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Effects of community development programme's initiative on livelihood activities of rural dwellers in Ondo state, Nigeria

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ABSTRACT

This study examines the effects of the 3i's Initiative on the livelihood activities of rural dwellers in Ondo State, Nigeria. Focus groups, key informant interviews, and well-structured questionnaires were used to gather primary data. A sample size of 180 respondents was selected using a multi-stage sampling technique. The results reveal significant community involvement and ownership in the initiative's projects. Notably, 91.7% of respondents reported that community members made project choices, indicating the presence of a Project Management Committee (CPMC) in the communities and successful community engagement in decision-making procedures. The significance of community-driven development is underscored by the study, as participants show contentment in actively spearheading initiatives that have a direct impact on their lives. Livelihood activities were positively impacted, with substantial engagement in food production (73.3%), livestock production (20.0%), and craft/artisan work (18.9%). Infrastructure improvements, such as water supply and training, were noted to enhance productivity and health, thereby increasing overall crop production and profitability. The study underscores the effectiveness of participatory approaches in rural development, advocating for continued community involvement to ensure the sustainability and success of development projects.

Keywords: Community-driven, infrastructure, rural livelihoods, participatory approach, Nigeria

1. INTRODUCTION

The concept of livelihood encompasses a broad range of activities, assets, and access points that collectively determine the living standards of rural households. According to Ellis and Allison, (2004), a livelihood is sustainable when it can meet immediate needs without compromising future capacities. This definition extends beyond economic activities to include social and cultural resources, such as information, cultural knowledge, social networks, and legal rights. Rural communities often face significant challenges in sustaining their livelihoods. People participate in a variety of activities in different countries to meet basic needs like clothing, food, and shelter, as well as to accomplish social and self-actualization objectives (Whitehead, 2000). Livelihood activities are multifaceted, encompassing income-generating tasks and health, educational, social, and faith-based activities (Sanderson, 2000; Olawoye, 2001).

However, corruption, poor management, and poor planning have frequently hampered rural development efforts in Nigeria (Odalonu, 2022). Top-down methods, in which elites make decisions without fully taking into account the socioeconomic conditions of target groups, are frequently blamed for the failure of numerous development projects in Nigeria. Inconsistent policies and poor governance have made these problems worse, impeding the effectiveness of community-driven development programs and making rural poverty worse (Fonchingong-Che, 2024). Despite these challenges, regional economic development strategies that involve collaboration among regional stakeholders have been identified as potent tools for achieving sustainable poverty reduction and rural transformation (Sam, 2014).

The 3i's Initiative, launched by the Ondo State Government, aims to address these issues through a participatory community-driven development approach. This initiative focuses on rural and community development by engaging local communities in decision-making processes and project implementation. As a catalyst, the government's job is to provide the conditions necessary for individuals to take charge of their growth (Jibrin et al., 2021). Improving rural infrastructure and investing in the agricultural sector are recommended strategies to empower rural residents and alleviate poverty in Nigeria's rural areas (Monisola and Oluwatosin, 2023). Moreover, community-driven development initiatives may be more successful if they concentrate on creating economic prospects for rural adolescents rather than just social amenities (Asemah et al., 2013).

Additionally, public policies on rural economic development must be community-driven to accelerate rural development and enhance the engagement of rural dwellers (Oghenekohwo and Berezi, 2017). Despite the critical importance of sustainable livelihood activities for rural development, many initiatives have failed due to the lack of community involvement and the imposition of externally determined solutions. The failure of development projects in the past has led to a significant waste of resources and has left rural communities without the improvements needed to enhance their quality of life. This study focuses on the 3i's Initiative—a community development program implemented by the Ondo State Government, Nigeria, which employs a participatory community-driven development approach. This study addresses several gaps in the existing body of knowledge regarding rural development programs.

First, previous studies have highlighted the need for community involvement in development projects. However, there is limited empirical evidence on the effectiveness of participatory approaches in rural Nigeria. This study will investigate the extent to which the 3i's Initiative has successfully involved community members in decision-making processes and project implementation. Second, there is a lack of information regarding the true effects of the numerous programs that have been put in place to enhance rural livelihoods. This study will assess the effects of the 3i's Initiative on the livelihood activities of rural dwellers, providing concrete evidence of its outcomes. Third, the sustainability of development projects remains a significant challenge. This research will look at the sustainability mechanisms included in the 3i's Initiative and assess how well they work to guarantee the communities' long-term gains.

Lastly, many development programs focus narrowly on economic activities. To give a thorough assessment of the 3i's Initiative's contributions to rural development, this study will examine the initiative's larger implications, encompassing social, health, and educational elements. Based on this, the study conducts an empirical assessment of how the community development program's initiative has affected rural residents' livelihood activities in Ondo State, Nigeria. The study specifically describes explicitly the awareness and approach employed for initiating the project in the study area, identifies the livelihood activities of the respondents, and determines the effects of the projects on the livelihood activities in the study area.

Operational Modalities of the 3i's Initiative

Three main pillars form the framework of the 3i's Initiative: industry, institutions, and infrastructure.

Infrastructure

The infrastructure component focuses on providing essential infrastructure to communities. Recognizing that each community has unique and competing needs, the initiative emphasizes the importance of allowing the communities themselves to prioritize their most pressing needs. Teams were sent out to interact with the community, doing needs analyses and exercises in prioritization to assist them in determining the projects that were most important to them. These projects, known as 'Quick-Win' Confidence Building Projects, aim to foster trust and confidence in the development programs by addressing immediate and high-priority needs.

