International Journal of Agricultural Economics
2017; 2(4): 122-128
http://www.sciencepublishinggroup.com/j/ijae
doi: 10.11648/j.ijae.20170204.14

Potentials for Cassava Processing in the Littoral Region of Cameroon

Fon Dorothy Engwali*, Djoudji Serge Temkeng

Department of Agricultural Economics, Faculty of Agronomy and Agricultural Sciences, University of Dschang, Dschang, Cameroon

Email address:
dengwali@yahoo.fr (F. D. Engwali)
*Corresponding author

To cite this article:
Fon Dorothy Engwali, Djoudji Serge Temkeng. Potentials for Cassava Processing in the Littoral Region of Cameroon. *International Journal of Agricultural Economics*. Vol. 2, No. 4, 2017, pp. 122-128. doi: 10.11648/j.ijae.20170204.14

Received: May 12, 2017; **Accepted**: May 19, 2017; **Published**: July 10, 2017

Abstract: Smallholder agriculture is characterized by underemployment during off seasons, low-income earnings and severe post-harvest losses. This study aimed at examining the effects of cassava processing on rural households in the Littoral region of Cameroon; identifying the different processing techniques, the different products derived from transformation, analysing the profitability of the products derived identifying key factors that hinder the downstream development of the cassava sector; and. Data were collected using questionnaires administered to a sample of 140 respondents who were selected through the multistage random sampling technique. Descriptive statistics and budgetary analyses were used to analyse the data. The results from the analysis revealed that, women represent 82.86% of the number of processors and their average age is 44 years. The average household size is 7, while the education level is low; 48.57% had received only primary education and 38.57% were secondary school dropout. Their initial capital came from their personal savings. The following methods of cassava processing amongst others were found in the study area: grating, drying, draining, fermentation, grilling, sieving, extraction, and soaking. Results from the budgetary analysis revealed that, each of the different by- products 'waterfufu', 'starch', 'miondo', 'bobolo', 'fufu dry' and 'garri' generate profit. For 'Bobolo' the value added is 98 FCFA, 'Miondo' 95FCFA, starch 90Fcfa, 'waterfufu' 70Fcfa, 'garri' 65FCFA and 60 CFA francs for dry 'fufu'. The most profitable product was found to be 'bobolo', followed by 'miondo'. Based on the various cost/benefit ratios, it is evident that all these products are profitable because the ratios are greater than unity. It was revealed that the cassava sector does not go without difficulties; inadequate equipment, and inadequate training of processors were the main difficulties encountered. The cassava should be industrialized by installing many machines in rural areas and to invest more in training the processors.

Keywords: Cassava, Processing Units, Cassava Product, Value-Chain, Value-Added

1. Introduction

Cameroon is a country whose economy is highly dependent on the agricultural sector, which employs about 68% of the labour force, represents a significant share of Gross Domestic Product (GDP) and about 15% of government budget. Statistics show that the agricultural sector absorbs about 70% of the population of Third World countries [1]. The sector does not only ensure food safety but also generates 70% revenue for industries and contributes over 15% to state's budget and about 30% of the GDP [1]. According to the World Food Programme [3] food insecurity in Cameroon affects 9.6% of rural households against 6.7% of urban households.

Hence, the development of Cameroon cannot be complete without that of the agricultural sector in all its dimensions (cash and food crop cultivation). Cash crops such as coffee (Coffea *sp*) and cocoa (*Theobroma cacao*) are receiving promotional policies such as price policy but food crops such as maize (*Zea mays*), cassava (*Manihot esculenta*), sweet potato (*Ipomoea batatas*), beans (*Phaesolus vulgaris*), plantains (*Musa paradisiaca*) and yams (*Dioscorea cayennensis*) are practically left to the sole initiative of farmers. Most farmers developed particular interest for cocoa and coffee to the detriment of food crops. Following the 2011 [4] report, the main food crops in Cameroon were: cassava with three million tons, plantain; two million tons, maize with a million ton, cocoyam / taro, 1.3 million tons, and yams 2.2 million tons. All these productions reflect the wealth of

the rural sector. The cassava subsector was identified in the Rural Sector Development Strategy Paper drafted in 2001 and adopted in 2002, as one of the strategic crops that ensure food security and an increase in farmers' income in the country.

