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# Capacity Building Needs of Cassava Processors for Improved Value Chain in Cassava Processing: The Answer to Global Food Challenges

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By

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### Abstract

*This study focused on capacity building needs of cassava processors for improved value chain in cassava processing and marketing enterprise in Rivers State. Three research questions guided the study. The study was carried out in Rivers State. The sample for the study was two hundred and fifty-four (254). A 74 skill item questionnaire was developed from literature reviewed. Pilot study was carried out in order to determine reliability of the research instrument through Cronbach's Alpha which measured the internal consistency. The pilot study was conducted with selected thirty (30) Extension Agents and ten (10) Registered Cassava Processors using the split half method which yielded a co-efficient of 0.81 and 0.78 respectively. Two hundred and fifty-four (254) copies of the questionnaire were administered on the respondents through the help of three (3) research assistants. All the copies of the questionnaire were retrieved and analyzed using weighted mean and Improvement Need Index (INI) for research questions 1 to 5. It was found out that cassava processors needed capacity building in planning, sourcing, and processing skills for improved value chain in the cassava processing and marketing enterprise. It was recommended that the findings of this study be utilized to develop capacity building programs for retaining cassava processors for greater efficiency.*

Capacity building is explained by Abdullahi and Ajoku (2001) as a concept that is concerned with creating or enhancing the ability of a society to perform specific tasks and attain national development objectives. They further stated that capacity building is the process of developing and strengthening the skills, instructions, abilities, processes and resources that organizations and communities need to survive, adapt and thrive in

the fast changing world. Capacity building is defined by Harrington (1991) as improving a process to make it more effective, efficient and adaptive. He also explained capacity building as the updating of the initial or originally acquired knowledge and skills to enable an individual perform better than he used to do.

Cassava (*Manihot esculenta*) (Crantz) is a vegetatively propagated food crop that grows predominantly in the upland areas and some seasonally flooded areas in Nigeria. Cassava is one of the most important crops for Nigerian farmers and the most widely cultivated crop. The importance of cassava in the region cannot be over emphasized because it serves as a main source of food in the region especially amongst the poor persons. In a study conducted by Philip, Taylor, Sanni and Akoroda (2004), it was revealed that on the average, about 45% of the respondents in the Niger Delta States consume cassava meal more than 4 times a week and it is also the main source of income for many rural economies in the region. It is produced throughout the nine states of the Niger Delta by male and female producers either as a sole crop or intercropped with maize, melon, or vegetables. The Niger Delta region accounts for about one-third (over 30%) of the national cassava output and comes second after the middle belt region of the country in terms of production (Partnership Initiatives in the Niger Delta PIND), (2011).

The cassava value chain comprises input suppliers, farmers/farmers cooperatives, processors, traders, collectors, intermediate and final consumers within and outside the region. The raw cassava is either purchased by the consumer directly or sent to the processors for value addition via private collectors or cooperatives and even by the farmer and or households. Capacity building needs of cassava processors cannot be overemphasized. Cassava is at different stages of transformation in countries of sub-Saharan Africa. While it is still a staple food in most countries, it is presently a cash crop for urban consumption and food export notably in Ghana and Nigeria.

Organizations are constantly facing changes in their institutional environment and have to meet the new demands and challenges in a strategic manner. In that sense capacity building is always needed, at any point in time. This is what the concept of a "learning organization" is focusing on: an organization that is constantly observing and analyzing the environment in which it operates, and takes the necessary steps to adjust itself (its structures, its working mechanisms, and its resource base) to the new condition. However, in reality capacity building activities are rarely implemented on a routine basis but usually linked to some major changes in the organization's environment or to some points in time when an organization considers its medium and long-term strategic options and initiates changes accordingly. (PIND, 2011).

Despite the large quantity of cassava produced in Nigeria, the nation is yet to fully harness the value of the crop in terms of products of both food and industrial value with higher monetary return. This is because most of our farmers lack the needed capacity to produce high value products from cassava. A basic agricultural understanding is needed by farmers and potential entrepreneurs especially those

involved in the production and processing and even marketing of cassava and its products to be able to achieve this.

To avert this situation, cassava producers require capacity building. But the question is; what are the capacity building needs of these cassava processors? Sequel to all these problems led the researcher to conduct this research.

### **Methodology**

This study was carried out using the survey research method. The population of the study consisted of the fifty-four (54) Extension Agents and two hundred (200) registered cassava processors in Rivers State. The research instrument used for collection of data in this study was a structured questionnaire. Copies of the instrument were administered by the researcher, along with three research assistants. This was to allow for easy administration of the questionnaires to the Extension Agents and cassava processors in Rivers State. The research questions were answered using weighted mean and Improvement Need Index (INI). Capacity building need of the cassava processors was determined as follows:

- a. The weighted mean ( $X_n$ ) of the needed scale was determined for each item.
- b. The weighted mean ( $X_p$ ) of the performance was determined for each item.
- c. The performance gap (PG) was determined by finding the difference between the values of  $X_n$  and  $X_p$ . That is,  $X_n - X_p = PG$ .

