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# **SUSTAINABLE AGRICULTURAL DEVELOPMENT AND GRASSROOTS' INFORMATION PROVISION: AN APPRAISAL OF INFORMATION NEEDS OF ADANI RICE FARMERS IN ENUGU STATE OF NIGERIA**

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## **Abstract**

The study investigates sustainable agricultural development and grassroots information provision: an appraisal of information needs of Adani rice farmers in Enugu State of Nigeria. It catalyzes to achieve the sustainable development goals 1 and 2 as projected in 2030. The study adopted a descriptive survey design with a population of 500 rice farmers from the three villages in Adani. Sixty (60) rice farmers were randomly selected from each of the three villages summing up a sample size of 180 respondents. Questionnaire and interview were used for data collection. Data collected were analyzed using frequency count and percentage. The findings of the study revealed that 46.7% of the respondents have no formal education. The study shows that Adani rice farmers need information on the use of fertilizers, and on the control of pests, diseases and weeds; but due to the absence of library/information centres, lack of extension officers, and high rate of illiteracy, these information needs are far from being met. However, the study recommends the need for improved level of education among the rice farmers, establishment of public library in the study area and a dire need for the state government and policymakers to give support in the provision of farm implements such as mechanized farm machines, storage facilities, and electricity for improved farming. Adhering to the recommendations will create an agreeable atmosphere for sustainable agricultural development in Adani and Enugu State at large as it will improve the socio-economic well-being and the standard of living of the people of Enugu State.

**Keyword:** Sustainable agriculture, rice farmers, information provision, library services

## **Introduction**

Presently, issues relating to agricultural development are of great concern as the global food crisis is increasingly recorded in many parts of the world. Agriculture has been and is still a critical factor in the socio-economic development of many countries of the world particularly the developing countries of Africa, Asia, and Latin America. Although Nigeria depends heavily on the oil industry for its budgetary revenues, it is predominantly an agrarian society as approximately 70% of its populace engages in subsistence agriculture (Attamah, Asadu & Eze, 2020). According to the United Nations (2018) 694 million Africans or 59.6% and 95 million or 52.2% Nigerians live and derive their livelihood from rural areas where they devoted much of their time in farming, trading, and other works of arts and successively contribute to global food security and economic growth. Encyclopedia of the Nations (2009)

maintains that agriculture provides 41% of Nigeria's total Gross Domestic Product (GDP) for some years now. Agriculture is therefore a veritable tool that could lead Nigeria into a giant economic status if harnessed appropriately to ensure sustainability (Ajaero, Mba and Okeke, 2013).

The idea of sustainable development in various sectors of the country was introduced in the late 1980s by the World Commission on Environment and Development (WCED) as a development that strives to meet the needs of the present generation without compromising the chances of future generations to meet their own needs. Okpiaifo (2019) submits that sustainability requires integration in various systems such as economy, agronomy, and environment. Specifically, in the agricultural context, Latruffe, et al. (2016) maintain that sustainability is commonly achieved along three pillars or objectives: environmental, economic, and social that is, economically viable, socially supportive, and ecologically sound (Western SARE, 2012). According to Potts, et al. (2014) agricultural sustainability standards are prominent in coffee, cocoa, palm oil, tea, cotton, sugar, soybeans, and bananas but less relevant in field crops such as rice, corn, and wheat which occupy more than 50 percent of the global crop area. This is one of the reasons why rice production is decreasing day after day.

Therefore, to inspire sustainability in rice production, the Sustainable Rice Platform (SRP) Standard for Sustainable Rice Cultivation was introduced in 2015 and updated in 2019. The standard applies to all farm-level processes in rice production, including postharvest processes under the farmer's control, and it is a tool for practitioners in public and private sectors to drive wide-scale adoption of climate-smart sustainable best practices (SRP, 2019b). Notwithstanding that the standard has been in existence in the past six years, it is yet to be known in most rural communities such as Adani due to the inadequate flow of information.