Institution

The institution aspect of the initiative acknowledges that no single government, regardless of its benevolence, can fulfill all the needs of its people. Therefore, the initiative focuses on identifying and strengthening existing community institutions. Four representatives from each community, alongside local leaders, were chosen to represent these institutions. The growth of the community is the responsibility of these representatives. They undergo training in various areas, including community-driven development, community engagement, project identification, financial management, project monitoring, and supervision. This training equips them to effectively lead and manage development projects, ensuring their long-term success and sustainability.

Industry

The industry component addresses the issue of rural-urban migration by promoting job creation and wealth generation within rural areas. To do this, communities are grouped into clusters, and within each cluster, possible micro-industries that are viable are identified. The industries chosen are determined by how close they are to one another and by the accessibility of raw materials in the surrounding areas. By fostering the development of local industries, the initiative aims to create employment opportunities and stimulate economic growth, thereby reducing the incentive for rural inhabitants to migrate to urban areas.

2. MATERIALS AND METHODS

Study area

This research was conducted in Ondo State, Nigeria. Established on 3 February 1976, Ondo State was originally part of the former Western State and included the area now known as Ekiti State until its secession in 1996. To the west, the state borders Ekiti and Kogi, the states of Osun and Ogun, respectively. The Atlantic Ocean is situated to the south, the states of Delta and Edo to the east, and the north. According to the National Population Commission, Ondo State has a population of approximately 3,441,024 and covers a total area of 15,500 square kilometers. The state is split up into three geopolitical zones, Ondo North, Ondo Central, and Ondo South, and eighteen Local Government Areas (LGAs). Ondo State experiences a tropical climate with consistently high temperatures throughout the year, heavy rainfall during the rainy season (April to October), and dry winds during the dry season (November to March).

Annual temperatures range from 21°C to 29°C with high levels of humidity (Omonijo et al., 2023; Olubunmi-Ajayi et al., 2023). The state's northern parts receive roughly 1,150 mm of yearly precipitation, while the southern regions receive up to 2,000 mm. Due to the favorable geographical and climatic conditions, approximately 75 percent of the population is engaged in agriculture. The rural areas of Ondo State host a significant portion of the population engaged in various livelihoods such as crop cultivation, animal husbandry (including fish and poultry), handicrafts, logging, wood processing, food processing, trading, hunting, and fishing. The state's population professes three main religions: Christianity, Islam, and African traditional religions, with Christianity being the most widespread. Furthermore, a large number of people belong to different social groupings, such as merchant, artisan, religious, and farming groups (Adeyeye et al., 2024). These groups are essential for the rapid dissemination of information within the community.

Data collection, sources, and sampling techniques

This research used primary data collection through several methods. Primary data was collected using a well-structured, pre-tested, reliable, and validated questionnaire. Furthermore, qualitative techniques including Key Informant Interviews (KII) and Focus Group Discussions (FGD) were applied. A multistage sampling technique was employed to select respondents randomly. In the beginning, two local government areas (LGAs) were chosen at random from Ondo State's three geopolitical zones: Ondo North, Ondo Central, and Ondo South. This produced six LGAs. In the second phase, two communities involved in the program were purposively selected from each of the selected LGAs, resulting in 12 communities. Stratified sampling was used in the third step, dividing each community into four wards. Three wards were randomly selected from each community, and five respondents were randomly selected from each ward. This selection process resulted in 180 respondents for the study.

Analytical techniques

Both descriptive and inferential statistical techniques were used to analyze the data. Descriptive statistics included frequencies, percentages, graphs, and means. The study's hypotheses were tested using inferential statistics and methods including the Pearson Product Moment Correlation (PPMC) and Chi-square test.

Chi-square Test

The first hypothesis (Ho1) stated that there is no significant association between the socio-economic characteristics of the respondents and their livelihood activities. Equation 1 was used to evaluate this hypothesis using the Chi-square test.

$$\chi^2 = \sum_{i=1}^{k} \frac{(O_i - E_i)^2}{E_i} \quad \text{..... (1)}$$

Where: -

$\chi 2$ = Chi-square

Oi = Observed frequency

Ei = Expected frequency

K = Total number of cells (category)

$\sum$ = Summation

Pearson Product Moment Correlation (PPMC)

Ho2: There is no significant relationship between the level of participation in 3i's initiative projects and the livelihood activities of the respondents. This hypothesis was tested using PPMC, and the equation is stated in Equation 2.

$$r_{xy} = \frac{N\sum XY - \sum X \sum Y}{\sqrt{(N\sum X^2 - (\sum X^2))(N\sum Y^2 - (\sum Y^2))}} \quad \text{..... (2)}$$

Where: -

X = Independent variables

X2 = Square of the score on independent variables

Y = Dependent variables

Y2 = Square of the score on dependent variables

XY = Product of X and Y

$\sum$ = Summation of score

N = Number of scores

3. RESULTS AND DISCUSSION

Awareness and Approach Used to Execute the 3i's Initiations

Presence of Project Management Committee

Table 1 shows that the respondents agreed that the communities' initiatives are overseen by a project management committee. 91.7% of the respondents had four members of the Community Project Management Community (CPMC). Only 8.3% of the respondents claimed they had less than four people as CPMC members. However, from the focus group discussion with participants in all the communities, it was gathered that the 3i's Initiative recommendation is 4 persons per community for effective management of the

projects. Also, at least a female should be represented within the committee. In comparison, probing those with less than 4 CPMC members, the response was that the project in the community was abandoned. As a result, some of the CPMC members had left since they had nothing to manage.

