



Potentials of Integrated Rural Development Schemes for Improving Rural Infrastructure

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Abstract

The idea of the Integrated Development Scheme (IDS) has received considerable attention in India, Indonesia and in some African countries such as Kenya and Ethiopia. The scheme has led to urban slum upgrading in these countries and has led to notable successes in the provision of common facilities in the rural areas of India. Therefore, given the neglect of rural areas by both private and public sectors, and the need to improve the housing conditions of rural dwellers, this paper examines the benefits of improved livelihoods from the scheme to improving rural housing conditions in Nigeria. A case study of the Rural Development Programme (RUDEP) of Justice Development and Peace Makers' Centre (JDPMC), a non-governmental organisation in Osun State, Nigeria, was conducted. Stratified and purposive sampling was used to select 344 participants/beneficiaries of the programme from 28 active communities out of the 36 communities' coverage by RUDEP. Qualitative and quantitative data obtained from the respondents was analysed using descriptive statistics of percentages and frequency distributions. The results revealed that the RUDEP integrated scheme, which was first initiated with the objective of improving the livelihood of poorer farmers and women that engaged in agricultural-related activities, has also impacted rural housing conditions positively by empowering them to provide facilities that were not initially in place. The paper concluded that IDS could be a viable policy option for improving the condition of rural housing in Nigeria.

Keywords: integrated housing scheme, rural housing provision, sustainable livelihood approach, RUDEP scheme, Nigeria

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1. Introduction

Rural areas are essential components of the entire fabric of any nation. They are often considered the most neglected parts of a country and are primarily viewed as a low priority in government developmental efforts (Tiwari, 2007). The fact that the rural areas are not a priority area of living for many citizens has justified the daily emigration of many to cities. They travel in hopes of greener pastures and employment. The need to improve rural infrastructure is expedient because the economy is mainly dependent on subsistence agriculture, with few, if any, infrastructure facilities (Nyagba, 2009; Abah, 2010). With a high poverty rate and absence of basic facilities/infrastructure, the state of rural areas in many parts of the world is calling for attention (Department for International Development (DFID), 2015).

A review of government development policies in many countries such as India, Kenya and Nigeria further revealed the neglect of rural areas in such government development policies. For instance, from the Indian perspective, Tiwari (2007) found marginalisation of rural housing. More so, the rural development needs are generally ranked lower than urban developmental needs in policy priority. Nigeria presents an example where rural agricultural activities contribute a sizable percentage to the country's GDP. However, these rural areas have still not been given special attention in terms of rural development projects such as housing, infrastructural development, policy formulations and implementation (Abdullateef *et al.*, 2017). According to the author, agriculture (the primary activity in the rural areas) accounted for about 40% of GDP in 2011. Additionally, rural areas employ around 70% of the Nigerian population, but little seems to have been done to raise the status of these areas and bridge the housing deficit. Improving the quality of needed infrastructure in the rural areas of any country could benefit the country at large.

The key characteristics associated with good rural housing needs, such as water, electricity, toilet facilities, among others, are missing in the developmental efforts of the governments of many developing countries (Tiwari, 2007, Department for International Development (DFID), 2015). The absence of these facilities in most rural areas in Nigeria resulted in severe poverty (Suleet *al.*, 2013; Udoh and Uyanga, 2013). In addition, as is the case in India, insufficient access to relevant knowledge and information, poor connectivity to the development process and greater exposure to natural hazards place rural dwellers in a disadvantaged position (India Rural Housing Schemes, 2015). With developing countries like Nigeria sharing seemingly similar attributes, there is the possibility that many rural households will also find it difficult to have sufficient funds to improve their housing conditions, due to low income and seasonal unemployment that plague most rural areas in the country.

There is no doubt that the employment status of most Nigerians in the rural areas, which is largely dependent on subsistence agriculture, has placed rural dwellers in disadvantaged positions (Popoola, 2012; Suleet *al.*, 2013, and Udoh and Uyanga, 2013). Many of them are not sufficiently empowered to provide the required facilities, such as sanitation. These facilities can have a material role in improving dwellers' health and reducing stress. In addition, the time saved could be diverted towards more productive activities, which would lead to improved efficiency in output and, subsequently, their housing conditions.

There is little interest from public authorities and the private sector in embarking on projects in rural areas. Thus, integrated schemes sponsored mainly through non-governmental organisations in Africa have provided an option by equipping rural dwellers with skills to generate more money for improved livelihood. An integrated development scheme is a process

of inducting sustainability in the poor's wellbeing at the post-project period. This is done by assessing the relationship between income generation activities and housing improvement. The primary concern of the scheme is to integrate the people and enable an environment that influences the outcomes of livelihood strategies. This is achieved through formulating development activities that centre on the potential of people, such as their skills, social networks, and access to physical and financial resources. The project has remarkable success in slum upgrading and rural community projects development in India, Kenya, Indonesia and Ethiopia (Majale, 2004; Solomon, 2014).