Cassava is the main starchy staple food with about 80% of rural and urban households consuming it and its derivatives on a daily basis [5]. Food derived from cassava fits into the basic diet for seven to eight million Cameroonians with a concentration in eight out of ten regions (North and Far North being exceptions). They contribute 7.6% of total calories intake of food at the national level and occupy the second position after plantain (9.77%) in the starch group [6].

Cassava and its derived products have on average 60% of the market share for roots and tubers, 40% for processed products ('fufu', 'garri', 'cassava stick' and 'waterfufu') and 20% for the fresh root [7]. Cassava serves as food for over two billion people and forms an integral part of the diet for more than half a billion of humans [8]. Cassava is also a first class source of food in West Africa and Madagascar [9].

Thanks to the edibility of the cassava root, cassava is mainly used for human consumption: about 60% of the cassava produced in the world is intended for human consumption [10]. Cameroon is one of the main cassava consuming countries. The national production was estimated at 3.1 million tons in 2010 [7] with an average yield of 14.4 tons / ha.

The cassava sector is important and requires special attention in view of a consistent structure of its strategic position within the Cameroonian agriculture. These cassava roots are so perishable that once dug up, they begin to degrade within 40 to 48 hours after harvest [11] without minimal processing or additional conservation measures. The dry product processing lowers water contents makes them less perishable and more stable. Beyond the ease of transportation of this dry product made possible by its reduced volume, processing reduces or eliminates its cyanide content; reduce losses in fresh roots after harvest; improve the taste of cassava roots and creates small rural processing enterprises [11]. According to a study by the "Collaborative Study of Cassava in Africa" [12] the percentage of cassava processing in villages depends on market access, mechanization as well as demographic factors [13].

This study has as main objective; to analyse the contribution of cassava processing units on the living standards of rural populations of the Littoral region. Specifically, it will: identify the transformations steps used in the locality as well as the various forms of products derived from the processing; compare income and expenditures related to the traditional production and sale of the various products obtained; and identify the constraints to cassava processing.

2. Methodology

2.1. Presentation of the Study Area

The Littoral Region, one of the ten regions of Cameroon, is considered as the economic heart of Cameroon. It differs from other parts of the country by its geographical location, demography and economy. The Region has four divisions including the Wouri which coincides almost to the city of Douala its headquarters; the Nkam Division with Yabassi as its capital; Mungo Division with Nkongsamba as its capital; and the Sanaga-Maritime Division Edea as its capital. Located between 4.25° N and 9.31° East, the Littoral Region covers a surface area of 20,248 km^2 or 4.4% of the national territory. The climatic characteristics of the region give it many advantages for the development of agricultural activities in particular, to combine diversification of production, distribution and spatial crop specialization [14]

2.2. Sampling Technique and Sample Size

The multi-stage sampling survey method which involves taking some units of the population by successive steps and generalising the results was used. The purposive sampling technique was used for the selection of the divisions in which the study was conducted. This technique was borrowed from a study carried out [15]. Firstly, two divisions, Mungo and Wouri; respectively, where the Douala-based Incubator CIP (Centre d'Incubation Pilote) is located and has a high cassava production level of 61% of the regional production, respectively [14]. The production in the Littoral Region was estimated at 400,000 tons in 2013 [14]. Secondly, five subdivisions were randomly selected from each division while three villages were later selected from each subdivision. Finally, farmers were randomly selected from each village based on the number of processors. A total of 140 farmers were selected for the study.