Table 1 Distribution of Respondents According to Presence of Project Management Committee

Committee	Frequency	Percentage (%)
< 4	15	8.3
4	165	91.7
Total	180	100.0

Decision-Making Process as Regards 3i's Initiative

The decision-making process result showed that, according to Table 2, 91.7% of the respondents, decisions about which project to take on in the communities were made by community members, while only 8.3% said that certain community members, such as the village chief, decided for the project to be taken on. The communities' residents conveyed their happiness and contentment at having a say in the initiatives that impact them. This is not how it used to be when they were forced to participate in projects and programs. In a specific community, when questioned one-on-one about the decision-making process for chosen projects, the community members stated they were unable to express their opinions during the Participatory Rural Appraisal (PRA) because they did not want to disagree with the King. They said the project (open market stalls with water facilities) was the decision of some selected community members and the village head, which is why it was being abandoned. Therefore, it is advisable, and more appropriate to employ individual contact during Participatory Rural Appraisal (PRA) to know the felt needs of people, especially women.

Table 2 Distribution of Respondents According to Decision-Making Procedure

Procedure	Frequency	Percentage (%)
3i's Officials	0	0
Members of the Community	165	91.7
Selected members of the community	15	8.3
Total	180	100.0

Stages of Involvement in Projects

As indicated in Table 3, all the respondents were involved in various stages of the projects. They were all at the community meeting; 91.1% contributed to decisions made at such meetings; 88.9% were involved in the initiation of the projects decided upon; 85.6% of the respondents were involved in the planning of the projects; and 83.9% were involved in the implementation. Ninety-seven percent of the respondents contributed land in kind, while none of the respondents gave any money in cash or labor and supplies in kind. This is because the goal of the 3i's initiative project was to provide communities with 100% financial support as well as manpower and materials. Only land can be donated by the community members where needed. 50.6% were involved in the monitoring and evaluation stage while 70% of the respondents were involved in the sustainability of the projects.

Table 3 Distribution of Respondents According to Stages of Involvement in 3i's Projects

Stages of Participation	Frequency	Percentage (%)
Attendance at Community Meeting	180	100.0
Decision making	164	91.1
Initiation of Projects	160	88.9
Planning	154	85.6
Implementation	151	83.9
Contribution of land (in kind)	165	91.7
Monitoring	91	50.6

Evaluation	91	50.6
Sustainability	126	70.0

Note: *Multiple Responses

Source of Awareness of 3i's Initiative Projects

The information sources used by respondents on 3i's initiative community development projects are displayed in (Table 4). 66.1% of the respondents got their information from the 3i's officials, only 7.2% got their information from the radio, 1.1% received the information via the television, 8.9% and 4.4% received the information from friends and relatives respectively in comparison, 12.2% acquire the information through group discussion. The study revealed that the majority of the respondents received information on 3i's initiative projects through the visitation of the 3i's officials, followed by group discussions. This shows the importance of various groups in information dissemination on community development projects. During the focus group discussion with the respondents, it was revealed that the 3i's officials came into the group to disseminate information about the project. During the PRA, they were present in the community. For this reason, most people received their knowledge from the officials.

Table 4 Distribution of Respondents According to Source of Awareness of 3i's Initiative Projects

Source of Awareness	Frequency	Percentage (%)
3i's Officials	119	66.1
Radio	13	7.2
Television	2	1.1
Friends	16	8.9
Relatives	8	4.4
Group discussion	22	12.2
Total	180	100

Types of Projects Implemented by Respondents' Communities

All the programs executed by 3i's initiative are community-based (Table 5). This indicated that 3i's initiative is a community-based program. This is in line with its operational procedure which stipulates that "the main beneficiaries of 3i's initiative will be communities with identified needs".

Table 5 Distribution of Communities According to the Type of Project Implemented

Name of Community	Type of Project Implemented
Aponmu	Community Hall and water
Abusoro	Electricity
Isinigbo	Health Facility and water
Igoba	Open market stalls and water
Ilalekeji	Garri processing industry and water
Ehinogbe	Garri processing industry and water
Owani	Health Facility and water
Iyayu	Open market stalls and water
Orotedo	Health Facility and water
Ajue	Blocks of glass and water
Oloruntele	Community Hall and water
Lipanu	Open market stalls and water

Form of Assistance Received from 3i's Initiative

Table 6 showed that 76.7% of respondents enjoyed training, only 16.7% enjoyed industries in the communities, and 100% of respondents in the communities said they enjoyed infrastructure development. Respondents to the focus group discussion stated that the low percentage of industries in the communities was caused by the fact that the 3i initiative's suggested cluster industries had not yet been developed because of a lack of funding.