There are expected and unexpected outcomes from participants and non-participants in any integrated scheme (Ashley and Hussein, 2000). Part of the expectation is that the rural dwellers improve their skills and income through the scheme. An improvement in their housing condition is expected to follow. The improvement of rural infrastructure could stimulate economic growth and result in stronger rural economies. This paper, therefore, seeks to examine the potentials of integrated schemes aimed at improving the livelihood of poor farmers (especially women and youths) in Osun State. The Rural Development (RUDEP) project anchored by the Catholic Mission of Osogbo Diocese, Osogbo, Osun State, Nigeria, will be used as a case study. This paper will examine how the skills and assets of the rural dwellers have been improved by the scheme and have seen them improve their housing conditions. The question, therefore, is, 'what is an integrated rural scheme'.

2. Literature Review

The integrated rural scheme is an emerging development approach aimed at revitalising the economic base of the rural economy and improving farming activities in developing countries. The scheme is often designed to improve the economic and social life of the rural poor that seek a livelihood in the rural areas. In an integrated system, it is expected that there should be cooperation between the central authorities and local system to guarantee dwellers access to physical resources, subsidies for payment of local resources, maintenance of public goods, and ensure the protection of rural resources to aid utilisation of rural development process (Serrat, 2017; Nemes, 2005; Kalu et al., 2014). As a result of this system, the resources that remain unexploited can be harnessed by making a substantiate capital value flow into the economic resource base of a local area as well as creating a marketable product by improving the business, economic, social policy access for the benefit of the rural poor in the area.

Serrat (2017) posited that an integrated rural system should comprise the approach that integrates the people and the enabling environment that influences the outcomes of livelihood strategies. This approach could help formulate development activities centred on the potential of people in rural areas. The approach is described as a Sustainable Livelihood Approach (SLA). The approach focuses on their skills, social networks, access to physical and financial resources, and influence on the central and local institutions.

2.1 Sustainable Livelihood Approach (SLA)

SLA is a developmental approach designed with the objective of affordability for a particular target group (Lall, 2002). For instance, in order to ensure that houses are affordable, SLA advocates the use of local raw materials. Additionally, indigenous artisans must be trained to ensure that the completed homes are within a specified budget. It is thus a housing effort, interpreted in terms of a holistic approach to poverty reduction through shelter and income improvement. It is holistic in the sense that it entails bringing people in specific regions or rural localities together to educate. This education focuses on how their productivity could be

enhanced through increased technical knowledge, improved marketing, increased access to loans, and greater awareness of the importance of saving to ensure effective use of the resources in the development process. With enhanced and improved livelihood, rural dwellers are financially empowered to improve their housing conditions.

Sustainability refers to the preservation or improvement of resources productivity on a long-term basis. Chambers (1987) states that while livelihood is sufficient, stocks and flows of food and cash to meet basic human needs. Chambers and Conway (1992), Krantz (2001) and Nemes (2005) described sustainable rural livelihood from a household point of view as the approach that utilised five capital assets, namely: natural, human, social, physical and financial capital. These capitals enhance participants' social and economic capacity, reduce poverty and enhance sustainability in their livelihood. The SLA is an example of the "multiple capitals" approach. In this approach, sustainability is considered in terms of available capital (natural, human, social, physical and financial aspects) and an examination of the vulnerability context (trends, shocks and stresses) in which these assets exist.

Scoones (1998) explained that a sustainable livelihood framework includes three broad divisions of livelihood strategies that comprise varied options accessible to the rural poor. Firstly, the division consists of capital and social-agricultural intensification, income-earning diversification, and voluntary and involuntary movement patterns. Secondly, the study further suggested having accurate information about the connection between the processes. Lastly, diverse strategy combinations are imperative to accessing a sustainable rural livelihood.

Ashley and Carney (1998) and Carney (1999) considered sustainable livelihood as evolving, thinking about interaction with the rural dwellers as a means to support their wellbeing. It also entails considering change events that might be associated with the policies and institutions, external shocks and demographics, environmental, economic and technological trends. The study of Boyd *et al.* (1999) in the agro-pastoralist sector argued that a SLA must incorporate the relationship between wildlife, livestock and people. In addition, the varying options for integrated wildlife and livestock management in the semi-arid range land of eastern Africa must be included. According to Boyd, Blench, Bourn, Drake, and Stevenson (1999), households should be fully involved in the decision-making process about the use of wildlife. This decision includes the allocation of benefits across the components of human wellbeing such as social, capital, economic or physical assets to improve rural livelihoods to contribute to both conservation and development objectives of the sector.

Morse *et al.* (2009) asserted that the appropriate development strategy is the SLA in an integrated scheme. SLA links issues of poverty reduction, sustainability and empowerment processes. In the SLA approach, interventions in the form of training, skill acquisition programmes and provision of farming tools are given to rural dwellers. These efforts empower them to improve their livelihood assets and help them to carry out some developmental activities like improving their housing condition.