2.3. Data Analysis

The data were analysed with the use of the Statistical Packages for the Social Sciences (SPSS) software, to obtain descriptive statistics such as: means, frequencies and percentages. Moreover, the cost-benefit analysis and other functions were used to estimate the benefits and costs arising from products transformation and the various value added were obtained.

The value added (VA) is a function of the value of production (turnover) and intermediate consumption.

$$VA=P.\ Q - IC \quad (1)$$

Where:

P = Price per unit of output.

Q = Output

IC (intermediate consumption) refers to all goods and services used and fully consumed during the production cycle.

The value added is expected to be positive for the project to be profitable (VA> 0).

$$\text{Gross Margin (GM)} = \text{Total Revenue (TR)} - \text{Total Variable Cost (TVC)} \quad (2)$$

$$\text{Net Margin (NM)} = \text{Gross Margin (GM)} - \text{Total Fixed Cost (TFC)} \quad (3)$$

The Benefit-Cost Ratio (BCR) is given by equation (4)

$$BCR = TR / TC \quad (4)$$

Where; TR= Total Revenue,

TC=Total costs of production (fixed cost {FC} plus variable cost{VC})

It should be noted that these calculations were made with the average values collected in the field. That is to say the mean value of 140 respondents that constitutes the sample.

3. Results and Discussions

This section presents the results obtained after analyzing data collected from the field.

3.1. Socio-economic Characteristics of the Respondents

This section presents the distribution of respondents according to the specific socioeconomic characteristics.

Table 1. *Distribution of respondents according to their socio-economic characteristics.*

Age of respondents (years)	Frequency	Percentage
<20	1	0·71
20-29	2	1·43
30-39	34	24·75
40-49	54	38·57
50-59	43	30·71
60-69	6	4·29
Total	140	100.00
Sex		
Male	24	17·14
Female	116	82·86
Total	140	100.00
Level of education		
Primary	68	48.57
Secondary school	54	38.57
High school	15	10.71
University	3	2.14
Total	140	100.00
Marital Status		
Married	119	85.0
Single	16	11.4
Widow (er)	5	3.6
Total	140	100.00
Household size		
0	3	2.14
1-5	56	40.00
6-10	65	46.42
11-15	13	9.28
>15	3	2.14
Total	140	100.00
Sources of funding		
Self funding	125	89.3
Njangi	13	9.3
Micro finance	1	0.7
Bank	1	0.7
Total	140	100.0

The results in the table indicate that the cassava processing activity in the Littoral Region is predominantly carried out by females (82.86%), hence women keep their status as pillars offood security at the local level, and remain the leading actors of the production and marketing of products in rural areas [6]. The results of this study falls in line with the findings of the study of COSCA which showed that in more than two thirds of cases (68%), women are mainly those who ensure the processing of cassava, both sexes collaborate in 30% of cases, and only the remaining 2% are solely a male activity [16].

The respondents' ages ranged from 19 to 69 with an average of 44.62 years. It can be observed that there's a high concentration (38.57%) of population in the 40-49 age category. This implies that those of average age are more interested in cassava transformation in the study area. This age allows them to easily move given the physical abilities required for the activity. It is equally a potential for maximization of productivity.

Results in the table also show that the majority of respondents (48.57%) received only primary education. This shows that most cassava processors have a low level of education. This result is similar with the findings of [17] and might be attributed to the fact that in traditional societies, education of the female gender is not a priority. This has serious implications on the development of small enterprises in rural areas affecting their ability to access information; their adaptation to new processing techniques; and even their ability to access or obtain credit from financial institutions.

The married (85%) dominate the cassava processing sector in the Littoral region. The reason could be linked to the fact that before the transformation women need men to help them root and peel the cassava. Furthermore, married women benefit from the plantations of their husbands. Unmarried and widowed women are also involved in the sector by 11.4% and 3.6% respectively. Their involvement could be attributed to the fact that cassava transformation is an important economic activity in the study area.

