Cooperation for Holistic Agriculture Innovation Nests in Sub-Saharan Africa

GRANT AGREEMENT NUMBER 101082963

Deliverable 2.3

Report sumarizing feedback from peer-review processes

Project title	CHAIN- Cooperation for Holistic Agriculture Innovation Nests in Sub-Saharan Africa
Grant Agreement number	101082963
Funding scheme	ERASMUS-EDU-2022-CBHE-STRAND-2
Start date of the project and duration	01.06.2023
Project coordinator name	Prof. Ralf Schlauderer, HSWT
Deliverable number	D 2.3
Title of the deliverable	Report sumarizing feedback from peer-review processes
WP contributing to the deliverable	WP 2 – Curricula Innovation
Deliverable type	Report
Dissemination level	Public
Due submission date	31.10.2025
Actual submission date	01.09.2025

Consortium partners	University of Weihenstephan-Triesdorf (HSWT/Germany) Universite de Kara (UK/Togo) Universite de Lome (UL/Togo) South Eastern Kenya University (SEKU/Kenya) Jaramogi Oginga Odinga University of Science and Technology (JOOUST/Kenya) Farming Systems Kenya (FSK/Kenya) Federal University Of Technology, Minna (FUTMINNA/Nigeria) Alex Ekwueme Federal University, Ndufu-Alike (AE-FUNAI/Nigeria) Uniwersytet Przyrodniczy We Wroclawiu (UPWR/Poland) Universitatea Pentru Stiintele Vietii "Ion Ionescu De La Brad" Din Iasi (IULS/Romania)

Target groups (TG) and Final Beneficiaries (FB)	The set objectives aim to respond to the needs of respective HEIs in SSA, their students and employees, farms and farmers, as well as to the needs of all those potential stakeholders who share the same interest in the field of agricultural production or agriculture studies
Objectives and Outputs	OVERALL OBJECTIVE: To support partner HEIs in Africa in improving the relevance and inclusiveness of higher education SPECIFIC OBJECTIVES: SO1) To develop a master program in Food Value Chain (FVC) at 6 SSA beneficiary HEIs in the period of 18 months (including accreditation process). The innovative program is multidiscipline and prone to innovation considerations around the FVC which is highly relevant to students' uptake, labour market and education skills gap and sustainable employment. SO2) To build capacity of 108 teachers at 6 partner HEIs to use and further promote learning methods and use of teaching methodology prone to entrepreneurial thinking and innovation, with emphasis on e-learning and digital tools over the 9 months period of time.
Background	CHAIN project development was motived by the HSWT long standing cooperation history with the SSA HEIs and industry leaders in agriculture and rural development and extensive knowledge on existing HE practices in teaching and research and gaps needed to be bridged in HE educational relevance, quality and collaboration in agricultural field. The Action scope and design was proposed on the basis of actual identification of needs and issues to be addressed, coupled with the results from recent relevant independent research conducted in the field, e.g. Strengthening Higher Agricultural Education in Africa (World Bank, 2019) with the assistance of regional agro-innovation and education networks including Regional Universities Forum for Capacity Building in Agriculture and African Union Comprehensive African Agricultural Development Programme. While agri-food systems (especially topics around food safety and security) become ever more important topic on global development agendas, and with over 43 % of SSA inhabitants as of 2020 working in the field having limited agricultural

	education and training, the role of HEIs (offering agricultural study programs with diffuse effect on workforce quality) in socio-economic transformation through agri-food system developments becomes of immense and strategic importance, exerting profound effect on the pace of a country's development. Regardless of the detected trend of economic diversification and non-farm employment expansion in SSA, the economies remain strongly dependent on agriculture and allied agri-food systems driving societal innovation, development and growth (Jayne et al., 2018). HEIs capacities lie at the core of a broader (agro) innovation ecosystem that includes extension systems, research and development institutes, agricultural policy research institutes, regional network organizations that support advocacy and sharing of knowledge, civil society organizations, i nnovation hubs, farmers and agribusinesses. Acknowledging all the above mentioned, CHAIN reiterates the importance of the role of agricultural HEIs in the (agro) innovation ecosystem by modernization of master programs, teacher training prone to use of digital and entrepreneurial competences and creation of new value, as well as establishment of a new collaboration mechanism for innovation in the field that gathers all key stakeholders under one roof. Through CHAIN universities gain influence on how the ecosystem operates as well as the performance of other actors. In turn, other actors of the ecosystem affect the performance of universities and their impact on development outcomes. Through this structured interaction, educational quality and relevance increase, and influence greater effectiveness of workers in all of other types of organizations. The quality of university research properly orients the activities of other organizations, while proper coordination with the private sector enables anticipation of skills sets and ensures that the skills sets of university graduates meet demands of the rapidly evolving firms in Africa's agri-food systems diminishing the need for costly on the job training.

Disclaimer

Contents

Abstract

This document is a deliverable of Work Package 2 “Curricula Innovation” within the EU Erasmus plus Project “CHAIN” financed by the European Commission through the ERASMUS-EDU-2022-CBHE-STRAND-2 call for proposals.

It is a comprehensive document is a compilation of Feedback from Peer-review Processes for the Development of the Curriculum for Master Degree Programme in Food Value Chain Management. Each University has initiated several Feed Back Processes and fullfills now the types of actions, activities and tools for the succesfull instllation of the new Master Programs in Food Value Chain Management created within the CHAIN project.

This document is sumarizing the feedback from peer-review processes Deliverable 2.3.

1. Introduction

1.1 CHAIN Project

The CHAIN project addresses the topic of capacity building in Higher Education. The focus of project activities and interventions is placed on six higher education institutions in 3 countries of Sub-Saharan Africa,namely Togo, Kenya and Nigeria in colaboration with eurepean partnera from Romania and Poland. The activities and interventions are devised to help the partnership achieve the set project objectives, and they are as follows:

OVERALL PROJECT OBJECTIVE is to support partner higher education institutions in Sub-Saharan Africa in improving the relevance and inclusiveness of higher education.

This is to be obtained by attaining two specific project objectives:

SO1) To develop a master program in Food Value Chain (FVC) at 6 SSA beneficiary HEIs in the period of 18 months (including accreditation process)

SO2) To build capacity of 108 teachers at 6 partner HEIs to use and further promote learning methods and use of teaching methodology prone to entrepreneurial thinking and innovation, with emphasis on e-learning and digital tools

SO3) To establish 6 Collaborative Holistic Agriculture Innovation Nests (CHAINs) at partner HEIs in cooperation with private sector and offer support to innovation initiatives of students, farmers, and entrepreneurs

The project refers to the overarching priority relating to sustainable growth and jobs with the focus on the field of agriculture.

In summing up, this project proposal gathers HEIs from the least developed countries of the SSA, which can be corroborated by the fact that Togo, Kenya and Nigeria have approximately the same extremely low human development index (below 0.55 on a scale from 0 to 1). Last, but not least, the project intends to tackle the presence and participation of persons with fewer opportunities in tertiary education, whereby the lack of opportunities is reflected in various social, economic, and cultural obstacles.