Table 6 Forms of Assistance Received by Communities from 3i's Initiative

Form of Assistance	Frequency	Percentage (%)
Infrastructure	180	100
Training	138	76.7
Industry	30	16.7

Livelihood Activities of the Respondents

Table 7 demonstrates that 73.3% of respondents were involved in the production of food, 20.0% in the production of animals, and 18.9% in the employment of craftsmen and craftsmen. The percentages of those involved in logging/wood processing, food/crop processing, trading, and hunting were 7.8%, 62.2%, 36.7%, and 3.3%, respectively. This supports the findings of Tafida et al., (2011), who suggest that the majority of Nigerian villages are remote, with their residents mostly depending on agriculture and natural resources for subsistence.

Table 7 Distribution of Respondents According to their Livelihood Activities

Livelihood activities	Frequency	Percentage (%)
Food production (crop)	132	73.3
Livestock production (fish & poultry)	36	20.0
Craft/Artisans work	34	18.9
Logging/wood processing	14	7.8
Food/crop processing	112	62.2
Trading	66	36.7
Hunting	6	3.3

Effects of the Projects on the Livelihood Activities in the Study Area

A five-point Likert scale was created to record respondents' responses to a series of statements on each of the livelihood activities, taking into account the impact of 3i's initiative programs, such as water facilities, a health care center, community hall, open market stall, classroom blocks, and electricity, on the respondents' livelihood activities, which include food production (crop), livestock production, craft/artisan work, logging/wood processing, food/crop processing, and trading.

Perceived Effects of 3i's Projects on Food Production (Crop) in the Communities

As shown in Table 8, the respondents are indifferent to the statement that water supply has increased crop production through irrigation with a mean of 2.78. The respondents concurred that having access to clean water has improved their health and raised agricultural output (4.29). Additionally, the respondents concurred that the training had improved crop production's daily record-keeping activities and increased profit (3.95). Conversely, the participants disapproved of the claim that the training did not enhance their ability to keep records (3.76). The respondents, with a mean score of 4.27, disagreed with the statement that having access to water did not improve their health. Also, respondents with a mean score of 3.11 were unsure about the claim that the availability of water has not increased crop productivity or income. The results showed that projects' overall perceived effects (grand mean) on food production (crop) were 3.69, indicating that respondents generally agreed with the statements made.

Table 8 Perceived Effects of 3i's Projects on Food Production (Crop) in the Communities (N = 132)

Statements	Strongly Agree Fre (%)	Agree Fre (%)	Undecided Fre (%)	Disagree Fre (%)	Strongly Disagree Fre (%)	Mean	Decision
Water supply has enabled us to increase our crop production through irrigation, as a result, we have more disposable income	5 (3.8)	45 (34.1)	28 (21.2)	32 (24.2)	22 (16.7)	2.78	U
The presence of good water has increased our health status, and as a result, we have increased crop production	100 (75.8)	3 (2.3)	10 (7.6)	5 (3.8)	14 (10.6)	4.29	A
Due to the training, we received, we can easily keep daily records of our crop production activities and as a result, we make more profit	80 (60.6)	11 (8.3)	10 (7.6)	16 (12.1)	15 (11.4)	3.95	A
Our crop production has not improved through the water supply, therefore we did not have an increased income	24 (18.2)	26 (19.7)	24 (18.2)	28 (21.2)	30 (22.7)	3.11	U
The training has not improved our record-keeping ability	25 (18.9)	14 (10.6)	9 (6.8)	4 (3.0)	80 (60.6)	3.76	D
The water supply did not increase our health status	14 (10.6)	5 (3.8)	12 (9.1)	1 (0.8)	100 (75.8)	4.27	D

Grand Mean = 3.69

Legend:

Positive Statement: Strongly Agree: 4.5 – 5.0, Agree: 3.5–4.49, Undecided: 2.5–3.49, Disagree: 1.50–2.49, Strongly disagree: <1.50

Negative Statement: Strongly Agree: <1.5, Agree: 1.5–2.49, Undecided: 2.5–3.49, Disagree: 3.5–4.49, Strongly disagree: 4.5 – 5.0

Perceived effects of 3i's Projects on Livestock production in the Communities

As indicated in Table 9, the respondents agreed with the statement that they have higher earnings due to the availability of good water for their livestock production (3.83). The respondents were indifferent to the statement that water supply has made them operate their concrete fish production effectively and also the statement that electricity has enabled them to preserve their livestock produce with the means of 3.36 and 2.72, respectively. It was observed that the respondents agreed that the training program has enabled them to keep daily records of activities in their livestock production (3.89). The respondents were undecided about the statements that the availability of water has not increased livestock production, the presence of electricity has not helped in the preservation of livestock produce, and training did not increase record-keeping skills (3.06, 2.61, 3.36). The respondents disagreed with the statement that water supply has not increased their livestock profit with a mean of 3.89. The grand mean (3.34) of the perceived effects of projects on livestock production revealed that the respondents were indifferent about the statements presented to them.

