



**FEDERAL MINISTRY OF FINANCE,
BUDGET AND NATIONAL PLANNING**
(Budget and National Planning Arm)



Innovation and Knowledge Transfer Partnership

THE NEW ECONOMY FOR ACHIEVING ECONOMIC DIVERSIFICATION, EMPLOYMENT & ECONOMIC GROWTH

T H E M E :

KNOWLEDGE TRANSFER: CASSAVA & BIO-ETHANOL VALUE CHAIN **REPORT**

**NORTH-CENTRAL REGIONAL AWARENESS & SENSITIZATION
WORKSHOP ON BIO-ECONOMY, EMPLOYMENT AND INCLUSIVE GROWTH USING
CASSAVA-BIOETHANOL VALUE CHAIN DEVELOPMENT PROGRAMME PILOT**

DATE:
4TH -6TH JULY 2023

TIME:
9AM

VENUE:
NASSARAWA STATE UNIVERSITY, KEFFI



PREPARED BY: DOVELL GLOBAL CONSULTING LTD

The Future is here - The New Bio-economy



HIS EXCELLENCY,
BOLA AHMED TINUBU (GCFR)
PRESIDENT AND COMMANDER IN-CHIEF OF THE ARMED FORCES
FEDERAL REPUBLIC OF NIGERIA



REPORT
2023

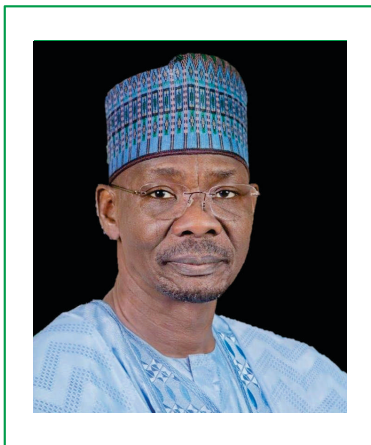


HIS EXCELLENCY,
KASHIM SHETTIMA (GCON)
VICE PRESIDENT OF FEDERAL REPUBLIC OF NIGERIA

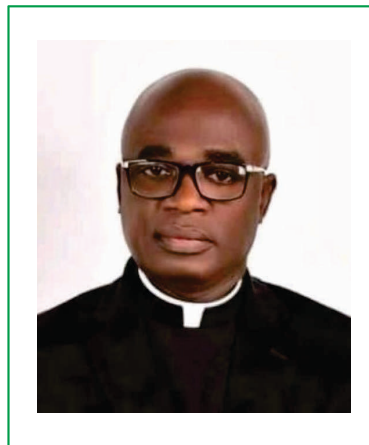


ENGR. NEBEOLISA ANAKO
PERMANENT SECRETARY (FMFBNP)

NORTH CENTRAL GOVERNORS



HIS EXCELLENCY,
ENGR. ABDULLAHI A. SULE
GOVERNOR OF NASARAWA STATE



HIS EXCELLENCY,
REV FR. DR. HYACINTH ALIA
GOVERNOR OF BENU STATE



HIS EXCELLENCY,
MALLAM ABDULRAHMAN ABDULRAZAK
GOVERNOR OF KWARA STATE



HIS EXCELLENCY,
ALHAJI YAHAYA BELLO
GOVERNOR OF KOGI STATE



HIS EXCELLENCY,
ALHAJI MOHAMMED UMARU BAGO
GOVERNOR OF NIGER STATE



HIS EXCELLENCY,
BARR. CALEB MANASSEH MUTFWANG
GOVERNOR OF PLATEAU STATE



REPORT
2023

REPORT OF THE REGIONAL AWARENESS/ SENSITIZATION WORKSHOP

ON

**THE IMPLEMENTATION OF
THE NIGERIA BIO-ECONOMY FRAMEWORK/
CASSAVA BIO-ETHANOL PROJECT PILOT
NORTH CENTRAL REGION**

**HELD AT
NASSARAWA STATE UNIVERSITY, KEFFI
ON 4TH -6TH JULY 2023**

**PREPARED BY:
DOVELL GLOBAL CONSULTING LTD**

WORKSHOP THEME:

Knowledge Transfer, Cassava Value chain and Bioethanol/The New Economy for Achieving Economic Diversification, Employment and Economic Growth

PREAMBLE:

The North Central Regional Sensitization workshop was organized to bring together critical agribusiness stakeholders especially those in the cassava and Bio-fuel crops across the North central States of Benue, Kogi, Kwara, Niger, Plateau Nasarawa State and the Federal capital Territory (FCT) and indeed the stakeholders from the 6 State and the FCT converged in the Nasarawa State University to discuss the implementation modalities of the Cassava Bio-Ethanol Project Pilot and the validation and implementation of the Nigeria Bio-Economy Framework.