Using the Rural Development (RUDEP) project embarked upon by Justice Development and Peacemakers' Centre (JDPC), anchored by the Catholic Mission of Osogbo Diocese, Osogbo, Osun State, Nigeria, as a case study, this study examines the potentials of the capitals. These capitals are referred to as livelihood assets acquired as a result of the RUDEP intervention of JDPC at improving the livelihood of poor farmers. The beneficiaries are primarily women and youth in the study area. The study further examines their improvement in their housing condition due to the gains from the intervention.

2.2 *Review of Past Studies*

Different researchers such as Twigg (2001), Majale (2004), Lall and Lall (2006), Yusuf (2010) and Thennakoon (2015) have examined different aspects of integrated rural development schemes. However, the element of development efforts concerning rural areas of developing countries like Nigeria remains unfocused by researchers.

The study of Twigg (2001), using literature search, appraised the suitability of the application of different theories to sustainable livelihoods and vulnerability to disasters. The study examined several issues. For example, the analysis of capacities and vulnerabilities and pressure and release/ access models were examined. In addition, a sustainable livelihoods approach that is relevant to work on livelihood options for disaster risk reduction was also analysed. However, the study by Twigg (2001) only documented the pertinent theories to a sustainable livelihood. It omitted empirical research on the ability of integrated schemes to empower rural dwellers to upgrade their housing conditions.

In 2004, Majale demonstrated the effectiveness of a SLA towards solving the urban slum housing problem and promoting a sustainable shelter delivery strategy for the urban poor in Kenya and India. Lall and Lall (2006) focused on reducing urban poverty and tested the efficacy of linking shelter provision with income-generating activities in Alwar India. The scholars used the SLA. In the study. They found an improved housing condition of the urban poor in India due to the adopted approach (Lall and Lall, 2006). However, there is still the need to conduct a similar study in rural communities like Nigeria with different socio-economic characteristics. The expected result is that the rural development scheme has substantially empowered rural dwellers to improve their housing conditions and provide other rural infrastructure.

Robert (2008), in a study of livelihood strategies for rural development, used the least-squares approach to examine the challenges faced by poor households in Ecuador. The study used income as a parameter to measure wellbeing associated with each livelihood strategy of households in rural Ecuador. The results showed that the ability to combine non-farm activities with farming activities due to the adoption of SLA (was beneficial for the farmers). More so, the experience could lead to higher well-being for most households (in poor urban areas). The current study will extend the discussion by examining the rural areas of Nigeria. The focus is on how the rural dwellers' livelihood and housing conditions have been impacted by development schemes such as SLA.

Morse *et al.* (2009) examined an integrated scheme initiated to boost rural economies in the middle belt of Nigeria using participatory techniques. These techniques were used to characterise, rank and score capital assets of rural livelihood strategies. The authors identified and examined available capital, the vulnerability of this capital and the coping strategy adopted in the representative villages. The study used indicators such as income, expenditure, capital assets in terms of tree crops, food crops, membership of association and hazards. However, the potential of integrated rural development schemes at improving rural housing conditions in Nigeria through improved livelihood of the people was not examined. Hence, the need for this study.

The study of Yusuf (2010) was limited to gender analysis of livelihood strategies of household heads in rural areas of Osun State, Nigeria. In Fang et al. (2014), an evaluation of the sensitivity of livelihood strategy in China was the focus. Solomon (2014), using a case study, examined the modalities for reducing urban poverty and alleviating the housing problem with an integrated housing development program in Addis Ababa, Ethiopia. Therefore, the current study drew from this theory to examine the benefits of housing conditions that could be enjoyed due to the improved livelihood of rural dwellers resulting from rural development interventions.

In developed countries such as the United States of America and the United Kingdom, Thennakoon (2015) used capital assets and strategies through the assessment of seven core income-generating activities. This data was used to assess the influence of proximity to the city centre on the livelihood of rural dwellers. The findings revealed that the closer the villages were to Colombo Metropolitan Region (CMR), the better their livelihood. However, these findings might be misleading when applied to developing countries like Nigeria, which has different socio-economic conditions. In addition, the study did not include how rural dwellers used the income gained from the rural development intervention to improve their housing conditions. The absence of a study on the potentials of integrated schemes on the housing condition of rural dwellers in African countries such as Nigeria necessitates a study of this nature.

The preceding suggests that studies exist on different aspects of the integrated development schemes in developed and developing countries. However, studies on the ability of rural dwellers to improve their housing conditions given improved livelihood as a result of rural development schemes are scanty, especially in developing countries like Nigeria. This study will bridge the gap in the literature by focusing on the rural development intervention embarked upon by the Justice Development and Peacemakers' Centre in 34 communities of Osun State, Nigeria.

3. Methodology

The study adopted herein combines purposive and stratified sampling methods to collect primary data from household heads participants. To qualify as respondents, the household heads needed to have been part of the rural development scheme that aimed to implement a sustainable livelihood framework. This was the element of interest in this study. In addition, it is believed that the African households focused more on the provision of quality housing and services at determining the wellbeing of the household (Yusuf, 2010). The Rural Development Programme (RUDEP) is a rural intervention unit of the Justice Development and Peace Makers' Centre (JDPMC). The JDPMC is a non-governmental organisation (NGO) that focuses entirely on rural development related issues. RUDEP developed integrated strategies to empower and improve the lives of the rural dwellers holistically by rendering assistance towards increasing and sustaining the productivity of the rural population. Additionally, RUDEP enabled low-income families to improve their living and working conditions within the perspective of self-reliance, self-determination and sustainability. This is done through improved skills and knowledge within some target communities in the Osun state of Nigeria.