Table 9 Perceived effects of 3i's Projects on Livestock production in the Communities (N = 36)

Statements	Strongly Agree Fre (%)	Agree Fre (%)	Undecided Fre (%)	Disagree Fre (%)	Strongly Disagree Fre (%)	Mean	Decision
We can have higher earnings due to the availability of good water for our livestock production	19 (52.8)	2 (5.6)	9 (25.0)	2 (5.6)	4 (11.1)	3.83	A
Water supply has made us operate our concrete fish production effectively	16 (44.4)	2 (5.6)	3 (8.3)	9 (25.0)	6 (16.7)	3.36	U
Due to the training received, we can easily keep our daily record activities in livestock production	21 (58.3)	4 (11.1)	5 (13.9)	3 (8.3)	3 (8.3)	3.89	A
Electricity has enabled us to preserve our livestock produce	3 (8.3)	2 (5.6)	19 (52.8)	2 (5.6)	10 (27.8)	2.72	U
The availability of water has not increased our livestock production	6 (16.7)	9 (25.0)	3 (8.3)	2 (5.6)	16 (44.4)	3.06	U
The presence of electricity has not helped in the preservation of our livestock produce	10 (27.8)	2 (5.6)	19 (52.8)	2 (5.6)	3 (8.3)	2.61	U
The training did not increase our record-keeping skill	6 (16.7)	9 (25.0)	3 (8.3)	2 (5.6)	16 (44.4)	3.36	U
Water supply has not increased our livestock profit	3 (8.3)	3 (8.3)	9 (25.0)	2 (5.6)	19 (52.8)	3.86	D

Grand Mean = 3.34

Legend:

Positive Statement: Strongly Agree: 4.5 – 5.0, Agree: 3.5–4.49, Undecided: 2.5–3.49, Disagree: 1.50–2.49, Strongly disagree: <1.50

Negative Statement: Strongly Agree: <1.5, Agree: 1.5–2.49, Undecided: 2.5–3.49, Disagree: 3.5–4.49, Strongly disagree: 4.5 – 5.0

Perceived effects of 3i's Projects on Craft/Artisans work in the Communities

Results in Table 10 depict that the respondents agreed that the training they received has helped in their daily record activities in craft/artisan work (3.68). The respondents were indifferent about the perception statements that the presence of electricity has reduced the time spent on craft work leading to increased profit and the respondents have a convenient workplace (3.00, 3.03). Also, the respondents were indifferent to the statement that the presence of electricity has not increased their profit, the presence of electricity did not save time spent on their work, and health center did not improve their health status, as a result, it did not increase their productivity at work (2.65, 2.71, 3.09). The results showed that the grand mean, or total perceived effects, of projects on the work of craftsmen and artisans was 3.00. This suggests that the respondents had no opinion regarding the statements that were made to them.

Perceived effects of 3i's Projects on Logging/wood processing work in the Communities

Results in Table 11 reveal that the respondents agreed with the statements that electricity has increased commercial and industrial productivity logging/wood processing jobs and health centers have increased their health status, thereby increasing productivity (3.53, 3.56). Also, the respondents agreed with the statement that the stalls at the open market are not a convenient place to process and sell wood (1.57). On the contrary, the respondents disagreed with the perception statement that "electricity has not increased their productivity" (3.71). The overall grand mean (3.09) of perceived effects of 3i's projects on Logging/wood processing work implies that the respondents are indifferent in their perception according to the statements presented to them.

Table 10 Perceived effects of 3i's Projects on Craft/Artisans' work in the Communities (N = 34)

Statements	Strongly Agree Fre (%)	Agree Fre (%)	Undecided Fre (%)	Disagree Fre (%)	Strongly Disagree Fre (%)	Mean	Decision
Due to the training received, we can easily keep daily records of activities in our craft/artisan work	17 (50.0)	4 (11.8)	2 (5.9)	7 (20.6)	4 (11.8)	3.68	A
The presence of electricity has not increased our profit	5 (14.7)	2 (5.9)	13 (38.2)	4 (11.8)	10 (29.4)	2.65	U
The presence of electricity did not save time spent on our work	8 (23.5)	6 (17.6)	12 (35.3)	4 (11.8)	4 (11.4)	2.71	U
The presence of electricity has reduced the time spent on craft work, thereby increasing profit.	5 (14.7)	5 (14.7)	15 (44.1)	3 (8.8)	6 (17.6)	3.00	U
We can have a convenient place for our work as a result of Open Market stalls.	8 (23.5)	4 (11.8)	10 (29.4)	5 (14.7)	7 (20.6)	3.03	U
The presence of a health center did not improve our health status, as a result, it did not increase our productivity at work	4 (11.8)	10 (29.4)	8 (23.5)	3 (8.8)	9 (26.5)	3.09	U

Grand Mean = 3.00

Legend:

Positive Statement: Strongly Agree: 4.5 – 5.0, Agree: 3.5–4.49, Undecided: 2.5–3.49, Disagree: 1.50–2.49, Strongly disagree: <1.50

Negative Statement: Strongly Agree: <1.5, Agree: 1.5–2.49, Undecided: 2.5–3.49, Disagree: 3.5–4.49, Strongly disagree: 4.5 – 5.0

Table 11 Perceived effects of 3i's Projects on Logging/wood processing work in the Communities (N = 14)

Statements	Strongly Agree Fre (%)	Agree Fre (%)	Undecided Fre (%)	Disagree Fre (%)	Strongly Disagree Fre (%)	Mean	Decision
Due to the presence of electricity, we have increased commercial and industrial productivity in our logging/wood processing job.	7 (50.0)	1 (7.1)	3 (21.4)	2 (14.1)	1 (7.1)	3.53	A
The stall at the open market is not a convenient place to process and sell wood.	8 (57.1)	4 (28.6)	2 (14.1)	–	–	1.57	A
Health centers have increased our health status, thereby increasing productivity	4 (28.6)	2 (14.1)	4 (28.6)	3 (21.4)	1 (7.1)	3.56	A
The presence of electricity has not increased our productivity	1 (7.1)	2 (14.1)	3 (21.4)	2 (14.1)	6 (42.9)	3.71	D