Where PG is negative (-), it means that capacity building is not needed because the level at which the cassava processors could perform that item is greater than the level at which it is needed. Where PG is zero (0), it means that improvement is not needed because the level at which the cassava processors could perform the item is equal to the level at which it is needed. Where PG was positive (+), it means that capacity building is needed because the level at which the cassava could perform the item is lower than the level at which it is needed (Olaitan, Ali, Eyoh and Sowande, 2000).

### **Results and Discussion**

The analysis were based on the data gathered from the 254 respondents. The data collected are presented as analyzed in the tables below.

**Table 1: Performance gap analysis of the mean ratings of the responses of the cassava processors and Extension Agents for planning in cassava processing enterprise.**

S/N	Items	$\bar{X}_n$	$\bar{X}_p$	$-\underline{PG}-$ $X_n - X_p$	Remark
1	Formulate specific objectives for cassava processing enterprise	3.35	2.60	0.75	CBN
2	Revise the objectives of the cassava processing enterprise periodically as occasioned by change in market, demand, supply etc	4.10	2.10	2.00	CBN
3	Decide on the cassava product (flour, chip, garri , etc) to produce for the market based on consumer needs	3.60	2.43	1.17	CBN
4	Identify appropriate material resources including cassava tubers and equipment for cassava processing enterprise	4.03	2.60	1.37	CBN
5	Identify appropriate personnel for the cassava processing enterprise	4.22	2.63	1.59	CBN
6	Draw a budget for the cassava processing enterprise	4.38	3.20	1.18	CBN
7	Identify sources of finance for the cassava processing enterprise	3.90	3.60	0.30	CBN
8	Arrange the farm resources logically to make the most efficient use of the available finance	3.50	2.55	0.95	CBN
9	Identify suitable record keeping method for the cassava processing enterprise	4.08	2.05	2.03	CBN
10	Procure equipment appropriate for cassava processing enterprise	4.18	2.20	1.98	CBN
11	Draw a schedule of activities for the enterprise	4.48	2.85	1.63	CBN
12	Identify various levels of manpower needed for cassava processing enterprise	3.45	3.18	0.27	CBN
13	Identify various tasks to be performed and the appropriate time for each task	4.00	3.60	0.40	CBN
14	Select suitable site for the cassava processing enterprise	4.12	3.38	0.74	CBN

Data in Table 1 shows that the skill items ranged from 0.27 to 2.03 and are positive, which indicate that cassava processors need capacity building in the 14 items on planning skills in cassava processing and marketing enterprise.

**Table 2: Performance gap analysis of the mean ratings of the responses of the cassava processors and Extension Agents for sourcing for cassava tubers in cassava processing enterprise.**

S/N	Items	$\bar{X}_n$	$\bar{X}_p$	$-\text{PG}-$ $X_n - X_p$	Remark
1	Decide on variety of cassava tuber for each chosen product	4.08	2.45	1.63	CBN
2	Decide on the location to source for cassava tubers	3.88	3.45	0.43	CBN
3	Survey the market to obtain information on where cassava tubers are abundant and cheap	3.90	3.63	0.27	CBN
4	Board bus to the identified market of your choice	4.05	3.74	0.31	CBN
5	Identify the varieties of cassava tubers in the market	4.36	3.71	0.65	CBN
6	Select variety of cassava tubers that has the best quality for processing for the chosen product	4.25	2.10	2.15	CBN
7	Bargain the price of cassava tubers with the seller	4.98	3.30	1.68	CBN
8	Purchase the tubers at the agreed price	3.33	3.68	-0.35	NNED
9	Assemble the tubers in jute bags	3.70	3.65	0.05	CBN
10	Transport the cassava tubers to the processing site	3.65	3.45	0.20	CBN

Data in Table 2 reveals that the performance gap values of nine (9) out ten (10) items ranges from 0.05 to 1.68 and were positive. This shows that cassava processors need capacity building in the 9 items on sourcing skills in cassava processing and marketing enterprise.

One out of the ten skill items (item 8: purchase the tubers at agreed price) had a performance gap value of - 0.35 which indicates that the processors do not need capacity building on that one item. On the average, the processors need capacity building.