The study involved the 36 communities covered by RUDEP as implemented by the JDPMC. It comprises four administrative zones. The study area was stratified into the known administrative zones, which were composed of 28 communities with active participant farmers' cooperative groups, as detailed in Table 1. The four JDPMC administrative zones used for the

study were selected because the level of their intervention was considered more intensive than those of any other non-governmental organisation (NGO). More so, preliminary surveys before the main study revealed that only 3% of the participants had contact with one other NGO, hence choosing the JDPMC sponsored communities. To achieve their objective, RUDEP embarked on visits to each group once a month. During these visits, RUDEP taught the rural dwellers new farming and marketing skills; they monitored the farmers' cooperatives organised workshops to introduce new farming skills, among other skills. In addition, the farmers' accommodation types such as 2-4 rooms, 5-6 rooms and 8-9 rooms were obtained during a pilot survey in Osun-state, Nigeria.

Table 1. Distribution of Respondents by Location and Local Government Area

S/No	Administrative Zone	Farmers Group/Communities	Number of Participants	Number Selected (80%)	Local Government Area		
1	Atakumosa	Ifewara	26	21	Atakumosa West		
		Iganga	7	6	Atakumosa East		
		Iwara	7	6	Atakumosa East		
		Iyinta	12	10	Atakumosa East		
		Olowu	9	7	Atakumosa East		
		AjumobiIgangan	10	8	Atakumosa East		
		Oke-Agbede	18	14	Atakumosa East		
2	Ijesha	Iwaraja	11	9	Oriade		
		Asaobi	10	8	Atakumosa West		
		Ido-Ayegunle	8	6	Obokun		
		Ila-Ijesha	16	13	Atakumosa West		
		Epe	12	10	Atakumosa East		
3	Ila	Idi-Odan	40	32	Ifedayo		
		Abalagemo	10	8	Ifedayo		
		Oke-Ila	10	8	Ifedayo		
		AiyetoroOminla	15	12	Ifedayo		
		Oyi-Ayegun	36	29	Ifedayo		
		Oyi-Araromi	5	4	Ifedayo		
		4	Osogbo	Ijabe	11	9	OdoOtin
Abaolota	9			7	Boluwaduro		
Abaolode	20			16	Boluwaduro		
Awosun	27			22	Ife North		
Adejuwon	30			24	Ede North		
Elewure	13			10	Ede South		
Owode	16			13	Ede North		
Oyan	15			12	OdoOtin		
Idominasi	7			6	Obokun		
Imesi-Ile	17			14	Obokun		
Total				427	344		

Source: Adapted from Odebode et al. (2020)

The data were collected from household heads (HH). This data reflected their socio-economic characteristics, acquired livelihood assets and trends in housing conditions from 1996 to 2015. The choice of HH is justified by the notion that these individuals are primarily responsible for the provision of housing in African countries. This perspective is adopted in most integrated studies such as Yusuf (2010). The Priori expectation for this study is that as the rural dwellers

improved their skills and incomes through integrated schemes, and as a result, an improvement in their housing condition follows.

A structured questionnaire was used to obtain information from the farmers and supervisors of RUDEP on the modes of intervention. Other data was obtained by asking questions on activities before and after an intervention. For example, assets before and after intervention, conditions of housing accommodation before and after intervention, housing ownership structure before and after an intervention. In addition, benefits derived from membership of RUDEP cooperative association and mode of intervention adopted by RUDEP to manage the negative impact of the hazards experienced by participants were also obtained. The benefits derived from membership from participants' perspectives were to triangulate the farmers' information with the ones obtained through personal observations and interviews from the supervisors of RUDEP. Triangulation is a means of ensuring that there is uniformity in the information received from different respondents on the same project objective in a study. The triangulation is similar to the one adopted in Thennakoon (2015). The aim is to assess the scheme's impact on improving the livelihood of poorer farmers in the study area.

The data collected was analysed through frequency, percentages, and mean to give results that would provide an understanding of whether the sustainable improvements in people's livelihoods have taken place in the study area or not. Out of the 344 respondents selected for the study, 340 (98.8%) were available at the time of data collection in the study area.

4. Results and Discussion

This section presents the results in respect of the characteristics of the respondents and the potentials of integrated rural development schemes at enhancing rural infrastructural development and rural housing conditions in the study area. Table 2 details the results of the characteristics of the respondents.

