

Analysis of Critical Facilities of Rice Value Chain Actors in Benue and Nasarawa States Nigeria

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Abstract: - The study was carried out to specifically to analyse the critical facilities of rice value chain actors in Benue and Nasarawa States, Nigeria. The population of the study comprised all rice value chain actors in the two states. Structured questionnaire was used to collect data from 320 respondents from the two states. Multi-stage sampling procedure, stratified:-purposive and simple random sampling techniques were used for the study. Descriptive statistics such as frequencies, percentages, mean, standard deviations were used to analyse the data for the study. It was evident from the study that the pooled mean results indicated that producers' most critical facilities were planters (97.8%), harvesters (97.2%) and threshers (97.2%) in Benue and Nasarawa States respectively. Sources of foundation seeds (98.7%), supply of foundation seeds (98.4%) and NPK: 27:13:13 (96.2%) were the most critical facilities to input suppliers. Electricity need (91.8%), de-stoners (90.2%) were the critical facilities to processors. Marketers' value chain actors indicated transportation (74.7%) packaging (70.9%) and storage (63.3%) as their critical facilities in the rice value chain respectively. The study concluded that rice value chain actors are affected by the poor availability of critical facilities needed by the value chain actors in Benue and Nasarawa states. It was recommended that critical facilities should be made available by government for easy access by the various rice value chain actors at subsidized rate for their effective utilization and enhanced performance.

Key words: Facilities; Value chain; Activities

I. Introduction

Farmers have been producing crops for ages through their inherited obsolete production technology from their ancestors and these olden day technologies cannot meet up with the demand of the present day. Rice production faces many challenges like poor communications, weak services and institutional gaps between research, extension and farmers (IRRI, 2015). According to Nwike and Ugumba (2015) majority of rice farmers are poor and with corresponding low production efficiencies.

Training farmers for improved skills on rice value chain performance is important as one of the numerous activities that need to be carried out to sustain production, harvesting, processing, marketing and distribution of the commodity. These in turn enhance self-sufficiency in food production in Nigeria and the World at large. Training on the rice value chain critical facilities or technologies and ensuring the availability of facilities is important and mostly improve the ability of individual rice value chain actor to make his or her activities in rice value added chain more efficient and profitable (Alese, 2014; Iwuchukwu, 2017; and Umar and Omoayena, 2015). Making critical facilities available for value chain actors on rice as well as developing their abilities and attitudes through training towards the effective utilization of such facilities greatly facilitates their technical competence and performance (Odoemenem, 2010).

Capacity building in rice value chain is an important key which enable the rice farmers meet the new quality and safety requirements as well as learning how to manage their production techniques (Bammann, 2007). Efforts by government through capacity building needs of farmers are to create jobs for out teeming youths, increase their value chain addition to their products and enable them have modern equipment, tools, improved seed varieties, agro-chemicals and improved marketing knowledge for production, input supply utilization, processing, marketing and distribution (Ekanem and Inyang, 2013; Umar, Omoayena, 2015; Meron, 2016; and Kagbu, Omokore and Akpoko, 2016). There exist a huge institutional gap between research, extension and the farmers and lack of focus on training which can add value to rice value chain actors from production to consumption in spite of existing critical facilities, hence the need for the study.

II. Objective of the Study

The specific objective of the study is to analyse the critical facilities of rice value chain actors in Benue and Nasarawa States, Nigeria

III. Methodology

The study was carried out in Benue and Nasarawa States, Nigeria. The states are located in the North Central agro-ecological zone of Nigeria, Benue State lies between longitude 7^o47” and 10^o East and Latitudes 6^o25” and 8^o North of the equator. The population of the state is 4,219,244 with land mass of 33,958 sq km (BNARDA, 2005). The inhabitants of the state are predominantly farmers with low income depending mostly on rainfed agricultural practices.

On the other hand, Nasarawa State lies between Longitude 7^o10” to 9^o20” East and Latitude 8^o to 10^o North of the Equator. The state has a population of 1,863,275 people and land mass of 27,86201 square kilometers (NPC, 2006). Nasarawa State has three agricultural zones which are; central zone, western zone; and southern zones respectively (NAERLS, 2010).

A Multi-stage sampling procedure, purposive, simple random and stratified sampling techniques were used to achieve the objective of the study. In the first stage, two zones in Benue and Nasarawa States were selected using purposive sampling technique due to predominant activities of value chain activities in these areas. In the second stage, five blocks were randomly selected from each of the functional blocks from the zones in the two states making a total number of twenty blocks. In the third stage, two cells were selected from each of the twenty blocks by simple randomized sampling technique to arrive at a total of forty cells.

In the fourth stage, the sampling frame consist of rice value chain actors in each of the selected cells provided by the ADP were stratified into:-two respondents each for rice producers; input suppliers; processors, and marketers in the study areas. This gave a total sample size of 320 respondents for the study.



Fig. 1: Map of Benue State

Source: <http://www.mapofnigeria.com>, 2016



Fig. 1: Map of Nasarawa State

Source: <http://www.mapofnigeria.com> 2016

Method of Data Collection

Data for this research were collected from primary and secondary sources. Structured questionnaire and direct observations were used. Test and pretest Reliability was also carried out using Pearson product moment correlation analysis presented at two weeks interval. Data were analysed using descriptive statistics.

Measurement of Variables

All critical facilities were measured by their availability and usage by the rice value chain actors.