Adani is a well-known town in Uzo-Uwani local government area of Enugu state. It is made up of three major villages (Uwenuokpa, Ezema, and Ajuona village) with many sub-villages. It is one of the famous towns known for the cultivation and production of rice in

Enugu State. Adani has a vast agrarian area good enough for rice farming and this has encouraged a large population of Adani people in the cultivation of rice. Their product is popularly known as 'Adarice'. Adani rice is a major source of food supply to the people of Adani and the entire people of Enugu State. It also generates income for the individual farmers which subsequently increases the national Gross Domestic Product (GDP) of the nation through taxes and farm produce revenue.

Despite the significant role of Adani rice in Enugu State and the country at large, sustainability has been its major problem. This is because of inadequate flow of information to upgrade the Adarice farmers' skills, instruct them on the possible ways to overcome both human and natural factors affecting the rice production; and most importantly to equip them with skills to improve the quality of their product to enable them to compete with their rivals from other areas. For this reason, there is a drastic decline in the number of rice farmers and subsequently a gross decline in rice production in Adani which consequently leads to increased poverty and food insecurity in Enugu State.

### **Statement of the Problem**

Research evidence has shown that over the years, Adani rice farmers have played a key role in the food supply in Enugu State, and in other surrounding States as their contributions to agricultural development in the country. It has also provided job opportunities to a vast number of people and creates local markets for the products. But currently, Adani rice farmers are faced with numerous challenges among which are lack of soil fertility management, lack of diseases and pest management, poor health facilities, poor credit and irrigation facilities, lack of knowledge to apply new methods and technologies as well as lack of extension services. However, these challenges are attributed to the inadequate flow of information resources among Adani rice farmers and other socio-economic factors that preclude them from updating their knowledge. The scenario has adversely affected rice production in Adani and led to great havoc on the well-being of the people of Enugu State and the country at large. Although a

good number of scholars have conducted studies on sustainable agriculture in Enugu State yet none of the previous studies examined the information needs of Adani rice farmers. Hence, the need to examine the grassroots information provision of Adani rice farmers to ensure sustainable development in rice production in the area.

### **Purpose of the Study**

Generally, the study investigates sustainable agricultural development and grassroots information provision needs of Adani rice farmers with specific reference to:

1. find out the educational qualification of Adani rice farmers
2. identify the information needs of Adani rice farmers
3. determine the sources of information of Adani rice farmers
4. identify the challenges encountered by Adani rice farmers in accessing information to satisfy their information needs.

### **Literature Review**

Rice is the second most important staple in Nigeria. According to (FAO, 2019) it accounts for 10.5 percent of the average caloric intake; and 6 percent of household expenses (Johnson, et al., 2013). Nigeria is ranked the second-largest producer of rice in Africa due to a 70 percent growth in production in the last decade (USDA – FAS, 2019). However, in Nigeria rice is produced mainly by small-scale farmers (80 percent of which farm less than a hectare) under rain-fed conditions, which leads to relatively low yield productivity (Takeshima & Bakare, 2016).

The situation is alarming at Adani where the inadequate flow of information and illiteracy hinder the application of innovative technologies in rice production. To this effect, Adani rice farmers lack relevant information on agricultural innovation as the available information appears in print form which is hardly access by the farmers. In supporting this, Tripp (2006)

avers that Nigerian farmers are reported not to feel the impact of agricultural innovations because of inadequate flow of information. Ezema (2011) avers that adequate flow of information is very crucial as it helps in combating socio-economic and political problems in human societies. Besides, the development of a country depends on how much information its citizenry at the various sector of the economy can acquire ( Oyeronke, 2012). Therefore, information is the key to success in the operation and management process of every human activity agriculture inclusively (Ariyo, 2013). Given this, there is a need to keep Adani rice farmers abreast of the current information for agricultural best practices and provide access to such information to ensure the sustainability of rice production in Adani. This is because Adani rice farmers like their counterparts in the globe require information on the various stages of rice production which include cultivating, harvesting, and processing. As it is reported that improper information on site selection, seeds and seed preparation, time of sowing, spacing, method of applying fertilizer, pest and disease control, and the appropriate time for harvesting will reduce rice production to a large extent. (Kamai, Omoigui, Kamara and Ekeleme, 2020). Although according to Mohammed, Ibrahim, Hayatu, and Mohammed (2019) some organized agricultural bodies such as the International Rice Research Institute (IRRI), Sustainable Rice Platform (SRP), and Federal Ministry of Agriculture and Rural Development (FMARD) published and circulate relevant information on the skills and knowledge required for expansion of rice production. yet access to the information is still problematic in Adani. Access to information is a person's ability to freely find and use the information and make independent decisions based on that information. According to (Watkins, 2019). library specifically public libraries play an important role to inspire sustainable development in the society by providing free access to information resources for knowledge, recreation, intellectual products of society and also process them for easy identification and retrieval. Dada (2016) also submits that public library holds and provides access to a wealth of resources