The distribution of family size depending on the number of individuals living under the roof of the respondent shows that families with members between 6 and 10 persons are most frequent with a rate of 46.42%, which represents the rural sector whose family labour is important. This result is similar to the findings of studies in the South West Region of Nigeria by [18] and [19]. This household size is typical in rural areas where agriculture is practiced.

It can be observed from the table that the majority of surveyed transformers (89.3%) live on their own funds. They do not receive credit because not only that the conditions of access to these credits are the hardest but they are not sufficiently informed about credits. This does not promote the expansion of their businesses. Funding remains a problem for rural communities because self-provided capital is not generally sufficient for required expansion of activity. [17] In his study found that only 8.7% of the sample population resorted to micro-finance for funding.

3.2. Techniques and Products from Processing

It is rare to find a food crop that can undergo many transformations and eaten in different forms as cassava. The low conservation of fresh roots and their high content of toxic cyanogenic glucosides have certainly stimulated the

imagination of man. This section provides an overview of the main techniques used in the Littoral and describes in detail some major products of the transformation process. Table 2 presents a distribution of respondents according to the transformation steps their got involved in.

Table 2. *Distribution of respondents according to transformation steps undertaken.*

Transformation steps	Frequency	Percentage (%)
Grating	129	92.14
Drying	75	53.57
Draining	125	89.28
Fermentation	140	100.00
Frying	25	17.85
Sieving	40	28.57
Extraction	15	10.71
Steeping	94	67.14

Table 2 shows that the cassava processing steps found in the study area include among others: grating (92.14%), drying (53.57%), draining (89.28%), fermentation (100%), frying (17.85%), sieving (28.57%), extraction (10.71%) and steeping (67.14%). The available processing methods reflect the various forms of additional uses of cassava. These allow processors the choice and opportunities in their menu, while increasing their income. The grating is generally performed using machines. Excluding fermentation which is a step which all products pass through, a large majority of the respondents (92.14%), carryout grating and this step leads to a majority of the products. This step of the processing is followed by draining or pressing with 89.28%. This result of transformation steps percentage distribution of respondents follows those of the study by [15].

3.3. Different Product Processing

The main products and their transformation processes are presented in the figure1.