The North Central Regional Stakeholders Sensitization Project was a follow up to the Southeast Regional Workshop earlier organized by the Federal Ministry of Finance, Budget, and National Planning as part of awareness creation aimed at driving more inclusive partnership among the identified critical stakeholders for the implementation of the Nigeria Bio-Economy Programme.

The sensitization workshop draws Agribusiness stakeholders, captains of Industries, top Government functionaries, the Legislators, Academia, and the Farmers from the North Central States and FCT. The workshop witnessed full participation of Farmers, Cassava Producers, Processors, and other farmers organizations.





ENGR. NEBOLISA ANAKO

Permanent Secretary,
Budget & National Planning

WELCOME REMARKS BY THE PERMANENT SECRETARY, ENGR. NEBOLISA ANAKO

The Permanent Secretary, Federal Ministry of Budget, and National Planning (FMFBNP) Engr. Nebolisa Anako represented by the Director, International Cooperations Mr Adekanye Olanrewaju welcomed all stakeholders and thanked them immensely for the massive turn out for the Regional Sensitization workshop on the Nigeria Bio-Economy Framework and the Implementation of the Cassava Bio-Ethanol Project Pilot for the North Central States. He stated that the core objective of the Federal Government through the project is to increase access to Energy and clean energy, create jobs for the teeming population and reduce poverty in the country.

He therefore enjoined all stakeholders to see the project as their own p and bring useful suggestions on board that will ensure seamless implementation of the programme across the country in our collective efforts to create a new order called the Bio-Economy, the new economy for the country. He thanked all the MDAs for their active supports and collaborations.

Director, International
Cooperations, FMFBNP
MR ADEKANYE OLANREWAJU,
speaking at the workshop.



GOODWILL MESSAGES BY DIGNITARIES AT THE WORKSHOP

The critical stakeholders present at the workshop took turn to deliver their Goodwill messages during the event.

GOODWILL MESSAGE BY THE HOST VICE CHANCELLOR, NASARAWA STATE UNIVERSITY, PROF. SULIEMAN MOHAMMED

The Vice Chancellor in his Goodwill Message welcome all stakeholders to Nasarawa State University and thanked the Federal Government for considering the State and University worthy to host the regional Sensitization workshop. He emphasized that the Theme of the workshop reflects the pressing needs to harness the regional resources to unlock the economic opportunities that abounds in the North Central region of the country.



PROF. SULIEMAN BALA MOHAMMED,
Vice Chancellor, Nasarawa
State University, Keffi

He mentioned the importance of Agriculture in contributing to solving the energy crisis of this country in a manner that is renewable, sustainable, and environmentally friendly. "A Greener Future is possible through science and technology and today and through this project, we Announce the power of Cassava to drive transformative change in the North Central and the Country at large and let me assure the Federal Government and the Ministry again that ADAN will deliver on their mandate in the project with supports of all the Vice Chancellors and the management Team of the various Universities participating in the Pilot project and beyond" were his concluding remarks.

REMARKS BY THE REPRESENTATIVES OF THE VICE CHANCELLORS OF PARTICIPATING UNIVERSITIES IN THE NORTH CENTRAL

The Vice Chancellor of Federal University, Lafia Prof. Shehu Abdurman represented by the Director, Center for Energy Studies of the University, Prof. Emmanuel Kwon-Dung and in company of the Deputy Vice Chancellor, Administration, Federal University of Technology, Minna, Niger State Prof. Uno Essang Uno thanked the Federal Ministry of Finance, Budget and National Planning for this laudable Initiative that will turn around the energy situation and as well the Agricultural fortune of the country.



