National Agency for Science and Engineering Infrastructure (NASENI) Call for Proposals (2025)

Project Title:

Competitive Coffee Value Chain for Sustainable Economic Development and Job Creation in Nigeria

Lead/Principal Investigator:

Ipinmoroti, Rufus Rotimi

Cocoa Research Institute of Nigeria (CRIN), Ibadan, Oyo State, Nigeria

Email || Phone
ipinmoroti2r@ymail.com 08078467448

Co-Investigators:

Oluyole, K.A.
Agbeniyi, S.O.
Adedeji, R.A.
Famuyiwa, B.S.
Okeniyi, M.O.
Adenuga, O.O.
Orisasona, M.O.
Adeleke, S.A.
Olalekan-Adeniran, M.O.
Oladokun, Y.O.M.

Duration: 3 years

Thematic Area: Agriculture and Food Manufacturing

August, 2025.

1. **Background**

Two coffee varieties are prominent in Nigeria: Arabica grown on Mambilla (Taraba State) Jos (Plateau State), and Obudu area (Cross Rivers State), while Robusta is produced in a number of low-altitude places. Altogether, coffee can be grown commercially in 13 states and 9 other emerging states in Nigeria namely; Taraba, Abia, Osun, Ondo Ekiti, Kogi, Edo, Plateau, Kwara, Ogun, Oyo, Cross Rivers and Adamawa (commercial production) Benue, Delta, Nasarawa, Niger, Kaduna, Lagos, Rivers, Ebonyi and Enugu (Emerging production States). However, Kabba coffee was noted in the World market and rated high for its good quality in the sixties. At the introduction of crude oil, attention shifted from agriculture, and this led to the abandonment of notable cash crops, for coffee is inclusive.

Results and studies have shown that the quality of Coffee produced in Nigeria, if well processed, could be high. Farmers are not being encouraged, and they are facing lots of challenges along the crop value chain. This has led the Cocoa Research Institute of Nigeria (CRIN) to take a survey in 2016 on the identification of challenges facing coffee production, and in 2018, CRIN held a stakeholders meeting that drew participants along the value chain. It was at the communique of the meeting that Jos Innovation Platform (IP) on Coffee was taken.

The Jos Plateau is one of the major Plateau in Nigeria. It has an area of about 6,700 km^2 and lies at 1,280 m above sea level. With a rainfall of about 1,324 mm and an annual temperature of 22.8^0C. The territory has a tropical savannah climate that supports the commercial propagation of C*offea arabica*

At the inauguration of the IP, Research, Extension, Marketers/Exporters, Export Promotion Council, NAFDAC, Farmers, Input dealers, Local Buyers, National Coffee and Tea Association of Nigeria (NACOTAN), Government Official, NEWS Agency, and the Bank of Agriculture were present.

Sensitizations were made, training on wet processing, and the need for a paradigm shift. Training on Good Agricultural Practices for sustainability was carried out

The technology identified through the survey, to improve productivity, is the introduction of the coffee wet processing method. To this end, CRIN, National Centre for Agricultural Mechanization (NCAM), and Kaldi Africa collaborated to develop three machines involved in wet processing: dehulling, depulping, and a coffee roasting machine, in finding lasting solutions to the issues and putting smiles on the faces of our farmers who expressed interest in coffee cultivation.

2. Statement of problems

Nigeria's coffee production is not at an optimum level. Produced beans are not well processed, leading to low premium price beans. The low premium price discourages the farmers to continue with its production. This automatically caused shortages in coffee production in Nigeria. To stem this problem, coffee farmers need to be trained on the appropriate method of coffee primary processing to improve the quality of their produce. This will enable the farmers to be selling their produce at premium price. However, selling at premium price will encourage the farmers to increase their production by having new plantations with improved planting materials and old plots rehabilitated through Good Agricultural Practices (GAP). in addition to wet processing techniques for quality beans, to attract a premium price. Therefore, encouragement of youths through having coffee processing centers at prominent locations; increasing coffee consumption in Nigeria through the establishment of coffee café at designated centres and increasing coffee production

through the establishment of coffee model plantations will transform the nation's economy and provide jobs to women and youths for improved livelihood.