IV. Results and Discussions

Critical Facilities for Rice Value Chain Actors in Benue and Nasarawa States

Results on Table 1 shows the critical facilities available to rice value chain actors in the study area. The facilities listed in table 1 are producers had critical facilities that included irrigation (75.6%), improved seeds (74.7%), fertilizers, agro-chemicals (74.7%), tractors 86.5%), planters (97.8%), harvesters (97.2%) and thresher (97.2%) in Benue and Nasarawa states. These facilities were extremely critical for improved productivity by producers and seen as genuine efforts by farmers to increase production. However for irrigation Benue state 58.6% while Nasarawa was 64.3% implying that Nasarawa state had more opportunities than Benue in rice value chain. Irrigation (61.4%) was the least needed facility for producers for the two states, probably due to the fact that most of the producers practiced rain fed agriculture. Moreover, the respondents had little interest in dry season production which requires irrigation. The lack of available critical facilities like tractors, harvesters. indicated a great need for farm mechanization which is the surest way for increased productivity. This result disagrees with Bakare (2012) which supported that mechanization through the use of plough, harrow, tiller or rotavator is an important means during land preparation in agricultural production.

Table 1 presents results that the source of foundation seeds and its supply were very critical of all the facilities needed by the actors supply of input requires a clear knowledge of the type and source of foundation seeds, fertilizer, pesticides and machinery needed. This implies that the input supplier is expected to have a clear knowledge of cost and implication of the input supplied to the farmers. This result agrees with Iwuchukwu *et al.* (2014) which suggested that low level knowledge retard the potentials of individual to perform appropriately.

Processors had such critical facilities like rice milling machine, De-stoner, water and electricity. Moreover electricity was very key as the rice processing facility. Table 1 shows that majority (91.8% pooled) of respondents needed the facility in rice processing. The result is in agreement with Usman (2012) who stated that in order to deliver rice that can substitute imported rice, improved infrastructure water, roads and Electricity should be provided to improve on quality and reduce importation.

Marketing seeks to link up the producers with the other value chain actors through exchange of information, location, volume, quantity supplied and prices available. The Results in Table 2 further showed that 50 % of pooled mean formed a critical facility for marketing in Benue and Nasarawa States. This implies that farmers were able to sell their products to different actors and get price information from different value chain actors. This result agrees with Alarima *et al.* (2011) which stated that respondents in Forgera district get market price information from different value chain actors which empower them, on when and how to sell their produce.

Storage, transport and packaging were also shown to be critical facilities for rice value chain actors in Benue and Nasarawa States. Table 2 revealed that 63.3% pooled mean of respondents identified storage as a critical facility in marketing process. The implication of this finding was that agricultural products like rice needs to be stored to ensure quality, market demand and price speculation. This is in consonance with Hafiz. *et al.* (2012) who agrees that agricultural products need to be stored as a safeguard means against market demand or shortages, poor quality and price speculations. Transportation and packaging were also critical for marketers as shown in Table 1.

Transportation facilitates ensure movement of rice products from one place to another thereby making it possible for rice produced in one place is moved to the consumer in another location. Packaging facilitates preservation of product for long period of time. In this study both transportation and packaging were critical at 74.7% and 70.9% respectively. This implies that transporters move paddy rice from the village where it was produced to processing that will be parboiled, milled and marketed.

Table 1: Distribution of the rice value chain actors based on the critical facilities available in Benue and Nasarawa States
n = 320

| Actors Facilities | Nasarawa | Benue | Pooled |
|----------------------------|------------|-------------|-------------|
| Producer | F/% | F/ % | F/ % |
| Irrigation | 99(64.3) | 95(58.6) | (194(61.4) |
| Improved seeds | 116(75.3) | 123(75.9) | 239(75.6) |
| Fertilizer | 116(75.3) | 120(74.1) | 236(74.7) |
| Agrochemicals | 116(75.3) | 120(74.1) | 236(74.7) |
| Tractors | 139(90.3) | 134(82.7) | 273(86.5) |
| Planters | 147(95.5) | 162(100) | 309(97.8) |
| Harvesters | 145(94.2) | 162(100) | 307(97.2) |
| Thresher | 136(88.3) | 160(98.8) | 296(97.2) |
| Input-Supplier | | | |
| Supply of foundation seeds | 150(97.4) | 161(99.4) | 311(98.4) |
| Source of foundation seeds | 151(98.1) | 161(99.4) | 312(98.7) |
| NPK 15: 15: 15 | 110(71.4) | 155(95.7) | 265(83.9) |
| NPK 27: 13: 13 | 152(98.7) | 157(96.9) | 309(97.8) |
| SSP type | 148(96.1) | 156(96.3) | 304(96.2) |
| Urea type | (125(81.2) | 156(96.3) | 281(88.9) |
| Processors | | | |
| Rice par boiler | 122(79.2) | 130(80.2) | 252(79.7) |
| De-stoner | 136(88.3) | 149(92.0) | 285(90.2) |
| Water | 140(90.9) | 130(80.2) | 270(85.4) |
| Electricity | 148(96.1) | 142(87.7) | 290(91.8) |
| Marketers | | | |
| Markets | 61(39.6) | 97(59.9) | 150(50.0) |
| Storage | 77(50.0) | 123(75.9) | 200(63.3) |
| Transportation | 90(58.5) | 146(90.1) | 236(74.7) |
| Packaging | 101(45.1) | 123(54.9) | 224(70.9) |

Source: Field Survey, 2017

V. Conclusion and Recommendation

Based on the findings of this study, it was concluded that the critical facilities that negatively affect effective performance of rice value chain actors were: production equipment-: agro-chemicals; foundation seeds sources; and marketing facilities. It was therefore recommended that critical facilities should be made available by government at subsidized rate to be easily accessed by rice value chain actors to enhance their performance, rice value chain actors should be trained through government capacity building programmes to enhance their performance, critical processing facilities such specialized equipment should be made available to rice value chain processors, critical marketing facilities such as good feeder roads, effective transportation, branding, packaging, storage facilities should be improved by government and also made available to be accessed at all times by rice value chain actors for their enhanced performance.

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