Table 2: Distribution of Respondents by their Characteristics

Variable	Frequency	Percentage (%)
Household Status		
Household head	273	80.3%
Not Household head	65	19.1%
No response	2	0.6%
Duration of Habitation		
1-5 years	18	5.2%
6-10 years	8	2.4%
11-15 years	14	4%
16-20 years	66	19.4%
25 years and above	234	69%
Size of Land Cultivated in Hectares		
<1	29	8.5%
2-5	162	47.6%
6-10	54	16%
11 and above	63	18.5%
No response	32	9.4%
Structure of Land Ownership		
Family	185	54.4%
Long-lease	73	21.5%
Outright purchase	31	9.1%
Tribute basis	2	0.6%
Instalment	7	2%
No response	42	12.4%
Years of Farming Experience		
1-10	65	19.1%
11-20	71	20.9%
21-30	88	25.9%
Above 31 years	99	29.1%
No response	17	5%
Level of Education		
No formal education	75	22.1%
Adult education	9	2.6%
Primary education	88	25.9%
Secondary education	117	34.4%
Tertiary education	39	11.5%
No response	12	3.5%
Household Size		
≤5	68	20%
6-10	177	52.1%
11 and above	80	23.5%
No Response	15	4.4%

The results in Table 2 show that while 80.3% of the respondents' farmers were HH, the remaining 19.1% were not. In line with the findings by Morse *et al.* (2009), HH is always the point of contact in integrated schemes, and they are traditionally expected to provide housing for their families.

The results in Table 2 show that a majority of about 69% of the respondents had spent over 25 years in each of the villages/settlements of their choice. Moreover, 19.4% had spent between 16 – 20 years of their lives in the study area. Finally, 5.2%, 2.4% and 4% had spent between 1 -5 years, 6 - 10 years and 11 - 15 years of their lives in the study area, respectively. With the

majority having more than 25 years' experience of living and working in the community, the possibility of obtaining sufficient data on the intervention for a sufficiently long period of time was guaranteed.

Large landholdings are a prerequisite to commercial farming. As farmers, the majority, 47.6%, cultivated between 2 - 5 hectares of agricultural land. 18.5% used over 11 hectares, and 16% used 6 - 10 hectares, while 8.5% of the farmers used less than 1 hectare for farming. Altogether, 34.5% cultivated more than 6 hectares of land while the majority, 47.5%, fell within 2 - 5 hectares. These numbers simply show that most farmers had sufficient land holdings to sustain commercial farming, which development agencies mainly require for an intervention programme. The size of land holdings suggested their possibility of having benefited from a rural intervention programme. Therefore, these farmers were suitable for this research.

4.1 Land Ownership Structure

An enquiry into the land ownership status revealed that most of the farmers' had a reliable title deed to land. Of all the farmers, 54.4% used the family land for their farming activities, while 21.5% got a long lease on their farmlands. A further 9% of the farmers purchased their farmland outright. Lastly, 2% and 0.6% of them obtained their farmland on the condition of paying for it in instalments.

Family land and land purchased outright usually have secured tenure that can support economic trees such as cocoa that needs a long period before it starts yielding fruits. Hence, the fact that most farmers (63.4%) were either using family land or purchased the land outright suggests that such farmlands can sustain different agricultural practices required by development agencies during an intervention. This could explain why planting cash crops and other perennial crops, which earns farmers more income, could be supported with intervention from development agencies. However, non-family-owned lands on lease could not support intervention from development agencies because the tenure is not secured.

4.2 Years of Farming Experience

The participant farmers' experience concerning the numbers of years spent in farming could explain the chances of benefitting from rural development schemes. The results show that farmers with over 31 years of farming experience were 29.1%. Those between 21–30 years of experience were 25.9%, while 20.9% and 19.1% of the farmers had between 11 - 20 years and 1- 10 years of farming experience. With the majority of farmers (55%) having farming experience of over 21 years, the results suggested the possibility of obtaining sufficient and reliable data for this study. It also indicates that most participants could have acquired additional skills that would enhance their livelihood based on the skill acquisition training obtained from years of association with RUDEP.

4.3 Level of Education

The prior education that the farmers had suggests that the farmers are amenable to training and the learning of new things. For example, the responses to the question on the respondents' level of education had shown that 22.1% had no formal education. The remaining 77.9% had tertiary education ranging from National Certificates in Education (NCE), Ordinary National Diplomas (OND), Higher National Diplomas (HND), to university degree certificates. This means that

most farmers had one form of education or another. This level of education coupled with their experience is an advantage on the probable ease to which RUDEP could help educate farmers on best farming practices. The education level could have also aided the farmers in getting the best benefit from the integrated scheme. This aid would come through a quick understanding of the training program, the ability to try new skills/methods, and opportunities for more livelihood combinations to increase their income. The ease of understanding the training programme due to the significant proportion of the educated farmers aligns with the study of Oduro-Oforiet *al.* (2015). Oduro-Oforiet *al.* (2014) opined that in any agricultural, rural development policy, the educational level of farmers is vital to the improvement of agricultural productivity. The authors believe that the level of education of the participants' farmers in the current study would enhance improvement in agricultural productivity. These opportunities would help because they open the farmers' minds to knowledge about changing innovations, ideas, and better farming methods.