Report on the Development of the M.Sc. in Agribusiness with Specialization in Food Value Chain Management Curriculum at AE-FUNAI

1.0 Introduction

The development of the postgraduate curriculum for the Food Value Chain (FVC) program at Alex Ekwueme Federal University Ndufu-Alike (AE-FUNAI) followed a rigorous and inclusive process to meet academic, industry, and societal needs. The curriculum integrates global best practices with the local context to address challenges and opportunities in food value chain management. When designing the curriculum for M.Sc. in Agribusiness with specialization in Food Value Chain Management (FVCM) program, a comprehensive and scientific methodology was employed to identify and address the challenges faced by these stakeholders. This process encompassed an extensive review of relevant literature (see Annex 2 for the report), an assessment of empirical evidence, and direct engagement with the actors involved through in-person interactions (see Annex 3 for the report), and key interviews with students, staff and entrepreneurs (see Annex 1 for report).

The primary aim of engaging stakeholders was to align theoretical insights with practical realities, ensuring that the program is both relevant and impactful. The culmination of these efforts resulted in the development of a well-rounded and robust FVCM Master's degree curriculum, tailored to bridge the identified gaps and equip participants with the necessary skills and knowledge to advance the agri-food value chain effectively.

Stakeholders, including farmers, students, entrepreneurs, academics, and government officials, provided valuable feedback during the process. This report highlights the steps taken, stakeholder contributions, reviewers' comments, and subsequent adjustments made.

2.0 Processes Adopted in the Development of the Curriculum

2.1 Formation of the Postgraduate Curriculum Development Sub-Committee

The curriculum development process commenced with the formation of a Postgraduate Curriculum Development Sub-Committee by the Departmental Board of the Agribusiness and Management Department. The committee comprised experienced faculty members tasked with drafting the initial curriculum framework.

2.2 Gathering of Submissions

Submissions were gathered from stakeholders, including faculty members, postgraduate coordinators, and researchers. These inputs formed the foundation of the draft curriculum.

2.3 Departmental Review and External Expert Assessment

The draft curriculum was reviewed by the Department and sent to other experts for evaluation. Key comments from the reviewers included:

Reviewer Comment 1: "The curriculum lacks sufficient focus on value addition and market linkages."

Action Taken: New topics to cover value addition and market linkages were added the two courses - **Agricultural Marketing and Agribusiness Organization Management and Crop, Livestock and Fish Value Chain Management**.

Reviewer Comment 2: "The curriculum should address product development issues and policies."

Action Taken: Product development topics were incorporated into the curriculum.

Reviewer Comment 3: "Strengthen the emphasis on sustainability and climate-smart practices."

Action Taken: Content on sustainable practices, such as climate-resilient farming and green technology, was added to the Sustainability in Food Value Chains course.

Comment 1: Ensure the course objectives use appropriate action words as elaborated in the Core Curriculum Minimum Academic Standards

Action Taken: Appropriate action words were used in stating the objectives of each course.

2.4 Presentation at CHAIN Project Curriculum Meeting

The draft curriculum was presented at a CHAIN project meeting in Triesdoff, where all the partner institutions provided additional inputs.

It was agreed that common courses be developed which will be adopted by each partner institution. A total of six (6) courses were agreed upon to be included by each member university (that is, 3 courses in the first and 3 courses in the second semester respectively. This is to breed uniformity and standardize the program. It will also in the future enable staff/student exchange programs between the partner universities. The agreed common courses are presented in Table 2:

Table 1: Agreed Common Courses

Common Courses	Semester	Credit Hour	Credit Unit
(1) Food value Chain Management	1	90	2
(2) Principles of Agripreneurship and product development	1	90	2
(3) Food processing technology	1	90	2
(4) Crop, livestock and fish value chain management	2	90	2
(5) Digital technology for Agri-food system	2	90	2
(6) Sustainability for Commodity and food value chains	2	90	2

The synopses for the common courses were also developed at the meeting in HSWT Triesdorf. Arising from that meeting and as next steps, respective universities were basked to include these courses in their local content with marked uniqueness.

2.5 Enlarged Stakeholders Meeting

An enlarged stakeholders meeting gathered feedback from external stakeholders.

2.6 Postgraduate School Curriculum Review

The Postgraduate School raised the following points:

Comment: "Ensure course descriptions are detailed and clearly outline objectives."

Action Taken: Course descriptions were revised to provide clear learning objectives and assessment methods.

2.7 University Curriculum Committee Review

The University Curriculum Committee recommended the following changes:

Comment 1: "Ensure alignment with the university's strategic goals for agribusiness development."

Action Taken: The curriculum was revised to reflect AE-FUNAI's mission of advancing agribusiness education and research.

3.0 Stakeholder Engagement

Stakeholder engagement was central to the curriculum development process, ensuring it addressed practical needs, industry requirements, and academic excellence.

3.1. Farmers

Comments and Questions:

1. **Practical Relevance of the Programme:** Farmers inquired about how the curriculum integrates practical farming techniques and whether students would gain hands-on experience.
2. **Local Context:** Concerns were raised about tailoring the curriculum to local agricultural realities, including post-harvest handling and food safety.
3. **Role of Farmers:** Farmers emphasized the importance of their involvement in practical training and curriculum delivery.
4. **Policy and Advocacy:** Recommendations included the inclusion of courses on agricultural policies and advocacy to enhance food security and quality.

Recommendations:

- Incorporate practical farming sessions through collaborations with local farms.
- Include courses addressing post-harvest handling, food safety, and quality control.

Feedback: Farmers expressed satisfaction with the curriculum's interdisciplinary focus but emphasized the need for continued collaboration with the farming community to ensure practical relevance.

3.2 Feedback from Students

Comments and Questions:

- Students highlighted the value of practical exposure and asked for more industrial training opportunities.
- They expressed interest in gaining advanced skills in digital agriculture and financial management.

Recommendations:

- Expand internship opportunities and field-based learning modules.
- Integrate digital agriculture tools and financial literacy into the curriculum.

Feedback: Students appreciated the focus on real-world applications and expressed enthusiasm for the program's potential to enhance career opportunities.

3.3 Feedback from Entrepreneurs

Comments:

- Entrepreneurs emphasized the importance of incorporating market dynamics, risk management, and entrepreneurial skills.

Recommendations:

- Include courses on agribusiness innovation and market linkages.
- Emphasize financial management and risk mitigation strategies.

Feedback: Entrepreneurs viewed the curriculum as a step toward bridging the gap between academia and industry.

3.4 Feedback from Teachers

Comments:

- Teachers noted the need to strengthen the integration of theoretical and practical components.

- Concerns were raised about balancing the interdisciplinary nature of the program with depth in key areas.

Recommendations:

- Enhance faculty capacity through training in emerging areas.
- Ensure a balanced curriculum that does not dilute key concepts.

Feedback: Teachers appreciated the curriculum's comprehensive approach and supported its implementation.

3.5 Government Ministry Officials

Comments:

- Officials emphasized aligning the curriculum with national policies on food security and sustainability.
- They recommended courses on finance and budgeting to address gaps in agricultural project management.

Recommendations:

- Integrate "ABM 821: Financial Management, Strategy, and Institutions" to address financial gaps.

Feedback: Government representatives lauded the program's potential to contribute to development and policy implementation.

4.0 Further Steps Taken

The various reviewers' comments were addressed systematically, ensuring the curriculum is academically rigorous and industry-relevant. Adjustments included:

Incorporating stakeholder-specific feedback into course contents.

Establishing partnerships with industries for internships and research opportunities.

5.0 University Senate Approval

The University Senate Curriculum Committee approved the curriculum after addressing the comments.

