice of employing any tribe, participants scored 4.54 ± 0.56 versus 4.16 ± 0.95 for non-participants. For gender inclusivity, the mean score for employing any gender was 4.39 ± 0.66 among participants, compared to 4.24 ± 0.95 for non-participants. These small differences suggest that while certification programs may reinforce inclusivity, many non-participants already embrace diverse hiring practices.

The overall high mean scores for employment practices—such as “I hire workers to work for me on my farm” (4.39 ± 0.74) and providing time for rest (4.32 ± 0.81)—indicate a widespread recognition of fair labor practices and worker well-being among cocoa farmers. The relatively low standard deviations further suggest consistency in these practices across the respondent pool, supporting previous findings that emphasize open and inclusive employment in cocoa production (Kolavalli & Vigneri, 2011).

The findings indicate that while both certified and non-certified cocoa farmers engage in social sustainability activities, participation in certification programs appears to enhance the consistency and intensity of these practices. Stronger adherence among certified farmers—across education, child labor prevention, cooperative participation, and inclusive employment—underscores the positive role that structured training and certification incentives play in fostering social responsibility. Expanding access to certification and targeted training may help bridge existing gaps and further improve social sustainability in the cocoa farming sector (Fountain & Hütz-Adams, 2018).

**Table 2: Level of Respondents’ Compliance to social sustainability practices in cocoa production**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Social practice |  | AlwaysF (%) | Most times F (%) | OccasionallyF (%) | RarelyF (%) | NeverF (%) | Mean  |
| I send my children to school | NPP | 29 (58.0%)46 (75.4%) | 14 (28.0%)12 (19.7%) | 1 (2.0%)3 (4.9%) | 3 (6.0%)0 (0.0%) | 3 (6.0%) 0 (0.0%) | 4.26 ± 1.15 4.70 ± 0.55 |
| I don’t employ or use anyone whose age is below 18 years to work on | NPP | 23 (46.0%) 34 (55.7%) | 18 (36.0%)24 (39.3%) | 3 (6.0%) 3 (4.9%) | 1 (2.0%) 0 (0.0%) | 5 (10.0%)0 (0.0%) | 4.06 ± 1.224.51 ± 0.59 |
|

|  |
| --- |
| I attend cooperative or farmers association meetings |
|
|
|

 | NPP | 23 (46.0%)37 (60.7%)  | 12 (24.0%)19 (31.1%) | 1 (2.0%)0 (0.0%) | 2 (4.0%) 0 (0.0%) | 12 (24.0%) 5 (8.2%) | 3.64 ± 1.63 4.36 ± 1.10 |
| I attend trainings on cocoa certification programme | NPP | 27 (54.0%)31 (50.8%) | 16 (32.0%)26 (42.6%) | 4 (8.0%)4 (6.6%) | 3 (6.0%)0 (0.0%) | 0 (0.0%)0 (0.0%) | 4.34 ± 0.86 4.44 ± 0.61 |
| I hire workers to work for me in my farm | NPP | 21 (42.0%)36 (59.0%) | 21 (42.0%)22 (36.1%) | 7 (14.0%)2 (3.3%) | 1 (2.0%)1 (1.6%) | 0 (0.0%) 0 (0.0%)  | 4.24 ± 0.76 4.52 ± 0.64 |
| I employ any tribe to work for me in my farm | NPP | 21 (42.0%) 35 (57.4%) | 21 (42.0%)24 (39.3%) | 4 (8.0%)2 (3.3%) | 3 (6.0%)0 (0.0%) | 1 (2.0%)0 (0.0%) | 4.16 ± 0.95 4.54 ± 0.56 |
| I employ any gender to work for me in my farm | NPP | 27 (54.0%) 30 (49.2%) | 11 (22.0%)25 (41.0%) | 9 (18.0%)6 (9.8%) | 3 (6.0%)0 (0.0%) | 0 (0.0%)0 (0.0%) | 4.24 ± 0.95 4.39 ± 0.66 |
| I give my workers time to rest or attend to personal issues during working hours | NPP | 33 (66.0%) 36 (59.0%) | 12 (24.0%) 20 (32.8%) | 4 (8.0%)5 (8.2%) | 1 (2.0%)  0 (0.0%) |  0 (0.0%) 0 (0.0%) | 4.54 ± 0.73 4.51 ± 0.64 |

Source: Field Survey, 2024

Figure 2: Summary Level of Compliance of respondents to social sustainability practices in cocoa production

Source: Field Survey, 2024

The findings of the study indicates that cocoa farmers in Osun State have a strong commitment to social sustainability issues, particularly in ensuring child education, preventing child labor, engaging in cooperative activities, and practicing inclusive employment policies. The relatively high mean scores across the various indicators reinforce the notion that certification programs play a crucial role in fostering social responsibility in cocoa farming. However, variations in participation in training programs suggest a need for more structured and accessible training opportunities to ensure uniform compliance with certification standards.