**Table 3: Performance gap analysis of the mean ratings of the responses of the cassava processors and Extension Agents for processing of cassava tubers in cassava processing enterprise.**

S/N		$\bar{X}_n$	$\bar{X}_p$	$-\text{PG}-$ $\bar{X}_n - \bar{X}_p$	Remark
1	Select healthy roots from the lot for processing	3.73	2.98	0.75	CBN
2	Wash in clean water to remove pieces of peel, sand	2.57	4.22	-1.65	NND
3	Select fresh, mature cassava roots without rot	2.93	4.02	-1.09	NND
4	Discard unwholesome roots	2.52	3.96	-1.44	NND
5	Remove soil from cassava tubers	2.70	3.69	-0.99	NND
6	Wash fresh cassava tuber	2.88	4.35	-1.47	NND
7	Peel fresh cassava tuber carefully with sharp steel stainless knife	2.85	4.24	-1.39	NND
8	Remove woody tips	3.45	3.18	0.27	CBN
9	Ensure that the rind is completely removed	4.08	2.58	1.50	CBN
10	Wash peeled tuber to remove any adhesive material or dirt	2.93	3.85	-1.55	NND
11	Put peeled tuber into container	2.78	3.55	-0.77	NND
12	Grate cassava tubers	3.20	3.08	0.12	CBN
13	Press grated cassava mash	3.63	3.43	-0.20	CBN
14	Ensure cassava mash is at moisture less than 50%	3.55	3.23	0.32	CBN
15	Brake caked cassava mash	2.76	3.53	-0.77	NND
16	Sieve the cassava mash	2.78	3.40	-0.62	NND
17	Dry material at 35°C -65°C	3.90	2.63	1.27	CBN
18	Maintain dry mash at 10-12% moisture content)	3.83	2.90	0.93	CBN
19	Mill dry mash	3.88	2.73	1.15	CBN
20	Do a second sieving where necessary	3.58	2.85	0.73	CBN
21	Allow flour to cool	3.79	2.63	1.16	CBN
22	Label packaging material	4.03	2.75	1.28	CBN
23	Package high quality cassava flour	3.84	2.73	1.11	CBN
24	Slice washed cassava tuber into about 1cm thickness	3.65	3.00	0.65	CBN
25	Dry slices at 35 – 65°C	4.00	2.83	1.17	CBN
26	Maintain moisture content at 10-12%	3.83	2.70	1.13	CBN
27	Package dry chips in sacks	3.55	2.65	0.90	CBN
28	Use motorized cassava grater	3.68	2.92	0.76	CBN
29	Pack grated cassava into bag, baskets made from cane, bark or palm branches	3.17	2.44	0.74	CBN
30	Leave grated cassava for 48 hours to ferment at room temperature	3.39	2.55	0.84	CBN
31	Fill polypropylene sacks with fermented paste	3.83	2.76	1.07	CBN
32	Place filled sacks in a jerk press and press	3.78	2.04	0.74	CBN
33	Sift pressed mash using a wooden sieve	2.93	3.50	-0.57	CBN
34	Separate fibrous materials to control the size of the particles	3.85	3.85	0.10	CBN
35	Roast and stir constantly in a large, shallow cast-iron pan over a fire	2.68	3.88	-0.20	CBN
36	Cool to room temperature	3.51	3.33	0.18	CBN
37	Sieve to obtain uniform granules size	3.60	3.47	0.13	CBN
38	Pack in polythene bags	3.75	3.03	0.72	CBN
39	Store in cool dry place	3.24	3.44	-0.20	NND
40	Grate cassava tubers	3.13	2.71	0.42	CBN
41	Mix mash with water	3.53	2.60	0.93	CBN
42	Filter or screen mixture in container	3.72	2.38	1.34	CBN
43	Allow mixture to settle	3.68	2.47	1.21	CBN
44	Dewater in a clean bag by pressing	3.72	2.68	1.04	CBN
45	Allow to dry	3.61	2.78	0.83	CBN
46	Mill	3.98	2.64	1.34	CBN

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Data in Table 4 reveals that the performance gap values of thirty-six (36) skill items ranges from 0.10 to 1.50 and were positive. This shows that the cassava processors need capacity building in the thirty-six (36) skill items. Eleven (11) out of the forty-seven (47) skill items had a performance gap value ranging from –0.20 to –1.65 which indicates that the cassava processors do not need capacity building on storage eleven (11) skill items (item 2: wash in clean water to remove pieces of peel and sand); (item 3: select fresh matured cassava roots without rot); (item 4: discard on wholesome roots); (item 5: remove soil from cassava tubers); (item 6: wash fresh cassava tubers); (item 7: peel fresh cassava tubers with sharp steel stainless knife); (item 10: wash peeled tubers to remove any adhesive materials or dirt); (item 11: put peeled tubers into containers); (item 15: brake caked cassava mash); (item 16: sieve the cassava mash) and (item 39: pack in polythene bags). On the average, the processors need capacity building on the processing of cassava tubers in cassava processing and marketing enterprise.

#### **Conclusion**

The result of the study revealed that cassava processors needed capacity building in the following skill areas in cassava planning, sourcing, processing. These findings are in conformity with the findings of Abu (2008), in a study on “Improvement Needs of Farmers in Soil Conservation in Kogi State, Nigeria” where it was found out that farmers require improvement in competencies in the following soil conservation practices: tillage operations, manure and manuring, soil testing analysis, forest management, irrigation and water management among others. This research work was embarked on to ascertain the capacity building needs of cassava processors for improved value chain in cassava processing enterprise in Rivers State. The findings of this research clearly revealed that cassava processors need capacity building in cassava processing enterprise.

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