6.0 NUC Resource Verification

The curriculum underwent resource verification by the National Universities Commission (NUC). The National Universities Commission team visited AE-FUNAI to assess the resources and

curriculum to commence the program. Recommendations from the NUC included enhancing resources and infrastructure to support practical learning. AE-FUNAI implemented these recommendations. The NUC gave approval for Agribusiness Department to commence the program in the 2024/2025 academic session.

7.0 Conclusion

The development of the curriculum at AE-FUNAI reflects a commitment to academic excellence, stakeholder engagement, and industry alignment. By integrating diverse perspectives and addressing all recommendations, the program is well-positioned to produce professionals capable of transforming food systems in Nigeria and beyond.

ANNEX 1

SUMMARY REPORT OF AE-FUNAI CHAIN PROJECT STAKEHOLDERS' INTERVIEWS

1. INTRODUCTION AND METHODOLOGY

The **Cooperation for Holistic Agriculture and Innovation Nests (CHAIN)** project at Alex Ekwueme Federal University Ndufu-Alike (AE-FUNAI) focuses on identifying the challenges and skill needs within Nigeria's agri-food sector. Twenty-nine interviews were conducted with three categories of respondents:

- **Professors / Teachers** (12 interviews)
- **Entrepreneurs** (5 interviews)
- **Students** (12 interviews)

Each category had specific questions tailored to their role (Professors, Entrepreneurs, or Students). The discussion below summarizes the **key responses** linked to questions in the **interview guide**.

2. PROFESSORS / TEACHERS

(Corresponds to the "Interview Guide for Teachers" with 7 questions.)

Question 1: Intro (2023 perspective)

"How was 2023? What was the best thing that happened in the agri-food sector from your specialization perspective?"

- **Disease Control & New Varieties**: Several professors (e.g., Veterinary Medicine, Crop Science) cited **rapid interventions** in disease outbreaks (like anthrax) as a notable success, showcasing improved public health collaboration.
- **Crop Improvement**: Others highlighted **releases of improved crop varieties** (such as TELA maize, gene-edited tomatoes) which strengthened resilience against pests and drought.

Question 2: Strong Points Favouring Holistic Agriculture

"What do you think are the strengths of the national agri-food sector that would favour holistic agriculture?"

- **Abundant Land & Climate Diversity**: Nigeria's varied agro-ecological zones enable diverse crop/livestock systems.
- **Large Youth Demographics**: Professors noted a growing pool of potential farm labour and innovative thinkers, especially if well-trained.
- **Research & Extension Infrastructure**: Existing institutions (universities, research institutes) provide a backbone for technology dissemination, though underutilized.

Question 3: Weaknesses for Holistic Agriculture

"What do you think are the weaknesses of the national agri-food sector that would hinder the implementation of holistic agriculture?"

- **Insecurity & Governance Issues**: Kidnapping, banditry, and inconsistent policies hamper farmers' access to land and discourage investments.
- **Low Mechanization & Poor Funding**: Ongoing reliance on manual labour, insufficient budget allocations, and outdated techniques limit productivity.
- **Limited Awareness & Extension Gaps**: Mismatch between research outputs and actual farm-level adoption.

Question 4: Threats to the Agri-Food Sector

"What do you think are the threats to the national agri-food sector? How do these threats hinder holistic agriculture?"

- **Climate Change**: Erratic rainfall, heat waves, and flooding lead to crop failures and livestock stress.
- **Population Pressure**: Rapidly growing population intensifies food demand, risking high prices or shortages if production lags.
- **Economic Volatility**: Inflation, currency devaluation, and high input costs cause unpredictability for farmers and agribusiness investors.

Question 5: Opportunities for the Agri-Food Sector

"What do you think are the opportunities that the national agri-food sector can benefit from? How can these be fruitful for holistic agriculture?"

- **Technological Advances**: Emphasis on digital tools (precision farming, drones, AI-based diagnostics) can improve yields and resource management.

- **Value Addition & Export**: Cassava, cocoa, and palm oil remain prime candidates for processing and export.
- **Policy Shifts**: Emerging agricultural policies (e.g., National Agricultural Extension Policy) could unify stakeholder efforts.

Question 6: Skills Needed for Employment

"What do you think are the top 3 skills needed for college graduates seeking employment in holistic agriculture?"

Professors consistently identified:

1. **ICT Skills** (data collection, software use, digital literacy).
2. **Interpersonal & Communication** (crucial for extension, teamwork, and stakeholder engagement).
3. **Analytical/Critical Thinking** (diagnosing pests/diseases, optimizing inputs, and innovating solutions).

Question 7: Skills Needed for Entrepreneurship

"What do you think are the top 3 skills for an entrepreneur who wants to implement holistic agriculture?"

Common responses:

1. **Leadership & Decision-Making** (guide teams, adopt new practices, pivot under stress).
2. **Financial Management & Record-Keeping** (loan applications, budgeting, profitability assessments).
3. **Technical Mastery** (breeding, soil science, fishery techniques, or other specialized knowledge areas).

3. ENTREPRENEURS

(Corresponds to the "Interview Guide for Entrepreneurs" with 13 questions.)

Question 1: Intro (2023 business climate)

"How was 2023? What was the best thing that happened in your business recently?"

- **Variable Success**: Some entrepreneurs noted higher profits thanks to **increased local demand** (e.g., rice due to import bans), while others struggled with **inflation** and high cost of feeds/inputs.
- **Adaptive Innovation**: A few invested in new equipment or overcame inflation by shifting to local feed sources or forging new distribution partnerships.

Question 2: Environment & Climate Change

"What were the main environmental challenges? Did you notice changes? What did you do?"

- **Heat Stress & Flooding**: Fish farmers reported fish appetite decline in hot weather; poultry farms suffered decreased egg production.
- **Adaptive Measures**: Constructing shades, adjusting feeding schedules, frequent water changes in ponds, or using irrigation for crops to mitigate drought impacts.

Question 3: Demographic Situation

"Is your business affected by declining birthrate or changing family concepts?"

- **Mixed Impact**: Most said direct birthrate changes had minimal effect. Instead, mention was made of **marriage migration** (losing skilled employees when they relocate).
- **Family Labor Issues**: Some pointed out large households can strain resources if not trained or integrated properly.

Question 4: Economic Climate

"What economic difficulties did you encounter?"

- **High Input Costs**: Feed, fertilizer, fuel prices jumped significantly post-subsidy removal.
- **Malfunction in Supply**: Delays in feed or fertilizer delivery, suboptimal local feed quality, and currency devaluation.
- **Expansion Delays**: Plans to purchase bulk inputs or additional equipment were curtailed by abrupt inflation.

Question 5: Social Climate

"What social difficulties did you encounter?"

- **Labor Migration**: Skilled labour migrating in search of higher wages or leaving the agricultural field.
- **Youth Unemployment**: Some entrepreneurs have positions but note that many young people prefer white-collar jobs.

Question 6: Traditions & Manners

"Is your business based on certain traditions or consumption habits?"

- **Local Dietary Trends**: Ebonyi staple consumption of rice, fish, and poultry remains robust.
- **Seasonal/Ceremonial Demand**: Certain cultural festivities spike demand for fish, meat, or certain produce.

Question 7: Psychosocial Environment

"Any changes in employees'/customers' perception of well-being?"

- **Employee Retention**: Some employees felt valued through skill development and a sense of community at the farm, while others left for higher pay or easier jobs.
- **Customer Loyalty**: Gains or losses hinged on product availability, price stability, and perceived quality.