3. Rationale

The country has viable growing areas in 13 states, and another 9 are emerging. The soil and climatic conditions support the propagation of *Coffee arabica* in the plateau, while *Coffee robusta* does well in the lowland. With the diversification of the economy in Nigeria, and the inexhaustible market of coffee due to its high consumption worldwide, it is important that comparatively, Nigeria should invest more in coffee production.

However, Kaldi Africa, Happy Coffee, Lingzhi Global Nigeria Limited and other offtakers who are major exporters of coffee in Nigeria are showing interest and have signed an MoU with CRIN to improve coffee production in Nigeria.

The business model involves: capacity building in production at the farm level, involving youth processing, creation of coffee roasting centres, and establishment of Coffee Café at some centres in the area to encourage consumption.

4. Vision of Success

To improve coffee production in Nigeria through a sustainable wet processing method in achieving improved livelihood to farmers and increasing national foreign earnings

5. Objectives

The Research Objectives are to

1. to acquire improved planting material,
2. to rehabilitate existing non-productive or low yield plantations,
3. to train and acquire wet processing machine at affordable price to farmers,
4. to create viable innovation platform by facilitating production and market-linked coffee value chain in Nigeria,
5. to create capacity building through sensitization, training, loans, monitoring and evaluation along coffee value chain in Nigeria,
6. To leverage on our existing coffee products, such as coffee wine, coffee powder and coffee 3 in 1 to drive business growth and expand market presence in Nigeria.

6. Target Beneficiaries

Coffee farmers: It will improve the quality of their beans and consequently, give them a market advantage and a better livelihood

Coffee exporters: It will give them more market access

Nigeria Government: National production of coffee will increase

Consumers: Good quality product for their money

CRIN: Research achievement and more opportunities across the value chain

NCAM : Research achievement.

7. Literature review

Coffee's early planting in Nigeria was in 1859 and presently occupies over 270,000ha and grows commercially in 13 States with 9 states being marginal. *Coffea arabica* is grown in Mambila and

Jos Plateau while *Coffea canephora* is grown in the lowland areas. Nigeria's coffee export started in 1896 with 5,500 tons and got to 174,000 tons in 1985 but declined drastically to 1,850 tons in 2020. Hence, in the last few decades, coffee production has encountered a downward trend in Nigeria (Oluyole *et al*, 2024).

Coffee is of health importance, it burns fat, improves energy and makes one to be smarter and more alert. A cup of coffee contains essential nutrients like Vitamin B2 and B12, minerals, micronutrients, macronutrients and antioxidants with health benefits (Gebeyehu and Bikila, 2015). Coffee is next to petroleum in global trading and it has sustained the economy of Brazil, Indonesia, Kenya, and Ethiopia; it can also sustain the economy of Nigeria.

Petroleum exploration and dissolution of Commodity Boards with market liberalization led to poor quality control mechanisms in coffee production, poor planting materials, pest infestations, and soil depletion, which contributed to low coffee production, while plantations were established on lands without systematic soil evaluations, resulting in plantations with no base-line information. Indiscriminate harvesting, non-sorting of berries to remove pest and disease-infested/damaged beans, and adulterating coffee beans with pebbles/tones led to low bean quality. Most coffee farms had become moribund, coupled with poor management contributed to low yield (Ipinmoroti and Ogeh, 2013) and farmers decided to cut down their coffee plantations for arable cropping.

High-yielding coffee clones had been developed (Omolaja and Fawole, 2004), modern cropping systems and pest management techniques developed, and fertilizers for sustainable soil management have been established. There is a global increase in coffee demand with market growth over the last 150 years (Santos, *et al*, 2021) showing that increasing coffee production in Nigeria will meet with a ready market and the livelihood of farmers will improve, while foreign earnings and job opportunities will abound.

Recently, coffee de-pulping, de-husking, and roasting machines for enhanced wet processing and bean roasting were produced (Ogunjinrin, *et al*., 2020). Farmers could acquire them through government support. Nigeria's coffee consumption has increased by 23% which shows that Nigeria's coffee culture is evolving. It could scale up through increased awareness by the media. Nigeria roasted coffee was 681.60M USD in 2015 and reached 4.62B USD in 2025, thus increasing by 18.13% yearly. Nigeria being a member of International Organizations likes ICO and IACO, would benefit Nigeria through sharing of best practices on trade and increasing coffee consumption to improve the sustainability of the coffee sector in Nigeria.