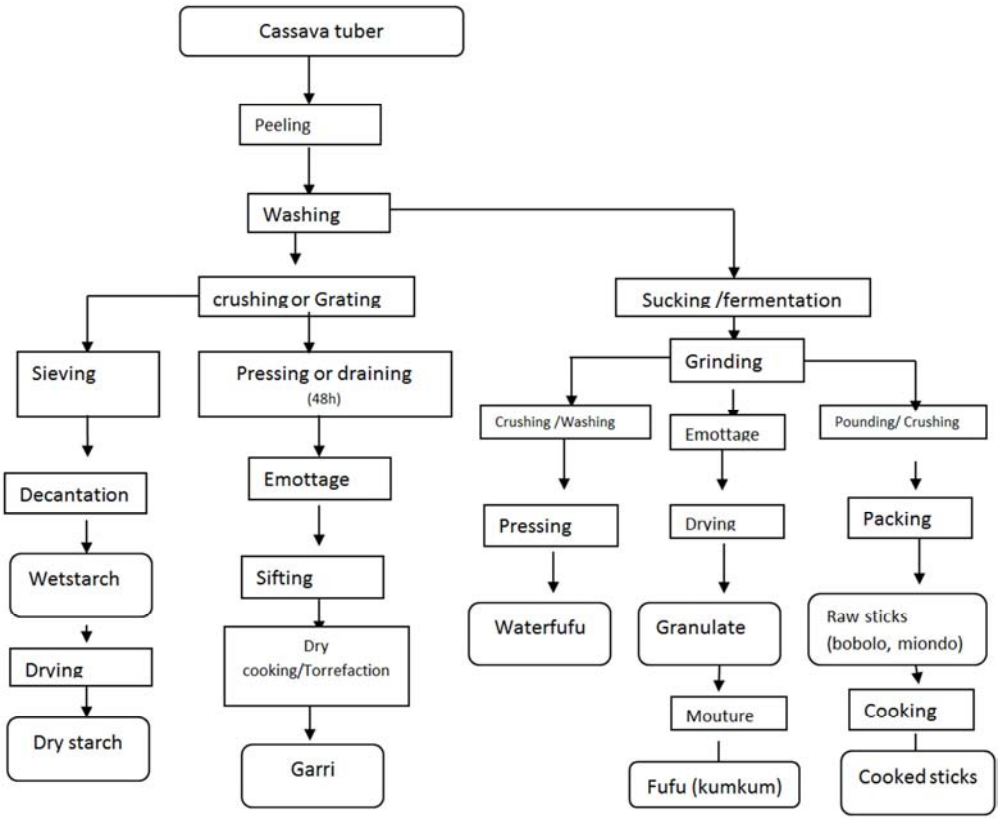

Figure 1. *Different processing product stages.*

The semi-finished products are: fermented cassava paste and unfermented cassava paste.

For fermented cassava paste, the cassava tubers are peeled and washed, then soaked in water for three days to soften. Once fermented, and cleaned by removing the middle, theresulting paste is pressed and dried to obtain fufu, or crushed to obtain a fermented cassava paste used to manufacture cassava stick and water-fufu. The unfermented cassava paste is used to make many other products such as garri and starch. Here the fresh roots are peeled, washed and then grated. The grating is done either manually by rubbing the cassava against a perforated metal sheet, or mechanically through a mill. Even though these methods of transformation are not in large-scale in terms due to their traditional character, nevertheless they provide an opportunity for endogenous knowledge for greater valorisation of cassava and its products.

3.4. Distribution of Different Products Derived from Transformation

There are many products derived from cassava

transformation. Table 3 shows the distribution of respondents according the various cassava products in the study area.

Table 3. *Distribution of respondents according to different cassava products.*

Products	Frequency	Percentage
Garri	25	17.85
Cassava sticks (miondo, Bobolo)	53	37.85
Waterfufu	37	26.42
Starch	15	10.71
Dry fufu (Kumkum)	10	7.14
Total	140	100.00

From table 3, it can be observed that the cassava sticks (37.85%) are the most transformed products followed by waterfufu and then garri in the study area to attract revenue. This is contrary to the findings of [15] where fufu is the most important transformed product in Nigeria, followed by garri and starch.

3.5. Perception of Farmers Towards Cassava Transformation

The perception of respondents regarding cassava transformation is presented in Table 4

Table 4. *Distribution of respondents regardingtheir perception about cassava transformation.*

Perception	Agreed	Undecided	Refused
Cassava transformation is a loss of time	6.42% (9)		93.57% (131)
Cassava transportation is expensive	100% (140)		
It is easy, fast and cheap to sell or consume raw cassava products	21.4% (30)		78.57% (110)
Transformed products do not procure enough revenue	27.1% (38)		72.85% (102)
I don't think cassava should be transformed apart from gari and waterfufu;	53.5% (75)	7.14% (10)	39.28% (55)
Transformation does not add value to the product			100% (140)

Values ( ) represent the number of respondents

Results in table 4 show that the majority of respondents (93.57%) do not share the idea that the cassava transformation processes is a waste of time, all respondents (100%) found that transportation to transformation sites is expensive, 78.57% of the respondents were of the opinion that it is not easier, faster and cheaper to sell or consume unprocessed cassava and 72.85% agreed that products provide enough income. All the respondents agreed with the idea that cassava derived products improve farm incomes and thus the value of cassava. The implications of these various responses are that farmers are aware of the importance of transforming cassava. This result is consistent with that of [19] on the perception of rural women towards the techniques of crop selection in Nigeria.