These findings align with global research (UTZ, 2019; Fairtrade International, 2021), which highlights the positive impact of cocoa certification programs on labor rights, worker welfare, and social inclusion. Efforts should therefore be made to sustain and enhance these positive trends by addressing barriers to training participation and ensuring continuous engagement in cooperative activities

**3.1.4 Comparing Compliance Level on Social Sustainability Practices between Participating and Non-Participating Farmers**

The t-test analysis examined whether there was a statistically significant difference between the level of involvement in social sustainability issues among participating and non-participating farmers. The results provide critical insights into the impact of participation in sustainability programs (such as training sessions, certification schemes, and cooperative membership) on farmers’ social sustainability engagement.

The mean social sustainability involvement score for participating farmers (farmers engaged in certification programs) is 36.36 ± 3.25, while for non-participating farmers, it is 33.84 ± 5.53. This difference suggests that participating farmers have a higher level of social sustainability compliance than their non-participating counterparts. The lower standard deviation (3.25) for participating farmers indicates less variability in their involvement levels, suggesting that most participating farmers are consistently engaged in socially sustainable practices. In contrast, the higher standard deviation (5.53) for non-participating farmers suggests greater variability, indicating that while some non-participants may be involved, others have very low engagement.

The independent samples t-test was conducted under two assumptions:

* Equal variances assumed: t (109) = 2.99, p = 0.00
* Equal variances not assumed: t (75.68) = 2.85, p = 0.00

Since the p-value (0.00) is less than 0.05 on both assumptions, we reject the null hypothesis (H₀) and conclude that there is a statistically significant difference between the social sustainability involvement of participating and non-participating farmers. The significant difference in social sustainability involvement between the two groups suggests that training, certification programs, and cooperative participation positively influence farmers' commitment to socially responsible practices. Asare et al. (2013) found that farmers who participated in sustainability programs, especially certification schemes such as UTZ and Rainforest Alliance, were more likely to avoid child labor, promote gender equality, and support workers' rights. Kolavalli & Vigneri (2017) reported that cooperative membership increases farmers' likelihood of sending their children to school, a key indicator of social sustainability. Baah et al. (2021) highlighted that participation in farmer training programs significantly improved labor conditions and adherence to ethical employment practices. The findings align with the present study, as participating farmers scored higher on social sustainability involvement compared to their non-participating counterparts. The results emphasize the importance of farmer cooperatives and institutional support in fostering social sustainability practices. Participation in cooperatives has been shown to improve farmers' access to knowledge on best labor practices (Mwangi et al., 2019) and increase adherence to ethical employment standards, including gender inclusivity and the avoidance of child labor (Osei & Abdulai, 2020).

The higher standard deviation (5.53) among non-participating farmers indicates a wider range of commitment levels, meaning some non-participants may still practice socially sustainable behaviors, while others do not. This variability could be explained by factors such as personal values and traditional norms. Some farmers may uphold ethical labor practices due to cultural beliefs rather than participation in formal sustainability programs (Adjah & Osei, 2018).

The study provides strong evidence that participation in sustainability programs enhances farmers' social sustainability involvement. The statistically significant t-test results confirm that engagement in training, cooperatives, and certification programs plays a critical role in shaping farmers’ adherence to socially responsible practices.

**Table 3: Difference between the level of involvement of participating farmers and non-participating farmers in social sustainability issues in cocoa production**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Social Sustainability Compliance |  | N | Mean  | SD | F  | T | Df | Sig  |
|  | Participating farmers | 61 | 36.36 | 3.25 | 22.63 |  |  |  |
|  | Non Participating farmers | 50 | 33.84 | 5.53 |  |  |  |  |
| Equal Variances assumed  |  |  |  |  |  | 2.99 | 109 | 0.00 |
| Equal Variances assumed not assumed  |  |  |  |  |  | 2.85 | 75.68 | 0.00 |

4. Conclusion

This study examined the effects of cocoa certification programs on farmers’ compliance to social sustainability practices in Osun State, Nigeria. The findings reveal that participation in certification programs significantly enhanced farmers’ adherence to socially sustainable agricultural practices as certified farmers demonstrated higher engagement in labour ethics, equality and labor standards compliance compared to non-certified farmers.

Consent (where ever applicable)

All authors declare that verbal informed consent was obtained from the respondents before the interview.

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