4.4 Household Size

Finally, Table 2 reveal that the respondents with a household size of less than or equal to 5 people were 20%. A further 52.1% of the respondents had a household size ranging between 6 and 10 people, while another 23.5% had a household size of more than 11 people. The overall results show that 75.6% of the respondents had a household size of more than six people. More households maintained by a majority of the respondents could be fulfilling the need to have sufficient farm labour to assist for large scale farming purposes which are often required by rural development agencies such as RUDEP.

4.5 Mode of Operation Adopted for Intervention

For triangulation, the respondents were asked to indicate the mode of operation adopted for intervention by RUDEP at improving their livelihood. They were asked to indicate any or a combination of the adopted intervention approach by RUDEP. For example, the form of donation of free improved seedling, financial assistance, education of farmers and giving of technical support. The responses are detailed in Table 3 below.

Table 3: Perception of Respondents on the Mode of Operation Adopted for Intervention

Variable	Frequency	Percentage (%)
Improved seed	7	2%
Financial assistance	7	2%
Education of farmers	200	59%
Technical support	48	14.1%
No Response	78	22.9%

Source: Adapted from Odebode, (2019)

The multiple responses in Table 3 reveal that the majority, 59%, of the respondents indicated that the principal mode of intervention they enjoyed from RUDEP was that they were educated. This new knowledge included the best farming practices such as cocoa spacing, cutting edge of farmlands to control fire hazards, and organic manure to improve productivity. In addition, they were taught how to use weeds to make insecticides for pest control as coping strategies. This education was followed by technical support with a 14% response rate.

The educational training that they received helped them see the value of using more improved seedlings and better cultivation practices. A few others had enjoyed a series of technical support such as providing farm equipment (like harvesters' water pumping machines for vegetable planting irrigation, among others) and implementation often provided by RUDEP to enhance participant's productivity.

The above analyses show that RUDEP's primary mode of operation was to educate farmers on the best farming practices and, thereafter, technical support. The interview conducted with a RUDEP supervisor and personal observation showed that the integrated scheme initiators often offered technical support to participants' farmers. The technical support is via quarterly organised workshops at each zone where farmers could always interact with the guests or RUDEP staff with the requisite technical expertise. The organisation also assisted with arrangements for the supply of water pumping machines to farmers at subsidised rates through collaboration with the Federal Ministry of Agriculture. Other modes of intervention were the provision of improved seed and financial assistance, each with a response rate of 2%. With this, many farmers developed coping strategies via improved skills that enabled them to use weeds to make insecticides for pest control. In addition, they treated their livestock and cut the edges of farmlands to prevent fire hazards during the dry season. These skills increased their efficiency and hence, boosted their productivity and income. This is similar to the capacity and vulnerability analysis by Twigg (2001) and coping strategies adopted by the participants in Morse *et al.* (2009).

4.6 Perception of Farmers on the Benefits of the Integrated Scheme

The farmers' perceptions of the benefits obtained from the integrated schemes were analysed to assess the significance of the schemes to the respondents. To assist farmers in harnessing the internal resources of members, they were encouraged to form cooperative societies and activate the benefits from within their respective societies. This study investigated the benefits enjoyed by members of the RUDEP cooperative society.

Table 4: Respondents' Perception on Benefits Derived from Membership of RUDEP Cooperative Association

Variable	Frequency	Percentage (%)
Increased income	218	64.1%
Improvement in wellbeing	190	55.9%
Increase productivity	168	49.4%
Better access to a loan	170	50%
Low interest on a loan	90	26.5%
Share experience from others	90	26.5%
Better price for produce	68	20%
Better access to inputs, e.g. fertiliser	70	20.6%

*Footnote: *Multiple responses**

Table 4 outlines some of the results of the benefits associated with membership of social organisations. From Table 4 above, we see that the most significant benefit for the majority of the farmers, 64.1%, was an increased income. Table 5 below contains a more detailed collation of the farmer's income increments data. These increments could have resulted from better farming practices such as adequate spacing between cash crops and poultry integration with cash crops. In addition, their new marketing skills, such as cutting off middlemen to secure

fairer prices for their products, led to increased income on their farm produce. Finally, there was improved market access to the local and regional market areas. This is in tandem with the findings by Glatzet *al.* (2005), Morse *et al.* (2009) and Yusuf (2010), who showed that participating in integrated schemes was beneficial. More so, they found that when livestock grazed together in some communities, it enabled the farmers to identify better-coping strategies among representative villages that served as a catalyst to improve the livelihood of the participants.

4.7 Perceptual Growth in Farmers' Income from 2000 to 2015

The respondents were asked to indicate the percentage of the growth they experienced in their income within the period of 2000 and 2015. This was the period within which the rural development intervention took place. Table 5 presents the trends in respondents' income during the period studied. This data was used to evaluate the respondents' income improvement after the intervention.