Question 8: Cultural Impact

"Changes in local/regional culture? Any steps to capitalize or mitigate?"

- **Shift to Farmed Fish**: Traditional capture fishing is less dominant; aquaculture is mainstreaming.
- **Education Influence**: Farmers and customers are more informed, demand better hygiene and product quality.

Question 9: Legislative Context

"Difficulties in changing laws? Impact of legislative changes on business?"

- **Policy Effects**: Many abide by laws restricting harmful chemicals, hormone use, or unauthorized scales.
- **Enforcement Gaps**: Entrepreneurs often face abrupt policy shifts (like scale bans) or inconsistent enforcement.

Question 10: Political Climate

"How would you describe the political climate?"

- **Limited Direct Support**: Some indicated political announcements seldom translate to tangible assistance.
- **Tax & Regulatory Pressures**: Government often imposes taxes without reciprocal infrastructural or financial support.

Question 11: Institutional Climate

"Relationship with state institutions?"

- **Weak Government Collaboration**: Most entrepreneurs do not receive direct technical or financial help.
- **NGO Partnerships**: Some do collaborate with associations for training or knowledge sharing.

Question 12: Skills for Employment

"Top 3 skills needed for college graduates looking to work in a company like yours?"

Common responses:

1. **Technical Know-How** (fish breeding, poultry management, feed formulation, rice milling).
2. **Basic Managerial & Time Management** (ensuring timely production cycles).
3. **Attitude & Interpersonal Skills** (team spirit, willingness to learn).

Question 13: Skills for Entrepreneurship

"Top 3 skills that have helped you most in your business?"

- **Leadership & Team Coordination**: Motivating workers, assigning tasks, and problem-solving under pressure.
- **Risk Management & Adaptability**: Dealing with price fluctuations, disease outbreaks, or unforeseen climate events.
- **Marketing & Networking**: Building relationships with suppliers, customers, and, if possible, local authorities or associations.

4. STUDENTS

(Corresponds to the "Interview Guide for Students" with 11 questions.)

Question 1: Intro (2023 professional best)

"How was 2023? What was the best thing that happened to you professionally?"

- **Industrial Training (IT/SIWES)**: Most students cited real-world farm exposure—learning about mechanization, improved seeds, feed formulation, etc.
- **Skills Acquisition**: Some discovered niche areas (like cocoa juice extraction, fry management) that broadened their career horizons.

Question 2: Strengths for Employment

"What do you think are your strengths for employment in the agri-food sector?"

- **Theoretical Knowledge**: Core understanding of crop science, animal production, or agribusiness.
- **Field Experience**: Hands-on practice from IT attachments fosters confidence and readiness.
- **Communication & Accountability**: Students recognized the value of negotiating with buyers, record-keeping, and making decisions.

Question 3: Weaknesses for Employment

"What do you think are your weaknesses for employment in the agri-food sector?"

- **Physical Exertion & Limited Mechanization**: Many found farming physically demanding, especially where manual labor predominates.
- **Time Management & Practical Gaps**: Balancing studies and fieldwork or lacking advanced on-site problem-solving expertise.

Question 4: Opportunities for Employment

"What opportunities can facilitate your employment in the agri-food sector?"

- **Government or NGO Support**: Programs like N-Power, Tony Elumelu Foundation grants, or extension department openings.
- **Increasing Market Demand**: Growth in local consumption of poultry, fish, vegetables fosters potential job openings.

Question 5: Threats to Employment

"What economic difficulties can limit your employment?"

- **Inflation & Limited Job Creation**: Many agribusinesses cut staff or freeze hiring when input costs soar.
- **Insecurity**: Students worried about relocating to insecure farm regions or conflict-prone areas.

Question 6: Strengths for Entrepreneurship

"What are your strengths useful for starting an agribusiness?"

- **Problem-Solving & Adaptability**: Youthful enthusiasm to test new ideas or adapt quickly.
- **Basic Technical Expertise**: Understanding breeding, soil management, or feed formulation.

Question 7: Weaknesses for Entrepreneurship

"Weaknesses that make it difficult to start an agribusiness?"

- **Limited Access to Capital**: Many rely on family or small personal savings.
- **Insufficient Networks**: Lack of mentors or robust professional contacts to guide large-scale operations.

Question 8: Opportunities for Entrepreneurship

"What opportunities can be fruitful for starting an agribusiness?"

- **Seasonal High Demand**: Pig production, fish supply, or off-season vegetable sales can yield good profits.
- **Technical/Vocational Training**: Students see potential in short courses to refine specialized skills.

Question 9: Threats to Entrepreneurship

"Which economic difficulties can prevent you from starting an agribusiness?"

- **Floods, Droughts, Disease Outbreaks**: Wipe out investment or require costly interventions.
- **Harsh Regulatory Environment**: Taxes, licensing, or corruption can deter new startups.

Question 10: Skills for Employment in Holistic Agriculture

"Top 3 skills you need to work in a holistic agriculture company?"

- **Communication & Interpersonal**: Vital for effective teamwork and extension roles.
- **Accountability & Record-Keeping**: Accuracy in logs, finances, and input tracking.
- **Technical Mastery**: Depending on specialization (e.g., fry management for fisheries, greenhouse management for horticulture).

Question 11: Skills for Entrepreneurship in Holistic Agriculture

"Top 3 skills to implement holistic agriculture in your own business?"

- **Leadership & Adaptability**: Leading small teams, reacting to unforeseen issues (like weather extremes or supply shortages).
- **Financial Literacy**: Budgeting, cost–benefit analysis, profit tracking.
- **Innovation & Marketing**: Crafting unique value-added products and marketing them effectively.

5. COMPARATIVE OBSERVATIONS AND KEY TAKEAWAYS

1. **Convergence Across Groups**
    - **Climate & Insecurity**: All categories stress these as major obstacles.
    - **ICT & Communication Skills**: Professors, entrepreneurs, and students uniformly value these competencies.
    - **Policy/Institutional Gaps**: Inadequate infrastructure, funding shortfalls, and governance issues repeatedly surface.
2. **Differences in Perspective**
    - **Professors**: More policy- and research-focused, highlighting extension frameworks, advanced breeding/technology.
    - **Entrepreneurs**: Concerned with daily operational costs, supply chain instability, and immediate risk management.
    - **Students**: Keen on practical experience, bridging theory to practice, and discovering seed capital or mentorship to launch ventures.

3. **Skill Emphasis**
    - **Employment**: Communication, technical expertise, accountability, and time management.
    - **Entrepreneurship**: Financial acumen, leadership, adaptability, record-keeping, and marketing innovation.

6. CONCLUSION AND POSSIBLE RECOMMENDATIONS

Conclusion

Despite a harsh economic climate, insecurity, and climate challenges, Nigeria's agri-food sector possesses key strengths: a large youthful population, diversified agro-ecological potential, and ongoing research. Addressing infrastructural, funding, and policy bottlenecks—while scaling up relevant skills—remains vital for achieving a truly **holistic** agricultural system.