that people can use to explore differences, promote heritage, learn about solutions to problems, and so on. In emphasizing the need for a public library for rural farmers Iorver, Ternenge, Terlanga, and Terhemem (2019) noted that public libraries and information centers have a great role to play in providing necessary information to the rural farmers through different formats like talks, exhibition, posters, videos, and print media. Unfortunately, there is a paucity of public libraries in the Adani community of Enugu State. Consequently, Nwanze in Kamai, Omoigui, Kamara, and Ekeleme (2020) reveal that in communities where there is a paucity of information providing centers, rural farmers are left with little or no information on how to control pest and diseases, environmental hazard, seedling, preservation, finance, and access to a loan which adversely affect their scale of production.

Aside from the public library, mass media is also a good source of information for rice farmers. Mass media methods in agricultural information dissemination generally, are useful in reaching a wide audience at a very fast rate. They are useful as sources of agricultural information to farmers and as well constitute methods of notifying farmers of new developments and emergencies (Ariyo, 2013). The media are important in providing information for enabling the rural community to make an informed decision regarding their farming activities, especially in the rural areas of developing countries (Lwoga, 2010). But in the case of the Adani community, mass media seems to be ineffectual due to poor infrastructural facilities which limit the rice farmers from accessing information from this source. In supporting this Ughegbu and Opeke, (2004) concur that the conventional means of information dissemination like radio and television appear not to serve the rural rice farmers adequately due to illiteracy, lack of electricity, and high rate of poverty. Rural farmers are disadvantaged in published or broadcast information because they could hardly read nor interpret the information stored in such forms. This corresponds with Kamai, Omoigui,

Kamara, and Ekeleme (2020) that farmers' interests are disregarded when most of the agricultural innovations are broadcast in the English language instead of the local language. However, sources of information that could circulate to all Adani rice farmers are information from community gatherings, churches, farmers' co-operatives societies, and extension service programmes because the information from these sources is disseminated orally in the local language. This assertion advocates with Ughegbu and Opeke (2004) that oral information dissemination appears more effective than the printed forms in the rural areas because African culture is predominantly oral and the centre of activities in the village square where the community leaders form the bedrock of information givers. This notwithstanding, there are foreseeable challenges arising from these information sources. Adekunle and Alfred (2002) detect that another major constraint to agricultural information dissemination is the inadequacy of existing extension programmes because some of the existing programmes are conceived without well thought-out plans. The authors argued that agricultural programmes prepared in such a hurry without the farmers whose attitudes are to be changed making any inputs can neither sustain the farmers' interest nor effect the desired attitudinal change. Moreover, at this modern time, there are lots of innovative information and technologies for agricultural development appears in print and mass media which Adani rice farmers are less privileged. Therefore, there is a need to improve the grassroots information provision of Adani rice farmers to ensure the sustainability of rice production in the area.

## **Methodology**

The study adopted a descriptive survey design. Its population consists of 500 rice farmers from the three major villages of Adani. Sixty (60) respondents were randomly selected from each of the villages which sum up to a total sample size of 180 respondents. The research instruments used for data collection were interviews and questionnaires. The interview was conducted to the illiterate respondents while the questionnaire was administered to the literate

respondents. Out of the 180 copies of the questionnaire administered, 150 copies were properly filled and used for the study. The data collected were presented in frequency distribution tables and analyzed using frequency count and percentage. The benchmark for the analysis is fifty percent (50%). This implies that items with a percentage score below 50% are rejected while items with a percentage score of 50 and above are accepted.

## Results

Research Question 1: What is the educational qualification of rice farmers in the Uzo-Uwani Local government area of Enugu state?