PROF. EMMANUEL KWON-DUNG,
Director, Center for Energy Studies,
Federal University Lafia FULafia, Speaking
for the VC Vice Chancellor, Nasarawa
State University, Keffi

He mentioned that the establishment of the Center for Energy Studies by the Federal University Lafia was a statement of commitment of the University to conduct research that will enhance our energy sources and utilization especially Clean Energy and mentioned that Cassava and Bioethanol holds a promise for the country to actualize the vision.

He reiterated the commitment of all the participating Universities in ensuring the success of the project in Research, Implementation and Development.

In same vein, the Deputy Vice Chancellor of Federal University of Technology FUT, Minna Prof. Uno Essang Uno FUT, Minna thanked all stakeholders and charge them to sustain the energy he has seen around the workshop hall during implementation. He further thanked the Ministry and the Consultant Prof. Ken Ife for the great job done so far.

GOODWILL MESSAGE OF THE PRESIDENT OF ADAN PROF. OLUMIDE JAMES JAYEOBA



PROF. JAMES JAYEOBA

President, Association of Deans of
Agriculture in Nigerian Universities
(ADAN)



Cross Section of Participants
at the workshop

The President of the Association of Deans of Agriculture in Nigerian Universities (ADAN), Prof. James Jayeoba in his goodwill message thanked the Ministry of Finance, Budget, and National Planning (FMFBNP) for counting ADAN worthy to be partner on this all-important project and assure the project team of ADAN total commitment to delivering excellently on their part. He pointed out that since 1958 when ADAN was established, they have been at the forefront of Agricultural problem-solving research, promoting and enhancing the quality of Agricultural Education in Nigeria. He emphasized that ADAN is very committed to improved service delivery, modernization, and professionalism in all her activities, and they won't deliver less for the Bio-Economy Project.

He informed the stakeholders that ADAN through their partnership with the Federal Ministry of Agriculture and Rural Development has earlier established Ten (10) Agribusiness Incubation Centers (AICs) across different Universities spread among the Six Geo-political zones and further requested that the AICs can be upgraded to Agro Industrial Park under the Bio-Economy Programme. Appreciated ADAN BOT Chairperson Prof. F.M David0-Abraham for her continuous push to broker more partnership working with the Executive to explore the potentials of Agriculture.

He further reaffirmed the readiness of ADAN to carry out immediate implementation as structure has been put in place to ensure multiplication of quality cassava stems for the project. He did inform the stakeholders of ADAN efforts to upgrade the curriculum to be more business focused and appreciated the Vice Chancellor of NSUK for the hosting opportunities and support despite the short notice.

The ADAN President thanked Prof. Ken Ife for his doggedness and very intelligent inputs and coordination of the Bio-Economy programme and further appreciated the Ministry Again for the collaborations.



PRESENTATION OF THE KEYNOTE PAPER BY PROF. KEN IFE

Professor Ken Ife presented data, gaps, and opportunities inherent in the Nigeria Bio-Economy Programme and emphasized on the opportunities for all stakeholders through the implementation of the project and how it touches on Alternative Energy for the country, Job creations, Income earnings from exportation of Bio-Products and general poverty reductions.

In the Presentation of the Technical paper, Prof. Ken reeled out date how the contribution of Bioactivities to German GDP contributing over **€2.4 Trillion Euros** to economy for a country that has less opportunities for production of plants and livestock raw materials requirement compared to Nigeria. He emphasized that Bio-Economy is the new economy for Nigeria in the country's quest to address the socio-economics challenges confronting Nigeria.

The key areas of focus for the Bioeconomy project of the country looking at its importance from the point view of Agriculture/Forestry, Pharmaceuticals, Foods & beverages, consumer goods, Energy, Chemical Industry, Textile/Clothing, Building Industry and Mechanical Engineering as all key areas that will benefit and contribute to the Bio-Economic activities of Nigeria.

And he emphasized on ensuring reduction in Bio-waste and the overall Nigeria Carbon Footprint, economic diversification, job creation and foreign earnings. He concluded by saying that "Bio-Economy is the economy of the Future, and the future is now".



PROF. KEN IFE, PROJECT CONSULTANT

QUESTIONS AND ANSWER SESSION

Participants were given the opportunity to seek further information and clarifications at the workshop.