Table 5: Percentage Growth in Farmers' Incomes

Income	2000-2003	2004-2007	2008-2011	2012-2015
<10,000	45.9%	40.1%	33.9%	11.7%
10,001-100,000	32.6%	35.6%	38.3%	41.6%
100,001-1,000,000	19.4%	21.2%	22.3%	36.9%
1,000,000 and above	2.1%	3.1%	5.5%	9.8%

The findings show that an increase in income experienced by the farmers within the periods between 2012 and 2015 took place simultaneously as the RUDEP intervention. The percentage of those who earned N1,000,000 and above increased to 9.8%. Those who earned between N100,000 and N1,000,000 rose to 36.9%. At the same time, the percentage of people who earned N10,000 to N1,000,000 reduced drastically to 11.7%. The reduction recorded in the percentage of farmers that earned N10,000 to N1,000,000 within the periods was that farmers increased their farming activities by integrating poultry into a crops and pasture farming system. As a result, the farmer's scale of operations went beyond the farming spacing provided for the periods.

The expansion of the scale of operation of the farmers could be attributed to the positive contribution of the RUDEP intervention by enhancing rural farmers to diversify and grow in size and productivity. Additionally, the consistent growth and rise in the percentage of the people who earned more is an indication of the positive contribution of the RUDEP programme on the increased income of the respondents; this is shown in Table 4. Additional skills and assets acquired could enhance the participants' ability to try different combinations of livelihood strategies that could boost their income, which agrees with the study by Fang *et al.* (2013) and Galadima (2014). The scholars note that the provision of basic infrastructure for rural poverty reduction through a community development approach is alleviated through sustained increases in the productivity and incomes of rural farmers and households.

Table 6 presents the assets obtained by the respondents before and after RUDEP's intervention. It was used to determine additional assets acquired by the respondents after the RUDEP intervention.

Table 6: Asset Before and After RUDEP Intervention

Variable	Frequency Before	Frequency After	Percentage Before (%)	Percentage After (%)	Percentage Increase or
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					Decrease in Asset (%)
House	116	145	34.1%	42.7%	8.6%
Farmland/ Land	71	82	21%	24.1%	3.1%
Car	2	9	0.6%	2.6%	2%
Motorcycle	24	22	7%	6.5%	-0.5%
Grinding Machine	7	12	2%	3.5%	1.5%
Generator	2	58	0.6%	17.1%	16.5%
No Response	118	---	---	---	---
Total	340	328	65.3%	96.5%	31.2%

Source: Adapted from Odebode (2019) Footnote: *Multiple response*

The results in Table 6 reflect multiple responses and include more than one response per participant. When it came to assets acquired by the farmers, there was a total increase from about 222 to 328 in the number of assets owned after the introduction of the RUDEP programmes. The increase in assets acquired indicates that the increase in the farming scale of operations, obtaining a fairer price for market products, improved marketing skills and market access, access to farming tools, training and other assistance leads to farming productivity. Consequently, it implies that there is a high tendency that the RUDEP integrated scheme is responsible for a positive impact on asset acquisition of respondents because the participants stand out in asset acquisition in the study area. This is in agreement with the finding of Majale (2004) and Lall and Lall (2006) that increased income could lead to the acquisition of other livelihood assets. Also, Pouw and Elbers (2014), Shi *et al.* (2014) and Liu *et al.* (2018) asserted that physical assets, staffing assets and financial assets have a significant positive influence on farm households' choices of livelihood strategies. This is done in achieving livelihood goals. for instance, livelihood goals include increasing production activities, changes in land use, and household livelihood assets acquisition.

4.8 Effects of the Integrated Scheme on Housing Condition

Unexpected benefits abound from the expected gains and benefits of integrated schemes. One of these (un)expected benefits was the use of the increased income from livelihood to improve their housing conditions. The unexpected results of recent research on the impacts of integrated schemes in 28 selected villages revealed the significance of the schemes to the improvement of housing conditions. The study evaluated the growth percentage or increase of people who upgraded their housing conditions. More so, these also added to their housing units due to the gains from the integrated schemes.

Table 7: Increase in Housing Assets

State of Accommodation	2000-2003	2004-2007	2008-2011	2012-2015
No personal accommodation	15.9%	12.7%	10.6%	8.5%
2-4 rooms	24.7%	26.2%	26.8%	28.5%
5-6 rooms	24.4%	26.1%	27.1%	27.1%
8-9 rooms	35%	35%	35.5%	35.9%
Total	100%	100%	100%	100%

The results in Table 7 above reveal that there were increases in homeownership in the period between 2000-2015. The respondents without any personal housing assets decreased from 15.9% within the period between the year 2000 – 2003 to 8.5% for the period between the years 2012 – 2015. The increase in homeownership after the intervention could be linked to the increased income from the intervention, as found earlier. There was an increasing trend in the acquisition of various apartments ranging from between 2-4 rooms, 5-6 rooms and 8-9 rooms among participants. The accommodation types in the study are ascertained through a pilot survey as stated in the methodology. The above findings could be due to additional farmland acquired after the intervention, enabling the participant to plant more crops to increase productivity and income.