**Table 1:** Educational Qualification of Rice Farmers in Uzo-Uwani Local Government Area of Enugu State

S/N	Items	Frequency	Percentage	Rank
1.	Informal education	70	46.7	1
2.	First School Leaving Certificate	50	33.3	2
3.	WASC, WAEC, GCE, SSCE, NECO	20	13.3	3
4.	OND/NCE	5	3.3	4
5.	HND	3	2	5
6.	Degree	2	1.3	6
	<b>Total</b>	<b>150</b>	<b>100</b>	

Table 1 above shows the educational qualification of rice farmers in the Uzo-Uwani local government area. It reveals that farmers with no formal education constitute a large proportion of the respondents (46.7%). While 50 of the farmers (33%) have First School Leaving Certificate (FSLC), only 20 (13.3%) have high school qualifications and 10 (6.6%) have diploma/degree certificate.

**Research Question 2: What are the information needs of rice farmers in the Uzo-Uwani Local government area of Enugu state?**

S/N	Items	Frequency	Percentage	Rank
1	The use of pest control management	150	100	1
2	Disease control	150	100	2
3	The use of fertilizers	148	98.7	3
4	Weed control	145	96.7	4
5	Marketing of farm produce	124	82.7	5
6	Investment opportunities	122	81.3	6
7	Use of improved varieties	104	69.3	7
8	Nursery practice	76	50.6	8
9	Credit facilities	62	41.3	9

**Table 2: Information Needs of Adani Rice Farmers**

Table 2 presents the result for the agricultural information needs of the rural farmers. As can be seen from the table, all the farmers require information on disease and pest control systems while 98.7% of the farmers need information on the use of fertilizer. Also, the table indicates that (96.7%), of the farmers need information on weed control mechanism, (82.7%) needs information on the marketing of farm produce while (81.3%) needs information on investment opportunities. Other forms of information required by the farmers as shown on the table are nursery practices and sources of credit facilities with percentage responses of 50.6% and 41.3% respectively.

**Research Question 3: What are the sources of information of rice farmers in the Uzo-Uwani Local government area of Enugu state?**

**Table 3: Sources of information of Adani rice farmers**

S/N	Items	Frequency	Percentage	Rank
1	From community gathering	148	98.6	1
2	Fellow farmers	145	96.6	2
3	Through hearsay/gossip	142	94.6	3
4	Town criers	134	89.3	4
5	From the churches	122	81.3	5
6	Farmers' co-operatives	116	77.3	6
7	Mass media	98	65.3	7
8	Internet	30	20.0	8
9	Print media	11	7.3	9
10	Libraries	0	0	10

Table 3 presents the result for the sources of information for the rural farmers. It is clear from the table that the major sources of information for the farmers are through community gathering (98.6%), Items on fellow farmers; hearsay/gossips; town criers and churches also ranked very high percentages while the internet, print media, and libraries are below 50% indicating that adequate information does not get to rice farmers through these sources.

**Research Question 4: What are the challenges encountered by rice farmers in the Uzo-Uwani Local government area of Enugu State?**

**Table 4: Challenges encountered by Adani rice farmers in accessing information to satisfy their information needs**

S/N	Items	Frequency	Percentage	Rank
1	Absence of library/information centers	150	100	1
2	Lack of extension programme/officers	148	98.6	2
3	High illiteracy rate	143	95.3	3
4	Lack of time to source information	135	90	4
5	Language barrier	124	82.7	5
6	Sheer neglect	122	81.3	6
7	The financial problems	118	78.7	7
8	Poor Government policies	113	75.3	8
9	Corruption among leaders	75	50	9
10	Inconsistency on part of information providers	60	40	10

From the table, it is evident that the greatest challenge is the absence of library and information centres in the area ranked first with 100%. It is closely followed by a lack of extension officers in the community (98.6). Other major barriers in accessing information by the farmers are the high illiteracy rate in the community (95.3%), and lack of time to source information (90%). The least ranked challenges are corruption among leaders (50%) and inconsistencies among information providers (40%).