3.6. Budgetary Analysis of Cassava Processing

In analysing the costs of processing 100Kg of cassava into different products (CFA), direct costs and indirect costs were identified.

Table 5. *Summary table of the processing costs for the various products.*

Elements	Products					
	Gari	Starch	Waterfufu	Dry Fufu	Miondo	Bobolo
Direct Charges	7750	6000	6000	6000	8500	10200
Indirect Charges	2600	4100	2100	2100	4100	3600
Production Cost	10350	10100	8100	8100	12600	13800
Distribution Charge	200	200	200	200	200	200
Variable Cost	10550	10300	8300	8300	12800	14000
Fixed costs	16	124.18	124.18	124.18	139.31	139.31
Total Cost	10566	10424.18	8424. 18	8424.18	12939.31	14139.31

Table 5 shows the different costs involved to transform 100Kg of cassava root intovarious products. The average total cost includes the cost of; inputs (purchase cost of raw materials), labour, distribution and depreciation of equipment. The expenditure items that require more expenses are the direct and indirect costs. Accordingly, bobolo is the product that requires the highest costs (14139.31FCFA) while waterfufu and dry fufu incurs the least cost of 8424.18FCFA. Results of the analysis of the income related to the sale of each product from the transformation of one kilogram of cassava are presented in table 6.

Table 6. *Income related to the sale of each product from the transformation of 1 kg of cassava.*

Elements	Products					
	Gari	%VA	Starch	%VA	Water fufu	%VA
Value of Production	142.5		150		130	
Intermediary Consumption *	77.5		60		60	
Value Added	65	100%	90	100%	70	100%
Fixed costs	0.16	0%	1.24	1%	1.24	2%
Transaction Costs	2	3%	2	2%	2	3%
Indirect charges	26	40%	41	46%	21	30%
Net Margins	36.84	57%	45.76	51%	45.76	65%
Benefit Cost Ratio	1.35		1.44		1.54	

Table 6. *Continued.*

Elements	Fufu dry	%VA	Miondo	%VA	Bobolo	%VA
Value of Production	120		180		200	
Intermediary Consumption *	60		85		102	
Value Added	60	100%	95	100%	98	100%
Fixed costs	1.24	2%	1.39	2%	1.39	1%
Transaction Costs	2	3%	2	2%	2	2%
Indirect charges	21	35%	41	43%	36	37%
Net Margins	35.76	60%	50.61	53%	58. 61	60%
Benefit Cost Ratio	1.42		1.33		1.41	

Note: *Intermediary Consumption = Inputs or direct charges

Results in table 6 show that the value added is distributed among different stations namely: the renewal of fixed capital (depreciation), the labour force (labour), variable cost and profit margin of the processors. For each cassava products, the processor carries the lion's share with over 50% of the total value or 57% for Garri, 51% for starch, 65% waterfufu, 60% for dry fufu, 53% for miondo and 60% for the bobolo. This result is similar to those of [20, 21, 22] who found that cassava processing creates value added locally by increasing the product's value which will help reduce poverty.

From a kilogram of processed cassava, bobolo is the most profitable product for the transformer with a unit margin of 58.61 FCFA, against 50.61FCFA for miondo, 45.76 FCFA for starch and water fufu, 36.84FCFA for garri and 35.76 FCFA for dry fufu. The cost per kg of processed cassava are 141.39 FCFA for bobolo, 129.39 FCFA for miondo, 104.4FCFA for starch, 84.24FCFA for waterfufu, 105.66Fcfa for Garri and 84.24FCFA for dry fufu.

The total value added generated per kg of cassava produced, processed and marketed is important enough for all categories of products studied. Bobolo leads with a total value of 98 FCFA followed by miondo with 95FCFA, then the starch with 90FCFA the waterfufu with 70FCFA, garri with 65 CFA and finally dry fufu with 60FCFA.