PLENNARY SESSION FOR CRITICAL STAKEHOLDERS

There was a special Plenary session by critical stakeholders to share experience and projects across the different states. The Plenary had representatives of Cassava Growers Association of Nigeria (NCGA), Chief Daniel, MD/CEO, Azuba-OASOTECH Cassava Industrial Park, Nasarawa State Alh. Abdulkadir Hassan, DVC Admin, FUT Minna, Prof. Uno Essang Uno who was the chair of the plenary and ADAN President, Prof. James Jayeoba.

Critical Issues/challenges ranging from sustainable markets, transportation logistics, quality of farm inputs, Agricultural land development were discussed, and experiences and suggestions shared for adoption by the project. At the end of the session some of the suggestions made were:

- More farmers should be carried along and placed strategically to participate in the programme.
- The Project should ensure and guarantee a Market for the Cassava to encourage farmers to produce more cassava.
- More land should be opened and dedicated to cassava production to reduce the gap in domestic and industrial demand for the raw materials.



**Plenary
Session**

PART 2:

SYNDICATE GROUPS/TECHNICAL SESSION

The Workshop participants break into four different syndicate groups.

Syndicate Group 1: Cassava seed/Stem Multiplication for the project

Task: To discuss the modalities and processes for the multiplication of Cassava Stems for the project

Syndicate Group 2: Cassava Value Chain Processing

Task: To discuss the challenges and prospects on the gradual buildup of processing capacities and value chain to multiple exportable products up to bioethanol and bye products for animal feeds.

Syndicate Group 3: Bio-Entrepreneurship- Flow of Innovation to The Industry. Developing Curriculum for All Levels of Education.

Task: To discuss modalities and processes for developing Bio-Entrepreneurship Curriculum and its implementation

Syndicate Group 4: Innovation Challenge Fund & Development Partners Intervention

Task: Review of the various development finance intervention from CBN, Blended Finance options, Green Bond, Climate Fund, Carbon Credit, GEF and other innovation finance



Syndicate Group 1



Syndicate Group 2



Syndicate Group 3



Syndicate Group 4

RECOMMENDATION FROM SYNDICATE GROUPS

Syndicate Group 1: SEED SELECTION, PROPAGATION, DISTRIBUTION, MECHANIZATION, INPUTS AND HARVESTING

Chairman: Prof O.J. Jayeoba

Rapporteur:

Seed Selection

There are many varieties of cassava for farmers to select as planting materials, however these farmers are faced with challenges in identifying a quality seed for propagation. Therefore a quality seed for planting should have the following features:

- Adapt to the local environment
- Tolerances to drought, pest and diseases
- High yielding
- Cassava with high starch content and fortified with other nutrients
- Early maturing

Propagation

Cassava is propagated through stem cutting, therefore a quality stem for planting should poses these attributes.

- A mature stem should be used for propagation; because immature stem does not withstand adverse environmental conditions.
- The length of the stem cutting should be long enough to contain up to 5-7nodes

Types of planting

- Vertical planting: place two-thirds of the cutting in the soil.
- Planting at an angle: place two-thirds of the cutting in the soil, with an angle ranging from slightly above horizontal to about 60°.
- Horizontal planting: place the entire cutting horizontally in the soil at a depth of 5-20 cm



Distribution

The distribution of cassava seed is faced with the following challenges

- Bulkiness of the planting materials (stem) which negatively affect ease of distribution
- Transportation
- High cost of transportation due to the removal of fuel subsidy
- Problem of depilated roads network in Nigeria
- Inadequate off-takers that will buy from farmers and distribute to other regions

Mechanization

- Availability and affordability of tractors and other farm machineries that will be used for farm operation
- Problem of land tenure system which lead to fragmentation of land into smaller pieces; therefore mechanization of such lands becomes difficult
- Insecurity problems: Terrorism and banditry in this country constitute a serious draw-back to crop production.