Recommendations

1. **AE-FUNAI & CHAIN Project**
    - Enhance **curricula** with more field-based courses and digital agriculture modules.
    - Strengthen **industry–academic linkages** for internship placements, research collaboration, and extension demonstration plots.
2. **Government & Policymakers**
    - **Invest in Rural Infrastructure & Security** to enable safe, productive farming.
    - Offer **accessible loan facilities** with minimal bureaucracy, plus improved extension services.
3. **Private Sector & Agribusiness**
    - Adopt **precision agriculture** and robust record-keeping to cut costs and improve yields.
    - Collaborate with universities for **joint research** and to groom skilled graduates for staff positions.
4. **Students & Graduates**

- Seek out **mentorship** and short courses to fill practical experience gaps (e.g., specialized feed formulation, greenhouse management).
- Focus on **financial planning** and leadership to launch micro agribusiness ventures.

ANNEX 2

SUMMARY REPORT OF AE-FUNAI CHAIN PROJECT M.SC. CURRICULUM IN AGRIBUSINESS WITH SPECIALIZATION IN FOOD VALUE CHAIN MANAGEMENT

Lessons Learned from Research Reports and Development of MSc Curriculum in Agribusiness and Food Value Chain Management

1. Introduction

The MSc in Agribusiness with specialization in Food Value Chain Management at Alex Ekwueme Federal University Ndufu-Alike (AEFUNAI) represents a transformative step towards addressing key challenges in the agri-food sector, particularly within Ebonyi State. Developed under the CHAIN Project, this program draws heavily from insights provided by two comprehensive rapid reconnaissance research reports on fish and vegetable value chains. This report synthesizes the lessons learned from these studies, analyses the identified gaps, and demonstrates how the MSc curriculum was designed to address these challenges.

2. Research Insights

2.1 Fish Value Chain Report

The research into the fish value chain highlighted several critical challenges and opportunities:

- **Challenges Identified**:
    - Limited access to high-quality fish seeds and feed severely constrained productivity.
    - Inefficient production methods led to suboptimal yields.
    - Inadequate infrastructure for post-harvest handling resulted in significant product losses.
    - Market linkages between producers and buyers were weak, affecting profitability.
    - Limited financial resources and lack of technical training hindered the growth of fish farming enterprises.
    - Climate change, gender, food safety issues and poor environmental management were cross-cutting issues in fish value chains.

- **Opportunities Identified**:
    - Growing local and regional demand for fish products provided a strong market incentive.
    - Potential to develop value-added fish products such as smoked and processed fish.
    - Opportunities for improved practices through targeted training and the adoption of modern technologies.

2.2 Vegetable Value Chain Report

The vegetable value chain report underscored similar challenges while also revealing unique insights:

- **Challenges Identified**:
    - Farmers faced limited access to improved seed varieties and critical farm inputs.
    - The absence of mechanization left vegetable production labour-intensive and inefficient.
    - Poor post-harvest management facilities resulted in substantial losses.
    - Transport infrastructure and market linkages were inadequate, restricting producers' access to larger markets.
    - Gender inequalities limited women's participation in decision-making despite their significant roles in production.
    - Climate change, food safety issues and poor environmental management were cross-cutting issues in vegetable value chains.
- **Opportunities Identified**:
    - Increasing urban demand for fresh vegetables created a robust market opportunity.
    - Introduction of climate-smart agricultural practices could mitigate the effects of environmental challenges.
    - Value addition through processing, packaging, and branding presented untapped potential.

3. Addressing Gaps Through the MSc Curriculum

The MSc curriculum was developed to address these challenges, ensuring that students acquire the necessary knowledge and skills to strengthen the food value chain. Below, we map the key gaps to specific courses and content:

- **Production Challenges**:
    - *Food Processing Technology* and Crop, Livestock and Fish Value Chain Management directly address issues related to inefficient production practices and post-harvest losses. These courses emphasize improving production efficiency and reducing waste.
- **Market Linkages and Infrastructure**:
    - The course on *Agricultural Marketing and Agribusiness Organization Management* equips students with skills to strengthen market linkages and improve coordination among value chain actors.
    - Topics in *Logistics and Supply Chain Management* provide solutions for addressing transport and infrastructure challenges.
- **Capacity Building**:
    - *Principles of Agripreneurship and Product Development* fosters creativity and problem-solving, enabling students to identify and implement innovative solutions within the sector.
    - *Research Methods in Agribusiness Management* ensures that graduates can conduct robust research to inform decision-making and strategy.
- **Environmental and Gender Concerns**:
    - The inclusion of *Sustainability for Commodity and Value Chains* ensures that students are equipped to implement environmentally sustainable practices and ethical and social considerations in food production.
- **Policy and Finance**:
    - Courses like *Agribusiness Policy and e-Business* and Financial Management, Strategy and Institutions bridge knowledge gaps in policy advocacy and financial management.

4. Lessons Learned

From the research reports, several key lessons informed the design of the MSc curriculum:

1. **Holistic Value Chain Approach**:
    - The need for an integrated approach to address the technical, economic, and social dimensions of the value chain.
2. **Emphasis on Practical Training**:
    - Practical, hands-on learning experiences are critical to addressing the real-world challenges identified in the reports.
3. **Addressing Gender Disparities**:
    - Recognizing the significant roles women play in the value chain and incorporating gender-sensitive approaches into training and development.
4. **Focus on Market-Oriented Solutions**:
    - Aligning training with market demands to ensure that graduates can effectively respond to industry needs.
5. **Building Resilience**:
    - Incorporating climate-smart and adaptive practices to mitigate the impacts of environmental challenges.

5. Further Opportunities Envisaged in the MSc in Agribusiness with specialization in Food Value Chain Management

To further enhance the MSc curriculum and its impact, the following are explored:

1. **Expand Practical Exposure**:
    - Increase collaboration with local agribusinesses to provide students with real-world learning opportunities.
2. **Introduce Advanced Technologies**:
    - Include modules on digital technologies, precision agriculture, and emerging innovations in the food value chain.
3. **Establish Industry Partnerships**:
    - Collaborate with private sector actors to align curriculum content with industry needs and emerging trends.

6. Conclusion

The MSc in Agribusiness with specialization in Food Value Chain Management is a comprehensive response to the challenges identified in the core food value chains in Ebonyi State. By addressing gaps in technical knowledge, market access, and environmental sustainability, the program equips graduates to transform the agri-food sector. Continued collaboration with stakeholders and alignment with research findings will ensure the program's relevance and impact in driving sustainable development.