The different benefit cost ratios for all categories of products were equally gotten. Empirically literature shows that projects with a ratio greater than one (1) are profitable, indicating that cassava processing into by-products is profitable in the study area. This result is consistent with that of [17] obtained from his study on the analysis of costs and yield of cassava processing in Nigeria. This study reveals that the benefit-cost ratio for cassava transformation is 1.17.

3.7. Cassava Processing Constraints

Constraints to cassava processing are numerous. Firstly is the traditional processing methods like peeling, a difficult operation due to the irregular shape of the fresh roots for local varieties; Grating by hand and certain transactions also have a chore character, such that the transformation on a very small scale is often uneconomical.

Secondly, cassava fresh roots contain tannin at a concentration of 0.4 to 0.5 mg / kg. These substances, which are part of the acid, give a gray colour to some of the products, rendering them unattractive to some consumers and which lowers the commercial value. The characteristics of the cultivated varieties also differ greatly from the point of view of their suitability for specific transformations.

Thirdly, dried products require sufficient sunlight, which is often a major constraint in the rainy season. The consequence of excess humidity during drying leads to low quality products with high water content, frequently attacked by mould. Infrastructural problems such as the poor state of some roads in the Littoral region limit further marketing potential.

Finally, the women involved in processing do not have the required training in hygiene and product quality. The semi-industrial or industrial units suffer from lack of adequate equipment and technology to produce products that meet market requirements: it is the case for raw starch plastic packaging and equipment.

4. Conclusion and Recommendations

The objective of this study was to analyse the potential of cassava processing in terms of wealth creation for rural populations in the Littoral region of Cameroon. Achieving this goal required a socio-economic analysis of the population, determining costs and benefits of the agents and finally the identifying the constraints related to this activity. The results show that the studied population is aging and that agriculture is the main source of income for the household.

Concerning the processing of cassava, the study revealed that cassava stick is the main by-product produced in the Littoral region. This predominance of cassava sticks in the processing chain is justified by the fact that it is the product with the highest marketing speed and therefore provides income to transformers faster. The results show that cassava transformation is profitable and contributes significantly to the living standards of the transformers in terms of income. However, cassava processors in the study area are constrained by inadequate storage facilities, poor packaging materials, low price of products and inadequate funds for the expansion of their business.

At the processing level, emphasis should be placed on training women groups in control of health risks related to the manufacturing process, product quality, research for foreign markets, upgrade their equipment, and packaging. To make available to the local population the cassava varieties that can be used for consumption as well as processing; to establish a quality standard for cassava products to enable the

integration of these products into the international market. To encourage and even legislate the integration of cassava flour in bread making, by bakery industries to integrate 10% of cassava flour to wheat flour; encourage the development of small processing plants by granting loans on favourable terms.

References

[1] World Bank. "Women: Key to African development". The World Bank, Washington D. C. News Release No: 2000/340/AFR.

[2] Document de Stratégie pour la Croissance et l'Emploi (DSCE). *AGRISTAT* n°16, MINADER, 2009.

[3] World Food Programme. "Situation de la sécurité alimentaire et des marchés au Cameroun". *Wfp*. 2011. Available from website www.wfp.org/foodsecurity, consulted on 05/07/2015.

[4] World Bank. The World Bank Annual Report: Year in Review. Washington, DC. © World Bank. https://openknowledge.worldbank.org/handle/10986/2378 License: Creative Commons Attribution CC BY 3.0. 2011.

[5] G. Essono, M. Ayodele, A. Akoa, J. Foko, J. Gockowski, and S. Olembo, "Cassava production and processing characteristics in southern Cameroon: An analysis of factors causing variations in practices between farmers using principal component analysis (PCA)". *African Journal of Agricultural Research*. 2008; 3(1): 49-59.