Inputs

- Unavailability of improved cassava seeds for multiplication by farmers; because most of the quality seeds that are produced by research institutes does not get to the farmers for multiplication
- Unavailability of quality fertilizers, herbicides and other agrochemicals
- High cost of farm inputs (fertilizers, herbicides, pesticides and other agrochemicals)

Harvesting

- Harvesting is not mechanized; therefore, there is shortage of labour during harvest periods (dry seasons)
- Bulky nature of the seeds (stem) during harvest always results to high labour cost of operations
- No storage facilities for preservation of cassava seeds (stems), since the harvesting is sometime carried out during the dry season while, planting is done during raining season

Recommendations

Finally, from above discussion, the following recommendation were made:

- Training and sensitization on the use of organic manure, especially the use of agro- waste as fertilizers
- Recruitment of more extension officers in the country and increase funding of their activities
- Government should increase subsidy on agricultural inputs in Nigeria
- Government should re-capitalized bank of agriculture and farmers soft loans at single digit interest
- Government should endeavor to rehabilitate rural and semi-urban roads for ease of transportation.
- Formation of young farmers club right from primary schools to encourage our young boys and girls going into farming
- Regular training and workshops for farmers and other categories of people in the cassava value chain by the research institutes on the new technologies

Syndicate Group 2: CASSAVA VALUE CHAIN PROCESSING

Task: To discuss the challenges and prospects on the gradual buildup of processing capacities and value chain to multiple exportable products up to bioethanol and by-products for animal feeds.

Recommendations

The syndicate recommends the following.

- For the purpose of achieving the bio-ethanol production, farmers need to be encouraged on the production of cassava chips.
- Capacity building and training programmes should be sited in various locations within states for farmers to have access.
- Deepening synergy and networking of members in the various value chain to boost market penetration, knowledge transfer and value addition.
- More information and training on the cassava waste conversion for animal feed production to boost livestock and poultry production.
- Dissemination of research findings albeit commercialized for those in the value chain to upgrade their knowledge, boost their production, and enhance their capacity.
- Trainings on quality assurance testing, packaging and labelling for finished products for export market.

Syndicate Group 3: BIO-ENTREPRENEURSHIP

Rapporteur: Prof Nicholas Iwokwgh

Introduction

Curriculum development should be driven by a well-defined philosophy. The philosophy, in turn, should be guided by relevance, a well-articulated set of goals, and specific objectives. The question to ponder, therefore is, how can we define a curriculum that is pragmatic and dynamic, and not theoretical and pedestrian in nature within the context of Bio-entrepreneurship? A curriculum that would instill Bio-entrepreneurial skills in the graduates, thereby positioning them, ab initio to be job creators in the Bio-Economy ecosystem and not job seekers? It is the considered opinion of members of Syndicate 3 that adoption of the strategies discussed hereunder will put the organizers of this sensitization workshop on the right pedestal towards achieving a pragmatic and dynamic Bio-entrepreneurship curriculum.

Recommendations

- Pragmatic curriculums that would promote Bio-entrepreneurship at the primary level of education should be designed in such a way that would lend credence to the oral culture tradition that is prevalent in African societies, including Nigeria. Specifically, this initiative would require formulating and delivering Bio-entrepreneurship content for primary school pupils using rhymes and riddles about Bio-entrepreneurship and Agric-business.



- Showcase role models in Agric-business value-chain. Provision should be made to promote vicarious learning in Bio-entrepreneurship curriculums in situations that would promote access of pupils to, and enhance their interaction with successful Agricpreneurs who will serve as role models in Bio-entrepreneurship for them. These Agricpreneurs could be made to share their experiences with those pupils with the intent of motivating the pupils to take to agricultural entrepreneurship in the future, Bio-entrepreneurship in our context.
- Capacity building activities. Functional Bio-entrepreneurship curriculums at the primary school and secondary school level should be designed to promote such capacity building activities as excursion to commercial farms, participation in young farmers clubs, and those that create social networks between pupils and Bio-entrepreneurship professionals.
- Creative Bio-entrepreneurship curriculums should encourage a growth mindset by making agricultural science a compulsory subject, the same way that English Language and Mathematics have been made compulsory subjects of study for all pupils and students at primary school and secondary school levels.
- Productive Bio-entrepreneurship curriculums should create opportunities for pupils and students in primary schools and secondary schools to establish or become members of Bio-entrepreneurship communities or networks to enable them have access to mentoring sessions.
- Profitable Bio-entrepreneurship curriculums should promote skills based agricultural education, with content distribution in the ratio of 70% practical and 30% theory. It should be compulsory at the tertiary level to eliminate courses that promote alternatives to practical.
- Dynamic Bio-entrepreneurship curriculums should promote creativity and innovation, at all levels of education, and encourage development of patents at tertiary level. These curriculums should also be designed in ways that promote competitions and such activities as hackathons, ideathons, quizzes, etc.
- Bio-entrepreneurship curriculums derivatives from the agricultural value chain should target production of mobile video games, animation and cartoon characters which will help to make agriculture glamorous and attractive to young persons, especially those in primary schools; while audio, visual, audio-visual materials and e-learning platforms could be created for students in secondary schools and tertiary institutions.