ANNEX 3

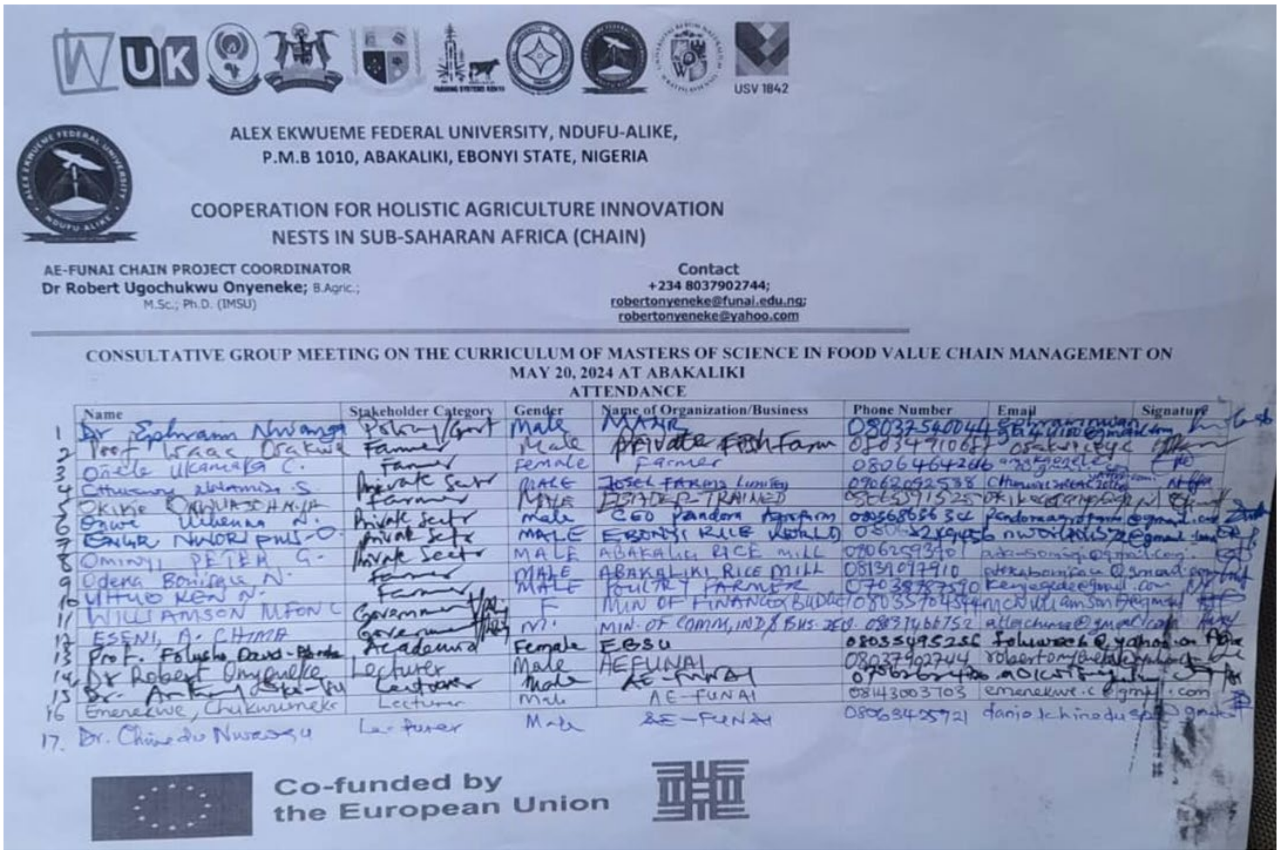
Meeting Minutes of the Consultative Group on the Curriculum of Master of Science in Food Value Chain Management organized by the Alex Ekwueme Federal University Ndufu-Alike (AE-FUNAI) team of the CHAIN Project

Date: May 20, 2024

Time: 10:30 AM

Facilitators: Dr. Robert Onyeneke, Dr. Anthony Oko-Isu, Mr. Chukwuemeka Emenekwe, Dr. Chinedu Nwaogu

Attendance: 17 participants, including key stakeholders from various sectors



ALEX EKWUEME FEDERAL UNIVERSITY, NDUFU-ALIKE,
P.M.B 1010, ABAKALIKI, EBONYI STATE, NIGERIA

COOPERATION FOR HOLISTIC AGRICULTURE INNOVATION NESTS IN SUB-SAHARAN AFRICA (CHAIN)

AE-FUNAI CHAIN PROJECT COORDINATOR
Dr Robert Ugochukwu Onyeneke; B.Agric.; M.Sc.; Ph.D. (IMSU)

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CONSULTATIVE GROUP MEETING ON THE CURRICULUM OF MASTERS OF SCIENCE IN FOOD VALUE CHAIN MANAGEMENT ON MAY 20, 2024 AT ABAKALIKI

ATTENDANCE

	Name	Stakeholder Category	Gender	Name of Organization/Business	Phone Number	Email	Signature
1	Dr Ephraim Nwanga	Policy/Govt	Male	MANR	08037540044	[illegible]	[signature]
2	Prof Isaac Osakwe	Farmer	Male	Private Fish Farm	08034910687	[illegible]	[signature]
3	Onele Ukamaka C.	Farmer	Female	Farmer	08064642616	[illegible]	[signature]
4	[illegible]	Private Sector	MALE	[illegible] Limited	09062092538	[illegible]	[signature]
5	Okike [illegible]	Farmer	MALE	[illegible] TRAINED	[illegible]	[illegible]	[signature]
6	[illegible]	Private Sector	Male	CEO Pandora Agro farm	[illegible]	pandoraagrofarm@gmail.com	[signature]
7	[illegible] Nwori [illegible]	Private Sector	MALE	EBONYI RICE WORLD	[illegible]	[illegible]@gmail.com	[signature]
8	OMINYI PETER G.	Private Sector	MALE	ABAKALIKI RICE MILL	07062593401	[illegible]@gmail.com	[signature]
9	Odera Boniface N.	Farmer	MALE	ABAKALIKI RICE MILL	08139097910	[illegible]@gmail.com	[signature]
10	[illegible] KEN N.	Farmer	MALE	POULTRY FARMER	07038787590	[illegible]@gmail.com	[signature]
11	WILLIAMSON MFON C	Government	F	MIN OF FINANCE & BUDGET	[illegible]	[illegible]@gmail	[signature]
12	ESENI, A. CHIMA	Government	M.	MIN. OF COMM, IND & BUS. DEV.	[illegible]	[illegible]@gmail.com	[signature]
13	Prof. Foluke David-[illegible]	Academia	Female	EBSU	0803549525[illegible]	[illegible]@yahoo.com	[signature]
14	Dr Robert Onyeneke	Lecturer	Male	AEFUNAI	08037902744	robertonyeneke@yahoo.com	[signature]
15	Dr. Anthony Oko-Isu	Lecturer	Male	AE-FUNAI	[illegible]	[illegible]	[signature]
16	Emenekwe, Chukwuemeka	Lecturer	Male	AE-FUNAI	08143003703	emenekwe.c@gmail.com	[signature]
17.	Dr. Chinedu Nwaogu	Lecturer	Male	AE-FUNAI	08063425721	[illegible]@gmail	[signature]

Co-funded by the European Union

Agenda:

1. Commencement
2. Presentation on the background and rationale of the new MSc program
3. Discussion on stakeholder perceptions
4. Closing

Minutes

1. Commencement

- The meeting commenced at 10:30 AM with a brief introduction from attendees. The attendees included Permanent Secretaries from the state ministries of commerce, agriculture and finance/budget as well as industry representatives such as crop and livestock farmers, rice processors, agro-input dealers, academics and related stakeholders. In addition to the invited stakeholders, representatives of the AE-FUNAI CHAIN team were also in attendance.

2. Presentation

- At 10:40 AM, Dr. Robert Onyeneke presented the consultative meeting's purpose, sponsored by the EU Erasmus+ Programme. He outlined the aim to establish a Master's degree program in Agribusiness with a concentration in Food Value Chain Management, detailing CHAIN's objectives and the partners involved. Dr. Robert provided an overview of the curriculum, highlighting its alignment with business and practical activities.

3. Stakeholder Inputs

At 10:55 AM, Dr. Oko-Isu invited stakeholders to provide their observations on the curriculum.