8. Theoretical framework

This study would be based on trade theory which lies on the principles of competitiveness and comparative advantage essential in the value chain development of a commodity. Trade theory involves economic welfare that depends on production of goods and services that a country has comparative advantage on. Nigeria has comparative advantage in coffee production, consumption and trade over other African countries. Trade theory advocates that domestic and international competitiveness is inter alia determined by factors' endowments, increased savings and investments, innovations in products and production processes, and intensity of entrepreneurial activity. Relevant new developments in Good Agricultural Practices, human capacity building, coffee products, and encouragement of entrepreneurial setting-ups will be focal points.

9. Methodology

The study will be carried out in Plateau State. Having discovered the problems in coffee production through a survey of the producing States, the following activities will be carried out

1. Random selection of three Local Government Areas (LGAs) within Plateau state where the project will be carried out.
2. Random selection of 100 coffee farmers from each LGA, thus making a total of 300 farmers to be selected in all for the study.
3. Sensitization and training of farmers on wet processing techniques and Good Agricultural Practices (GAP).
4. Model plots are to be established to serve as a demonstration plots to the farmers.
5. Three primary processing stations, equipped with one depulping and dehulling machine each are to be located in 3 strategic areas. These stations will be managed by youth (12 youths; four per location)
6. Two coffee roasting centers will also be established at two different locations to empower four youth in secondary processing and roast 120kg each per day.
7. Three locations (2 at Higher Institutions and one in a Motor Park) will be sited for a coffee café to encourage consumption among the populace.

As indicated in the Memorandum of Understanding (MoU) signed between Kaldi Africa and CRIN, marketing and support will be provided for the farmers to improve their production. The Policy of the State Government on Agriculture that stems from the National Agricultural Policy will support the farmers in their economic diversification.
The monitoring and evaluation system is entrenched in the MoU signed by the stakeholders
The three parties involved, CRIN, Kaldi Africa and Plateau State Government, have up till date invested 7.2 million naira in the project.

10. Expected Outcomes

- Coffee farmers' capacity on wet processing method will increase from 0% to 65%,
- Increase in Coffee production from 450kg/ha to 1350kg/ha,
- Increase in wet processing method from 0% to 65%,
- Production of quality coffee beans from 20% to 75%,
- Increase in farmers' livelihood from 25% to 65%,
- Increase in Nigeria coffee production from 20% to 65%,
- Increase in coffee consumption from 30% to 70%.

11. Collaborators

- National Centre for Agricultural Mechanization (NCAM) – Machine Fabricator
- Cocoa Research Institute of Nigeria – Research and Facilitator
- Kaldi Africa - Exporter
- National Coffee and Tea Association in Nigeria (NACOFTAN) - Farmers
- Plateau Agricultural Development Programme (PADP) - Ministry of Agriculture

12. Time-lines

S/N	Activities	Duration (Months)

1	Demonstration of Processing Machine to Kaldi Africa	3
2	Final calibration of machine efficiency	2
3	Transportation of Machines to Jos	1
4	Demonstration to farmers at Jos	2
5	Training on Wet processing	3
6	Training on Good Agricultural Practices for sustainable production	4
7	Establishment of Demonstration plot	4
8	Creation of processing Centres	3
9	Creation of Roasting Centre	3
10	Creation of Coffee Café	2
11	Report writing and corrections	3
12	Presentation of reports	3

13. Budget

S/N	Activities	Unit	Unit Cost	Amount	Responsibility	Percentage
1	Demonstration of Processing Machine to Kaldi Africa Fuel Ilorin to Lagos Return	 300	 1000	 2,000,000 300,000	NASENI Grant	2.31
2	Final calibration of machine efficiency Fuel Ilorin to Lagos Return	 300	 1000	 1,600,000 300,000	NASENI Grant	1.91
3	Transportation of Machines to Jos Fuel Ibadan to Jos Return	 400	 1000	 2,500,000 400,000	NASENI Grant	2.92
4	Demonstration to farmers at Jos			2,450,000	NASENI Grant	2.46
5	Training on Wet processing			15,000,000	NASENI Grant	15.08
6	Establishment of Demonstration Plot Fuel Ibadan to Jos Return	 400	 1000	 3,456,000 400,000	NASENI Grant	3.88
7	Training on Good Agricultural Practices for sustainable production Fuel Ibadan to Jos Return	 400	 1000	 8,640,000 400,000	NASENI Grant	9.09