- Career events and initiatives such as train-the-trainers initiatives should be promoted for agricultural science teachers. These teachers should be taught to view agricultural science as a business venture, and not a mere subject.
- Dynamic Bio-entrepreneurship curriculums should create opportunities for hands-on experiences. For example, such curriculums should encourage project-based approaches to the processes of teaching and learning agricultural science. This approach would ensure that schools at all levels (primary, secondary and tertiary) have farm lands for practical sessions.
- Environmental sustainability and climate change education components should be incorporated at all levels of the Bio-entrepreneurship curriculum as a response to the challenge of climate change. Students should be taught, for instance, the processes and procedures that are involved in the production and utilisation of Bio-fertilisers.
- Bio-entrepreneurship curriculums should anchor on value chain models. For example, at the primary level, pupils in Primary (1-3) should be made to participate in production processes, such as soil preparation and planting of vegetables. Pupils in Primary (4-5) should be taught processing procedures such as harvesting the vegetables, processing and packaging them, while pupils in Primary (6) should be exposed to the art of marketing, digital marketing to be precise, for example on such social media channels as Instagram, and YouTube, etc.
-
- Bio-entrepreneurship curriculums, especially those in tertiary institutions should incorporate job descriptions of the various professionals in the value-chain, as well as the functional requirements in terms of the skills, and certifications that are necessary for them to practice at various niches of the value chain.



Syndicate Group 4: INNOVATION CHALLENGE FUND & DEVELOPMENT PARTNERS INTERVENTION

Chair: Prof. S.A Okunsebor

Rapporteur: Ogirinye Innocent

Recommendations:

- Adequate sensitization on the available development Intervention Funds should be carried and targeted at farmers and other stakeholders who can utilize them.
- A similar program to Anchor Borrowers Programme should be adopted specifically for Bio-Fuel Crops under this project but should be well targeted to avoid diversifications by non-farmers.
- Standard quality control measures should be put in place to evaluate the originality/quality of inputs to be deployed for the project to ensure optimum yield per hectare to enable repayment by the farmers.
- Proper partnership with Insurance Policy providers to be put in place, not just to collect monies from farmers in the form of premium but to also pay claims when demanded.
- Proper Mapping Systems should be put in place and the right farmers that can produce cassava should be targeted.
- Guaranteed Minimum Price should be defined under the new funding scheme for this project and off-take guarantee should be properly defined and time bound too.
- Bio Innovation Challenge Fund should be established and Transparent application system for the Bio-Innovation Challenge fund should be put in place and properly monitored. The Bio-Innovation Challenge fund should be cluster focused and disbursed at single digit and with simplified processes.
- The Bio-Ethanol project should intentionally build the capacity of targeted beneficiaries and organize them properly for the good of the projects.
- In participating in the programme, Gender should be properly mainstreamed and percentage due to Women, Youth and Men should be properly defined to ensure inclusive participation from all categories of persons including People living with Disabilities (PLWD)

Details of the discussions and reports from the four Syndicate Groups are here attached appendix 1-4.



VOTE OF THANKS

The Director, Economic Growth Department of the Ministry, Mrs. Elizabeth Egharevba, thanked all the participants in the regional Sensitization immensely for their active participation. She appreciated the Vice Chancellor of NSUK and the Management Team as well the leadership of ADAN for their active role and collaborations on the Nigeria Bio-Economy programme driven by the Ministry and directly supervised by the department.

She specially appreciated the Permanent Secretary of the Ministry Engr. Nebolisa Anako, the other Directors and staff of the Ministry for their supports towards the success of the workshop and the Bio-economy programme in its entirety.

She prayed for journey mercies for all participants and even as she informed the audience the train will move to the Northwest to sensitize the stakeholders in the region.