[6] Ministère de l'Agriculture et du Développement Rural (MINADER), "Dans Amélioration de la commercialisation et de transformation du manioc au Cameroun: contraintes et perspectives de la chaîne de valeur" 2006.

[7] T. Emmanuel,"Amélioration de la commercialisation et de transformation du manioc au Cameroun: contraintes et perspectives de la chaîne de valeur, Dans: Reconstruire le potentiel alimentaire de l'Afrique de l'Ouest", A. Elbehri (ed.), FAO/FIDA, 2013.

[8] Scott, J. Gregory, Rosegrant, W. Mark, Ringler and Claudia, "Roots and tubers for the 21st century: Trends, projections and policy options. Food, Agriculture and Environment". Discussion Paper 31, *International Food Policy Research Institute (IFPRI)*, Washington D. C. 2000.

[9] G. Amani, C. Nindjin, B. N'zue, A. Tschannen and D. Aka, Potentialité à la transformation du manioc (manihot esculenta crantz) en Afrique de l'ouest. Actes de l'Atelier "Potentialités à la transformation du manioc en Afrique de l'Ouest" - Abidjan, 4-7 Juin 2007, 358 pages.

[10] R. D. Cook and J. H. Cock, "Cassava crops up again". In: *New Scientist*, 1989; vol. 1669: pp. 63-68.

[11] J. Kwatia and W. Y. Jeon, in "Cassava in Tropical, IITA", Ibadan, Nigeria, 1990.

[12] Collaborative Study of Cassava in Africa (COSCA). Working Paper 1996:. P13.

[13] I. NwekeFelix, "Cassava: A Cash Crop in Africa. International Institute of Tropical Agriculture". (COSCA)Ibadan, Nigeria, Working. 1996: P. 4.

[14] Direction Régionale/ Ministère de la Planification de la Programmation et de l'Aménagement du Territoire /Littoral. Rapport sur le Développement Économique du Cameroun: Région du Littoral, 2013.

[15] M. A. Ukpongson, J. Chikaire, F. C. Anaeto, R. N. Nwakwasi, O. O. Aja and C. L. Ike,"Effects of Cassava Processing and Value Added Products on Sustainable Poverty Alleviation in Ikwuano Area of Abia State Nigeria". *New York Science Journal.*2011; 4 (10): 73 – 77] http://wwwsciencepub.net/newyork.

[16] F. I. Nweke, B. O. Ugwu, A. G. O. Dixon, C. L. A. Asadu and O. Ajobo, "Cassava Production in Ghana". COSCA working paper No. 21, IITA, Ibadan, Nigeria 1997.

[17] O. Oluwasola, "Stimulating rural employment and income for cassava (Manihot sp.) processing farming households in Oyo State, Nigeria through policy initiatives". *Journal of Development and Agricultural Economics.*2010; Vol. 2(2): pp. 18-25.

[18] O. Oluwasola and T. Alimi, "Financial intermediation in agriculture in Nigeria: Emerging role of Non-Governmental Organisations"Agrosearch. 2007; 9(1&2): 43-51.

[19] F. N. Nnadi, and C. O. Akwiwu, "Rural Women's Response to Selected crop Production Techniques in Imo State, Nigeria. *Global Approaches to Extension Practice*. 2005: 1 (1) 47-55.

[20] T. Phillips, D. S. Taylor, L. Sanni, and M. Akoroda,"A cassava Industrial Revolution in Nigeria. The potential for a new industrial crop". 43 p. IFAD/FAO. Rome, 2004.

[21] F. N. Nnadi, and C. O. Akwiwu, "Adoption of Improved Poultry Practices by Rural Women in Imo State, Nigeria". *Animal Production Research Advances* 2006: 39-44.

[22] C. U. Nwajiuba, "Socio Economic Impact of Cassava Post-harvest Technologies on Smallholder Farmers in Southeastern Nigeria". *Farming Systems and Resource Economics in the Tropics*. 1995; Vol. (20).