8	Creation of processing Centres 3 dehulling and 3 depulping	3	10,000,000	30,000,000	NASENI Grant	30.17
9	Creation of Roasting centres 2 Roasters	2	10,000,000	20,000,000	NASENI Grant	20.11
10	Creation of Coffee Café	2	6,000,000	12,000,000	NASENI Grant	12.07
	Total			**99,446,000**		100.00

14. Research Team

Name	Rank	Highest Qaulification	Area of Specialization	Telephone and email	Responsibility
Ipinmoroti Rufus Rotimi	Prof	PhD	Soil fertility management	07018868682 ipinmoroti2r@ymail.com	Principal Investigator
Oluyole, Kayode Akanni	Asst. Director	PhD	Agricultural Economics	08055269171 kayodeoluyole@yahoo.com	Co-Investigator
Agbeniyi, S.O.	Director	PhD	Plant Pathology	08033852626 remiagbeniyi@yahoo.com	Co-Investigator
Adedeji, R.A.	Director	PhD	Plant Pathology	07064715028 aradeji@yahoo.co.uk	Co-Investigator
Famuyiwa, Busayo Solomon	Asst. Director	PhD	Extension and Rural Sociology	08033978146 famuyiwabusayo@gmail.com	Co-Investigator
Okeniyi, Michael O.	Asst. Director	PhD	Plant Pathology	08059227840 omookeniyi@gmail.com	Co-Investigator
Adenuga, O.O.	Assistant Director	PhD	Plant Breeding	08036873330 tayoadenuga526@yahoo.com	Co-Investigator
Orisasona Taiwo Mattew	Chief Research Officer	PhD	Agricultural Economics	08034394674 taiwosona1976@gmail.com	Co-Investigator
Adeleke, S.A.	Principal Research Officer	MSc	Agricultural Engineering	08067957098 akinyoadefem66@gmail.com	Co-Investigator

Olalekan-Adeniran M.A.	Principal Research Officer	MSc	Food Science	07086746111 madenike2001@gmail.com	Co-Investigator
Oladokun, Yetunde Olasimbo Mary	Principal Research Officer	PhD	Agricultural Economics	08086868535 yetunde.oladokun@gmail.com	Co-Investigator

References

Gebeyehu B.T. and S.L. Bikila (2015): Determination of caffeine content and antioxidant activity of coffee. *American Journal of Applied Chemistry*, 3(2): 69-76, doi: 10.11648/j.ajac.20150302.16

Ipinmoroti, R.R. and J.S. Ogeh (2013): Soil nutrient dynamics under old and young cocoa, coffee and cashew plantations at Uhonmora, Edo State, Nigeria. *Journal of Tropical Soils,* Vol.19 (2): 75-80. DOI: 10.5400/jts.2013;19.2.75.

Ogunjinrin, A.O., Odeniyi, O.M.,Olubo, A.S., Farounbi, A.J., Ola, O.A. and S.A. Adeleke (2020). Design and construction of an electrically powered coffee roasting machine. *Erath and Environmental Science,* 445: 1-8.

Oluyole Kayode Akanni; Akinpelu Ayodele Oladipo; Orisasona Taye Mattew; Dada Olayinka Alfred and Oladokun Yetunde Olasimbo Mary (2024). Competitiveness and the Effects of Policies on Coffee Production in Nigeria. *Journal of Tree Crops Research 1: 14-18.*

Omolaja, S.S. and I. Fawole (2004): Characterization of Nigeria robusta coffee (coffea canephora Pearre ex-Froehner) germplasm, ASIC 2004. *20th International Conference on Coffee Science,* Bangalore, India, 11-15 October, 2004, 680-683.

Santos, E.M.D, Macedo, L.M., Tundisi, L.L., Ataide, J.A., Camargo, G.A., Alves, R.C., Oliveria, M.B.P.P. and Mazzola, P.C. (2021): Coffee by-products in tropical formulations: A Review. Trend in Food Science and Technology, 111: 280-291.