Grand Mean = 3.09

Legend:
Positive Statement: Strongly Agree: 4.5 – 5.0, Agree: 3.5–4.49, Undecided: 2.5–3.49, Disagree: 1.50–2.49, Strongly disagree: <1.50
Negative Statement: Strongly Agree: <1.5, Agree: 1.5–2.49, Undecided: 2.5–3.49, Disagree: 3.5–4.49, Strongly disagree: 4.5–5.0

Perceived effects of 3i's Projects on Food/crop processing work in the Communities

As indicated in Table 12, the respondents disagreed with the statement that the presence of electricity has reduced drudgery in their processing industry. The respondents concurred that the availability of water has made it possible for them to process products (such as plantains, cassava, and palm oil) and that this has allowed them to save time because their processing industry is located near the water supply (3.97, 4.32). Also, they agreed with the statement that the training they received enabled them to keep their daily record activities in food production (4.24).

The respondents agreed with the statement that electricity has not reduced drudgery in their processing industry with a mean of 2.49. With a mean score of 4.29 and 4.26, respectively, they disagreed with the claims that the availability of water has not allowed them to save time and that the training they got has not improved their ability to maintain records. Also, they are undecided about the statement that the "presence of electricity did not increase their profit" (2.50). The results showed that, overall, respondents felt that projects had a 3.57 grand mean impact on food and crop processing activities, indicating that they agreed with the statements that were made.

Table 12 Perceived effects of 3i's Projects on Food/crop processing work in the Communities (N = 112)

Statements	Strongly Agree Fre %	Agree Fre %	Undecided Fre %	Disagree Fre %	Strongly Disagree Fre %	Mean	Decision
In our cassava processing industry, the availability of electricity has decreased drudgery, which has decreased time spent and increased profit.	10 (8.9)	2 (1.8)	50 (44.6)	21 (18.8)	29 (25.9)	2.49	D
We can now process our crop (e.g., cassava) in the presence of water.	60 (53.6)	21 (18.8)	10 (8.9)	9 (8.0)	12 (10.7)	3.97	A
Water supply has enabled us to save time as a result of the closeness of our processing industry to the water supply.	70 (62.5)	22 (19.6)	8 (7.1)	10 (8.9)	2 (1.8)	4.32	A
Due to the training received, we can easily keep a daily record of activities of our food production.	79 (70.5)	13 (11.6)	2 (1.9)	4 (3.6)	14 (12.5)	4.24	A
The presence of electricity has not reduced drudgery in our processing industry.	29 (25.9)	21 (18.8)	50 (44.6)	2 (1.8)	10 (8.9)	2.49	A
The water supply has not enabled us to save time.	4 (3.6)	8 (7.1)	8 (7.1)	24 (21.4)	68 (60.7)	4.29	D
The training did not improve	13 (11.6)	5 (4.5)	2 (1.8)	12 (10.7)	80 (71.4)	4.26	D

our record-keeping skills.							
We do not have increased profit as a result of the presence of electricity.	31 (27.7)	18 (16.1)	50 (44.6)	2 (1.8)	11 (9.8)	2.50	U

Grand Mean = 3.57

Legend:

Positive Statement: Strongly Agree: 4.5 – 5.0, Agree: 3.5–4.49, Undecided: 2.5–3.49, Disagree: 1.50–2.49, Strongly disagree: <1.50

Negative Statement: Strongly Agree: <1.5, Agree: 1.5–2.49, Undecided: 2.5–3.49, Disagree: 3.5–4.49, Strongly disagree: 4.5 – 5.0

Perceived effects of 3i's Projects on Trading work in the Communities

According to Table 13's results, respondents aren't sure whether lock-up stores helped them sell their products more quickly and conveniently or whether having electricity increases sales in their line of work (2.96, 2.72). They agreed that the training had improved their record-keeping skill (3.62). The respondents are indifferent to the statements that electricity has not enabled them to expand and diversify their market, electricity has not increased their sales and they are not able to sell faster as a result of market stalls with the means of 2.76, 2.71, and 2.76, respectively. The results showed that the grand mean, or overall perceived effects, of projects on trading was 2.92. This suggests that respondents' perceptions of the comments that were made to them were neutral.

Table 13 Perceived Effects of 3i's Projects on Trading in the Communities (N = 66)

Statements	Strongly Agree Fre (%)	Agree Fre (%)	Undecided Fre (%)	Disagree Fre (%)	Strongly Disagree Fre (%)	Mean	Decision
Due to the presence of lock-up shops, we can sell our goods faster in a more convenient place.	10 (15.2)	4 (6.1)	35 (53.0)	7 (10.6)	10 (15.2)	2.96	U
Due to the training received, we can easily keep our daily record of activities.	30 (45.5)	11 (16.7)	7 (10.6)	6 (9.1)	12 (18.2)	3.62	A
We make more sales in our trade due to the presence of electricity.	9 (13.6)	2 (3.0)	31 (47.0)	10 (15.2)	14 (21.2)	2.72	U
Electricity has not enabled us to expand and diversify our market.	16 (24.2)	8 (12.1)	28 (42.4)	4 (6.1)	10 (15.2)	2.76	U
Our sales have not increased due to the presence of electricity.	14 (21.2)	10 (15.2)	31 (50.0)	3 (4.6)	8 (12.1)	2.71	U
We are not able to sell faster as a result of the construction of market stalls.	13 (19.7)	11 (16.7)	30 (45.5)	3 (4.6)	9 (13.6)	2.76	U