- The Permanent Secretary of the Ministry of Agriculture, represented by the Director of Veterinary Services, expressed profound appreciation for the transformative impact the Programme was poised to bring to the food value chain system. He lauded the innovative strides being made and stated the need of addressing key concerns such as food safety and quality in the formulation of food policies and their inclusion in the FVC Masters curriculum. Furthermore, he highlighted the potential for enhancing food quality by incorporating advanced breeding techniques, suggesting the crossbreeding of local livestock with superior genetic stocks to yield offspring better suited to our environmental conditions. This strategic approach, he argued, could yield significant improvements in both productivity and resilience within the local food production economy.

- Prof. Folusho David-Abraham, a farmer and a professor of Food Science and Technology echoed these sentiments, affirming the critical importance of stringent food standards and quality control mechanisms within the food value chain. Stressing that these measures remained non-

negotiable, she reinforced the necessity of maintaining rigorous oversight to safeguard both consumer health and industry integrity.

In addressing these observations, Dr. Oko-Isu emphasized the interdisciplinary nature of the Food Value Chain Management Masters Programme, highlighting its broad scope encompassing various disciplines within the agricultural sector, including but not limited to food science and technology (FST) and related fields. However, he clarified that the primary focus and academic foundation of the programme reside within the domain of Agribusiness and Management.

Dr. Oko-Isu stressed that while the programme acknowledges the importance of Food Science and Technology (FST) and its relevance to the food value chain, its core emphasis lies in equipping students with comprehensive knowledge and skills in agribusiness principles, strategies, and management practices. Therefore, while foundational understanding of FST concepts may be incorporated, in-depth studies specific to this discipline were not prioritized within the programme's curriculum.

- Prof. Isaac Osakwe, esteemed academician and seasoned crop/livestock farmer, commended the presentation, inquired about industry visits, and stressed the importance of case studies and practical industry engagement. He emphasized the critical importance of facilitating direct engagement between students and industry practitioners through specialized factory visits. He articulated that such interactions serve to bridge the divide between theoretical knowledge and practical application, thereby enriching the educational experience and preparing students for the complexities of real-world challenges.

Highlighting the invaluable insights gained from firsthand involvement in industrial settings, Prof. Osakwe emphasized the transformative potential of experiential learning in narrowing the gap between academia and industry. In expressing his commitment to fostering experiential learning, Prof. Osakwe made a striking declaration of readiness to invest financially in seeking guidance from experts in specialized fields, exemplified by his willingness to pay for assistance from any antelope farmer willing to give him firsthand knowledge on its domestication. His rationale lay in the recognition of the disparity between theoretical solutions found in academic literature and the nuanced realities encountered in practical endeavors. Through direct engagement with

practitioners, he argued, students could gain access to invaluable insights and practical wisdom that transcend the confines of scholarly discourse.

Moreover, Prof. Osakwe advocated for the incorporation of case studies within the CHAIN Masters programme curriculum, citing their potential to inspire innovation and replication of successful strategies. By examining real-life scenarios and dissecting the factors contributing to their success or failure, students can develop a deeper understanding of the complexities inherent in the food value chain and cultivate a repertoire of practical solutions grounded in empirical evidence.

In response to the insightful proposals put forward by Prof. Isaac Osakwe, Drs. Onyeneke and Oko-Isu commended the innovative thinking while also addressing the practical constraints that could hinder their full implementation. They acknowledged the impending resource verification scheduled for June 2024 by the Nigeria Universities Commission (NUC), the regulatory body overseeing all universities in the country. Drs. Onyeneke and Oko-Isu outlined that AEFUNAI CHAIN project embedded within the structure of the Masters programme itself, a value chain incubation. They highlighted the inclusion of a dedicated course titled "Agribusiness and Value Chain Incubation," designed to provide students with practical industry experiences within the confines of academic requirements. This course, carefully crafted to emulate real-world scenarios and industry dynamics, aims to impart invaluable insights and hands-on skills essential for navigating the complexities of the food value chain.

Mrs Amaka Onele, a crop farmer, highlighted the need for post-harvest handling technology in the curriculum. This suggestion resonated with the attendees, acknowledging its significance in addressing the pervasive challenge of postharvest losses within the food value chain. However, despite its merit, the feasibility of incorporating a standalone course on postharvest handling was deemed impractical due to constraints imposed by the maximum credit unit allocation for students in the postgraduate programme. In response to this constraint, it was noted that aspects of postharvest management, including handling, storage, and mitigation of losses, are already embedded within existing courses of the Masters in FVC (particularly ABM 812: Crop, Livestock and Fish Value Chain Management) presented for critique. Furthermore, the attendees emphasized the interconnectedness of various disciplines within the food value chain and the

importance of maintaining a balance between depth and breadth in course offerings. While standalone courses on specific topics may offer in-depth exploration, they also risk crowding out other essential subjects.

Permanent Secretary Ministry of Economic Planning and Budget: The Permanent Secretary of the Ministry of Finance and Budget astutely pointed out a significant oversight in the presented curriculum: the absence of courses focused on finance and budgeting. Recognizing the crucial role that financial management plays in the success of agricultural ventures, the AEFUNAI CHAIN project team acknowledged the concern and initiated an attempt to rectify it. In response to the need for incorporating financial principles into the curriculum, the AEFUNAI CHAIN facilitated an open dialogue to solicit input on the most appropriate integration points. It was agreed that a Finance-related course from other areas of specialization in Agribusiness and Management be integrated in the Food Value Chain Management. The selected course was "ABM 821: Financial Management, Strategy, and Institutions".

The representative of the Permanent Secretary, Ministry of Commerce stated that the coming of the course in Food Value Chain Management was gladdening as they have long expected such while highlighting the beauty in interdisciplinary nature of the courses in the Masters programme in Food Value Chain Management. He expected that such a course would foster the achievement of SDGs 2 and 12.

The Rice Mill Industry representative praised the curriculum but advocated for practical farming courses and enforcement mechanisms for food safety. He lamented over the disharmony between industry and classwork. In his speech, students should be admitted on the basis of their knowledge and experience in agricultural activities, that is, students who are complete novices to agriculture should not be admitted. According to him, the teachers of the Masters programme in FVC should be specifically drawn from the industry and not necessarily university lecturers, thus, the curriculum should emphasize experience over mere knowledge.

In his response, Dr. Oko-Isu stated that the programme is designed to allow experts from the industry participate in training the students. This would involve taking the students to sites and fields, for example, students would be taken to swamps to see how rice is planted and other cultural

activities involved in the production. There would also be visits to livestock farms like the Josel Songhai model farm in Abakaliki, Sapele and Owerri, stating that they already have a memorandum of understanding with AE-FUNAI.

In his remarks, the technical manager of Josel farms promised to expedite actions in putting the farm back in shape so as to accommodate students on industrial trainings, special visits and other research purposes.

A poultry farmer in attendance stressed on the need for considering poultry risk management topic in Food Value Chain Management. He also made enquiries on the entry requirements for the FVC Masters programme. In response, Dr Oko-Isu noted that while admission into the Master degree in FVC is flexible enough, it is given on the basis of merit. However, there are compulsory subjects such as English, Mathematics, Economics, Biology/Agriculture and any other relevant subject.

4. Closing and Completion of Stakeholders' Perception Questionnaire on M.Sc. in Food Value Chain Management

- The meeting concluded with stakeholders completing the evaluation questionnaire and expressing satisfaction with the discussions and the proposed curriculum.

Perception Questionnaire on M.Sc. in Food Value Chain Management

Respondent Background Information (*N* = 13 respondents)

1. Policymakers/Government Officials:

- Total Respondents: 6

- Insight: The majority representation from policymakers indicates a strong interest and support from government officials, which is crucial for policy backing and successful implementation of the proposed Master's program. Their involvement suggests that the program aligns well with government priorities and educational policies.