**Discussion of Major Findings**

***Educational qualification of Adani Rice Farmers***

Information obtained in table 1 indicates that a greater percentage of the entire population under study is uneducated. This implies that there is a high illiteracy rate among the rural farmers which to a larger extent impede access to information. The finding advocates with Huang, Hu,

Cao, and Rozelle (2008) that the primary reason for the lack of knowledge and information among rural farmers is because the majority of the hundreds of millions of farmers have received limited education about the value and efficient use of plant nutrients

### ***Information Needs of Adani Rice Farmers***

Based on the information presented in table 2 the agricultural information needs of the rural farmers include disease and pest control system; information on the use of fertilizer; weed control mechanism; marketing of farm produces as well as investment opportunities for improved agricultural production. This implies that communities,, where the above needs have not been met,, have created a gap or deprivation leading to food shortage. This finding agrees with Kamai, Omoigui, Kamara, and Ekeleme, (2020) that improper information on site selection, seeds and seed preparation, time of sowing, spacing, method of applying fertilizer, pest and disease control, and the appropriate time for harvesting will reduce rice production to a large extent.

### ***Sources of information to Adani rice farmers***

Data presented in table 3 shows that the major sources of information for the farmers are through community gathering, cooperative society; town criers, and churches because the information from these sources is disseminated orally in the local language. This assertion advocates with Ughegbu, and Opeke (2004) that oral information dissemination appears more effective than the printed forms in the rural areas because African culture is predominantly oral and the center of activities in the village square where the community leaders form the bedrock of information givers. The study also reveals that information sources like the library, mass media and the internet where current information on innovative practice and technologies for agricultural development and sustainability could be obtained are not effective in Adani. This is because there is a paucity of the public libraries, lack of electricity, and poor internet connectivity in the area. The finding corresponds with Tripp (2006) that Nigerian farmers are

reported not to feel the impact of agricultural innovations because of inadequate flow of information. Besides, Nwanze in Kamai, Omoigui, Kamara, and Ekeleme (2020) opines that in communities where there is a paucity of information providing centers, rural farmers are left with little or no information on how to control pest and diseases, environmental hazard, seedling, preservation, finance, and access to a loan which adversely affect their scale of production.

***Challenges encountered by Adani rice farmers in satisfying their information needs.***

Data presented in table 4 identifies paucity of the public libraries, lack of extension programmes, high rate of illiteracy, language barrier, financial problems, and poor government policies as the major constraints to Adani rice farmers in satisfying their information needs. The finding agrees with Fasoyiro and Yaiwo (2012) that in Nigeria, rice is mainly produced by small-scale farmers whose products are characterized by low output resulting from production inefficiency, poor funding, aging farming population, low technological know-how, and high rate of illiteracy. The finding is also in line with Mohammed (2014) that most of the rice farmers in Nigeria are illiterates, unorganized with a low-capital base, and employed the use of crude tools with little farm mechanization equipment usage.

Adeekunle and Alfred (2002) detect that another major constraint to agricultural information dissemination is the inadequacy of existing extension programmes because some of the existing programmes are conceived without well-thought-out plans

**Conclusion**

Based on the results of the study, it is concluded that the majority of the respondents are farmers with no formal education. The study also concludes that Adani rice farmers need information especially on pest and disease control, the use and method of applying fertilizers, weed control, and marketing of farm produce. These deficiencies are attributed to high rate of illiteracy and inadequacy of other social factors because they hardly obtain information from the library,

mass media and the internet which provides the most current sources of innovative information for improved sustainability.

### **Recommendations**

Based on the findings, the study advocates that to ensure adequate flow of information among Adani rice farmers to promote sustainability of rice production in the study area, the following recommendations are of necessity:

- i) to improve the educational level of farmers in the study area to encourage the rice farmers to access current information on innovative agricultural techniques from mass media and the internet.
- ii) to establish a public library in the study area to ensure free access to reliable information to the rice farmers.
- iii) There is also a need for government and policymakers to give support in the provision of farm implements (mechanized farm machines and storage facilities) and basic social amenities (hospital, electricity and pipe-born water) for improved farming and health being of farmers in the study area.
- iv.) there is a need to encourage Agricultural extension services in the study area. The extension workers will help to disseminate information on the use of advanced agricultural techniques and technologies to farmers in their local language
- v.) there is a dire need for government to give grants to the rural farmers to encourage them to adopt and use modern agricultural implements for improved production.

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