Grand Mean = 2.92

Legend:

Positive Statement: Strongly Agree: 4.5 – 5.0, Agree: 3.5–4.49, Undecided: 2.5–3.49, Disagree: 1.50–2.49, Strongly disagree: <1.50

Negative Statement: Strongly Agree: <1.5, Agree: 1.5–2.49, Undecided: 2.5–3.49, Disagree: 3.5–4.49, Strongly disagree: 4.5 – 5.0.

Effects of 3i's Initiative Projects on Development of the Communities

As revealed in Table 14, the respondents strongly agreed with the statements that the project has helped in the provision of employment and helped in the sustainability of infrastructure in the community (4.51, 4.56). The respondents agreed with the statements that "the project has helped in the provision of jobs, the industrial base for community development and increase the level of income in the community" with the means of 4.02, 4.01, and 4.32. The respondents also agreed that through the project they have experienced increased human capacity building in the community, increased season work, and increased cohesion and harmony (3.98, 3.87, 4.38). They also agreed that the project has enabled them to experience social inclusion in decision-making and project implementation (4.47, 4.48). According to the offered comments, the respondents appeared to agree with the general perception (grand mean) of the projects related to community development, as indicated by the findings.

Table 14 Perception of Respondents Based on the Effects of 3i's Initiative Projects on the Development of the Communities (N = 180)

Statements	Strongly Agree Fre (%)	Agree Fre (%)	Undecided Fre (%)	Disagree Fre (%)	Strongly Disagree Fre (%)	Mean	Decision
Participation in the project has created jobs/employment in the community.	66 (36.7)	82 (45.6)	10 (5.6)	13 (7.2)	9 (5.0)	4.02	A
The project has provided the industrial base for community development.	62 (34.4)	86 (47.8)	12 (6.7)	11 (6.1)	9 (5.0)	4.01	A
Participation in the has increased the level of income in the community.	98 (54.4)	65 (36.1)	2 (1.1)	7 (3.9)	8 (4.4)	4.32	A
The project has improved infrastructural facilities in the community.	127 (70.6)	38 (21.1)	2 (1.1)	6 (3.3)	7 (3.9)	4.51	SA
Participation in the project has increased human capacity building among members of the community.	48 (26.7)	104 (57.8)	12 (6.7)	9 (5.0)	7 (3.9)	3.98	A
There is an	40 (22.2)	108 (60.0)	12 (6.7)	9 (5.0)	11 (6.1)	3.87	A

increase in season work in the community as a result of participation in 3i's initiative.							
Participation in the project has increased cohesion and harmony in the community.	107 (59.4)	57 (31.7)	3 (1.7)	4 (2.2)	9 (5.0)	4.38	A
Participation in the has resulted in social inclusion in decision-making.	131 (72.8)	32 (17.8)	4 (2.2)	1 (0.6)	12 (6.7)	4.47	A
Participation in the project has resulted in social inclusion in project implementation.	135 (75.0)	26 (14.4)	3 (1.7)	3 (1.7)	13 (7.2)	4.48	A
The project has encouraged the sustainability of the infrastructure in the community.	143 (79.4)	22 (12.2)	– –	2 (1.1)	13 (7.2)	4.56	SA

Grand Mean = 4.26

Legend:

Positive Statement: Strongly Agree: 4.5 – 5.0, Agree: 3.5–4.49, Undecided: 2.5–3.49, Disagree: 1.50–2.49, Strongly disagree: <1.50

Negative Statement: Strongly Agree: <1.5, Agree: 1.5–2.49, Undecided: 2.5–3.49, Disagree: 3.5–4.49, Strongly disagree: 4.5 – 5.0

Hypotheses Testing

Hypothesis 1

Ho1: There is no significant association between the socio-economic characteristics of the respondents and the livelihood activities of the respondents. This hypothesis was tested using chi-square analysis. The correlation between the respondents' livelihood activities and their socioeconomic factors was determined using the chi-square result.

The result in Table 15 revealed that the socio-economic characteristics such as age (X2= 97.84), gender (X2 = 3.92), Marital Status (X2 = 1.44), religion (X2 = 1.44), household size (X2 = 35.98), educational level (X2 = 3.68) and annual income (X2 = 73.93) are all not significantly related to the livelihood activities of the respondents. This suggests that the respondents' livelihood activities are independent of their age, gender, marital status, religion, household size, educational attainment, and income—that is, the respondents can engage in any livelihood activity, regardless of the aforementioned socioeconomic factors. The primary occupation of the respondents (X2 = 32.00) is significantly related to their livelihood activities.

Table 15 Chi-Square Analysis of Socio-Economic Characteristics and the Livelihood activities of the respondents.