In addition, the results from the personal observations and focus group discussions further revealed that the farmers engaged in other high income yielding ventures such as apiculture, aquaculture and poultry farming as a result of the intervention introduced by RUDEP. They also benefited from the introduction of improved seeds and the availability of mechanical water pumps to plant pepper and vegetables, among others. The use of the pumps meant that they could grow crops throughout the year, which boosted income. The direct result was increased revenue, improved well-being, and increased productivity. The indirect results were better access to loans that could be used for housing improvement and acquiring more assets. This was in tandem with Majale (2004) and DFID (2015) findings that showed that the increased income of households in farming communities empowered them to provide some facilities on their own and led to significant investments in housing.

4.9 Facilities Provided by Respondents themselves After the Intervention

The respondents were asked about the facilities provided in their various houses during the period studied. This was to determine their access to different domestic housing facilities. The results of the analysis are shown in Table 8.

Table 8: Distribution of Respondents According to Access to Domestic Housing Facilities

Access to Domestic Facilities	2000-2003	2004-2007	2008-2011	2012-2015
Well	6.2%	4.4%	5.6%	7.7%
Borehole	2.1%	0.3%	0.6%	1.8%
Pit-Toilet	10.9%	5.6%	5.9%	11%
Semi Pit-Toilet	0.3%	-	-	0.6%
Water Closet	2.7%	1.8%	2.1%	2.7%
Electricity supply	13.8%	9.1%	9.4%	16.8%
Generator	1.5%	0.3%	0.6%	2.7%
Total	37.5%	21.5%	24.2 %	43.3 %

*Footnote: *Multiple responses *Pit/Semi-Pit Toilet and Water closet (N=114) *PHCN and Generator (N=167) *Well and Borehole (N=81)*

The results in Table 8 reveal that the respondents who connected their houses to the leading electrical supplier, Power Holding Company of Nigeria (PHCN), were more than those using generators. The increased acquisition of generators in the period between 2012-2015 could be due to an increase in purchasing power generated by improvement in financial capital assets due to the integrated scheme. This is in agreement with Majale (2004) finding, which illustrated that increased income leads to an enhanced quality of life. In addition, these domestic facilities such as electricity, portable water and hygienic toilet facilities can increase the health quality of participants. As a result, increase their productivity and income. This is in agreement with the DFID (2015), which opined that better domestic infrastructure is usually a core component of wellbeing. Suleet al. (2013) and Udoh and Uyanga (2013) also stated that the facilities mentioned above are lacking in most rural areas in Nigeria.

Moreover, the results in Table 8 show that 10.9% and 5.6% of respondents were using pit toilets between 2000-2003 and 2004-2007, respectively. These numbers simply show that the respondents who had toilet facilities during these initial periods of the RUPEP integrated scheme had only been using pit toilets. Finally, in the period between 2012-2015, 11% of the respondents were able to provide pit toilets for themselves while 4.8% built water closets for their use. This shows that there was an increase in the number of respondents with toilet facilities after the RUDEP intervention. Though most of the respondents still used pit toilets in the study area, few others were able to provide water closets for their use. This is an indication that there was both quantitative and qualitative improvement in toilet facilities among the respondents.

Finally, Table 8 reveals a notable increase in access to potable water among the respondents. There were higher numbers of wells than boreholes after the intervention. This implies a consistent rise in the number of respondents that could afford the provision of a well. Conversely, the respondents who could afford to pay boreholes were as low as 1.1%, 1.3%, and 1.8% for 2000-2003, 2008-2011 and 2012-2015, respectively. , Additionally, during the fieldwork, the authors observed that some of the respondents engaged in suitable constructions within the study area. The results show that there was an increase in the availability of portable water after the RUDEP intervention. The increased availability of portable water and toilets in rural areas could lead to better health conditions and increase the productivity of rural dwellers. This is in tandem with the findings by DFID (2015), which indicated that part of the increased income from integrated schemes was most often invested in housing facilities such as water, toilet and electricity.

5. Conclusion

This study examined the potential of the RUDEP integrated scheme in improving the livelihoods and housing conditions of rural dwellers. The findings revealed an increase in the number of respondents with private accommodation after the RUDEP intervention. Moreover, most respondents had increased access to domestic housing facilities such as water wells, pit toilets and electricity. Furthermore, based on perceptual analysis, many respondents enjoyed increased income, productivity, and better loan access via farmers' cooperatives. The access to loans enhanced their livelihoods as they had more capacity to generate higher income and were thus able to improve their housing conditions.

In addition, the trend analysis revealed an increasing trend in the respondents' income during the period studied. Hence, the paper concluded that integrated schemes could be used as a self-financing strategy for qualitative and quantitative rural housing improvement in Nigeria. The study, therefore, posits that integrated housing schemes could be a strategic option for improving rural housing conditions in Nigeria.

Moreover, the case study for this research, the RUDEP integrated scheme, could have had a more significant impact on the lives of all the participants. Additionally, it could have had a more expansive coverage if all tiers of government in the country gave it the much needed financial and human resource boost. Whereas the case study was not primarily focused on rural housing improvement as its objective, the improved livelihood/income impacts the improving housing conditions of rural dwellers. Finally, the study opined that an integrated scheme designed to improve rural infrastructure and housing could significantly impact rural infrastructure and participants' housing needs.

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