Socio-economic characteristics	X2	df	Decision
Age	97.84	88	NS
Gender	3.92	2	NS
Marital Status	7.74	8	NS
Religion	1.44	4	NS
Household size	35.98	32	NS
Educational level	3.68	2	NS
Primary Occupation	32.00	10	S
Annual Income	73.93	68	NS

Source: Field Survey, 2015.

Significant at ≤ 0.05 (NS = Not Significant, S = Significant)

Hypothesis 2

Ho2: The respondents' livelihood activities and their degree of participation in 3i's initiative initiatives do not significantly correlate. Table 16's correlation finding between the respondents' livelihood activities and their level of participation in 3i's initiative projects showed that there was a negative connection (r = -0.185) between the respondents' level of participation in infrastructure and food/crop processing. It follows that the development of infrastructure has not resulted in a rise in the processing of crops or food. This is a result of the majority of the processing industries not having been built. A strong relationship and a positive correlation were found between the level of participation in training and food/crop production (r = 0.215). The outcome suggests that the output of food crops will grow in direct proportion to the level of training received from the institution.

Conversely, there is a significant inverse relationship (r = -0.252) between trading and the degree of training involvement. This suggests that the profit earned in trading will decrease with increasing training. Additionally, there is a significant positive link (r = 0.256) between processing food crops and industry participation. The conclusion suggests that the number of individuals working in food processing will increase with the number of industries built. This suggests that as the industry grows, there will be an adequate supply of processed food, resulting in food security.

Table 16 Correlation Matrix of the level of participation in 3i's initiative projects and livelihood activities of the respondents.

	LPF	LPT	LPI	FCP	LSP	CAW	LWP	FOP	TRD	HNT
LPF	1	-	-	-	-	-	-	-	-	-
LPT	0.003	1	-	-	-	-	-	-	-	-
LPI	-.775**	-.009	1	-	-	-	-	-	-	-
FCP	0.058	0.215**	-0.034	1	-	-	-	-	-	-
LSP	0.000	0.082	0.000	0.176*	1	-	-	-	-	-
CAW	0.016	0.036	-0.063	0.002	-0.170	1	-	-	-	-
LWP	-0.024	0.060	0.037	0.128	0.010	-0.140	1	-	-	-
FOP	-0.185*	0.065	0.256**	-0.159*	-0.040	-0.268**	-0.244**	1	-	-
TRD	0.013	-0.252**	-0.031	-0.532**	-0.238**	-0.190*	-0.178*	0.022	1	-
HNT	-0.036	-0.099	0.000	0.112	-0.015	-0.090	0.177*	-0.174*	-0.141	1

** Correlation is significant at the 0.01 level

* Correlation is significant at the 0.05 level

LPF – Level of Participation in Infrastructure, LPT – Level of Participation in Training, LPI – Level of Participation in Industry, FCP – Food Crop Production, LSP – Livestock Production, CAW – Craft/Artisans' Work, LWP – Logging Wood Processing, FOP – Food Crop Processing, TRD – Trading, HNT – Hunting

4. CONCLUSION AND RECOMMENDATIONS

The 3i's Initiative has demonstrated significant positive impacts on the livelihood activities of rural dwellers in Ondo State, Nigeria. The study revealed a high level of community involvement and ownership, which is crucial for the sustainability of development projects. The presence of Project Management Committees in most communities and the active participation in decision-making processes has fostered a sense of empowerment among the rural population. The initiative has effectively addressed various livelihood activities, with substantial improvements noted in food production, livestock production, and craft/artisan work. Infrastructure enhancements, particularly in water supply and training programs, have contributed to increased productivity, better health, and higher profitability for rural dwellers. The findings underscore the importance of participatory approaches in rural development, highlighting that community-driven projects are more likely to succeed and be sustainable.

Based on the findings of this study, the following recommendations are proposed:

i. In every phase of project planning, execution, and assessment, there should be a focus on ongoing and increased community interaction. This guarantees that the projects continue to be pertinent to community needs and cultivates a feeling of ownership.
ii. Efforts should be made to ensure that infrastructure projects are not only implemented but also maintained sustainably. This includes regular monitoring and evaluation to ensure that the infrastructure remains functional and beneficial to the community.
iii. Training initiatives must be broadened and customized to meet the unique requirements of various sources of income. This will guarantee the projects' long-term sustainability, assist community members in managing their resources better, and increase production.
iv. Encourage diversification of livelihood activities to reduce dependence on a single source of income. This can help buffer against external shocks and improve the overall economic resilience of rural communities.

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Author Contributions

Conceptualization: MOA, JOO; Methodology: MOA, JOO; Formal analysis: MOA; Writing—review and editing: TSO, MOA, AFA; Survey design: AFA, MOA, TSO; Project administration: MOA, JOO, AFA; Writing—original draft preparation: MOA, JOO; Validation: AFA; Investigation and supervision: AFA, MOA; Resources: MOA, AFA, TSO. All authors have read and agreed to the published version of the manuscript.

Ethical Approval

The study was approved by the Ethics Committee of the School of Agricultural and Agricultural Technology, Federal University of Technology, Akure. (Ethical approval code: FUTA/SAAT/ACE/R098).

Informed Consent

Written & Oral informed consent was obtained from all individual participants included in the study. Additional informed consent was obtained from all individual participants for whom identifying information is included in this manuscript.

Conflicts of interests

The authors declare that there are no conflicts of interests.

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Data and materials availability

All data associated with this study are present in the paper.

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