2. Farmers:

- Total Respondents: 3

- Insight: The farmer respondents provide direct insights from the agricultural sector, highlighting the practical needs and challenges faced in the field. Their feedback underscores the importance of practical, hands-on training and education that directly benefits their operations and productivity.

3. Business/Private Sector:

- Total Respondents: 4

- Insight: Input from the business/private sector reflects the industry's demand for skilled professionals in food value chain management. This group's participation indicates the program's potential to enhance industry standards and competitiveness through improved education and training.

Broad Insights from the Average Scores

The overall cut-off rating applied to the responses is 2.5. The average scores for each question are all above the cut-off score of 2.5, indicating a general agreement or strong agreement among respondents across all questions (see *Table 1*).

Table 1. Average scores for each evaluation question

Respondent	Average Score
Q1	3.8
Q2	3.5
Q3	3.6
Q4	3.6
Q5	3.3
Q6	3.5
Q7	3.2

Q8	3.2
Q9	3.2
Q10	3.0
Q11	3.4
Q12	3.4
Q13	3.4

Discussion of Questionnaire Results (see *Table 2*)

Q1: Current training in agribusiness and food value chain management needs more improvement to meet the present needs of the society.

- Insight: The overwhelming majority of participants (10 strongly agree, 3 agree) believe that current training levels in agribusiness and food value chain management need significant improvement to meet societal needs. This suggests a strong recognition of the existing gaps in the current training frameworks.

Q2: The training that current agricultural students receive is not enough to manage all levels of food value chain management (including business start-ups, educational and research activities).

- Insight: Most participants (8 strongly agree, 4 agree) feel that the current training is insufficient for managing comprehensive food value chain management processes. Only one participant disagrees, indicating a broad consensus on the need for enhanced training that includes practical and research components.

Q3: In the future, the Agribusiness and Food Value Chain Management training needs to be improved to meet the needs of the society.

- Insight: There is strong agreement (8 strongly agree, 5 agree) on the necessity to advance education and training levels in this field to future-proof it against societal demands. This consensus highlights the urgency of implementing progressive educational reforms.

Q4: The level of education and training of Food Value Chain Management Profession should be advanced to include a Master of Science degree in Food Value Chain Management.

- Insight: Similar to Q3, this question also received strong support (8 strongly agree, 5 agree) for advancing educational levels to include a specialized graduate degree. This indicates a perceived need for higher qualifications in the field to ensure comprehensive expertise.

Q5: A master's degree in Agribusiness and in Food Value Chain Management would improve the levels of knowledge of Food Value Chain Managers, programme coordinators, farmers, transition and innovation managers, policymakers, food quality inspectors, researchers, food value chain consultants, and capacity builders.

- **Insight:** While there is strong agreement (5 strongly agree, 7 agree), one participant disagrees, suggesting that most stakeholders see value in a master's degree for knowledge advancement across various roles, although there is a slight divergence in opinion.

Q6: A master's degree in Agribusiness and in Food Value Chain Management would enhance the practical skills of Agribusiness and Food Value Chain Managers.

- **Insight:** All participants agree (6 strongly agree, 7 agree) that a master's degree would enhance technical and research skills. This unanimous agreement underscores the importance of advanced degrees in fostering technical proficiency.

Q7: A master's degree in Agribusiness and in Food Value Chain Management would increase the capacity of Food Value Chain Managers, programme coordinators, farmers, transition and innovation managers, policymakers, food quality inspectors, researchers, food value chain consultants, and capacity builders.

- **Insight:** Although there is significant agreement (4 strongly agree, 7 agree), two participants disagree, indicating some reservations about the degree's impact on capacity across various roles. Further exploration into the specific concerns might be necessary.

Q8: The proposed curriculum of a master's degree in Agribusiness and in Food Value Chain Management captures the current and future training needs of Food Value Chain Managers, programme coordinators, farmers, transition and innovation managers, policymakers, food quality inspectors, researchers, food value chain consultants, and capacity builders.

- **Insight:** Strong support (4 strongly agree, 8 agree) with one dissenting view suggests that the proposed curriculum is largely seen as addressing both current and future training needs, though slight modifications might be needed to achieve universal approval.

Q9: There is a need in my organization for Food Value Chain Managers, programme coordinators, farmers, transition and innovation managers, policymakers, food quality inspectors, researchers, food value chain consultants, and capacity builders with the knowledge, training, and skills acquired by those who complete a Master degree in Agribusiness and in Food Value Chain Management program.

- **Insight:** High agreement (3 strongly agree, 9 agree) with one disagreement highlights a recognized demand for the specialized skills imparted by this master's program, confirming the practical relevance of the degree.

Q10: I will apply for admission to the Master Degree program in Agribusiness and in Food Value Chain Management as soon as it is launched.

- Insight: While there is strong interest (3 strongly agree, 7 agree), three participants are unsure or unwilling to apply, indicating that while the program is attractive to many, some barriers to enrollment may exist that need addressing.

Q11: I will encourage others to apply for admission to the Master Degree program in Agribusiness and in Food Value Chain Management as soon as it is launched.

- Insight: Strong support (5 strongly agree, 8 agree) indicates a willingness among participants to advocate for the program, suggesting potential for high community and peer endorsement.

Q12: Do you believe that the Master Degree in Agribusiness and in Food Value Chain Management will improve your career opportunities?

- Insight: High agreement (6 strongly agree, 6 agree) with one disagreement indicates a strong belief in the program's career advancement potential, though some skepticism remains.

Q13: Would you recommend the proposed Master Degree program to others?

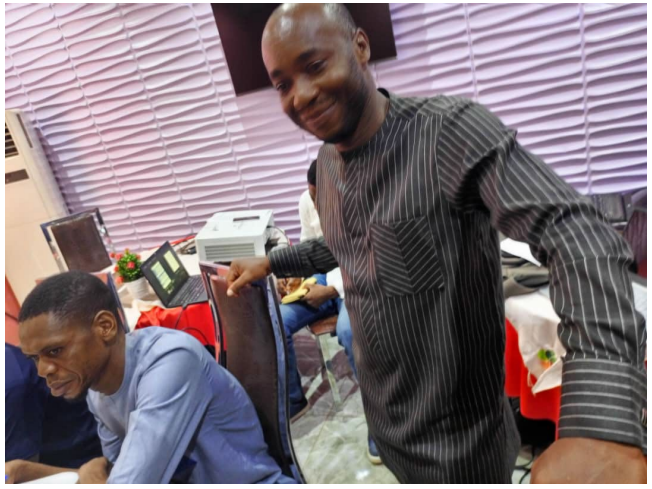
- Insight: Strong endorsement (5 strongly agree, 8 agree) with no dissenters highlights a broad consensus that the program is worth recommending to potential candidates, indicating its perceived value and relevance.

These results collectively demonstrate a strong endorsement for advancing educational offerings in food value chain management, with broad recognition of the benefits and some areas for further engagement and clarification.

Picture Gallery
























CHAIN Project

Cooperation for Holistic Agriculture Innovation Nests in Sub-Saharan Africa

Erasmus+ CBHE Project CHAIN – 101082963

Co-funded by the European Union

Summary Report

on

Feedback from Peer-review Processes for the Development of the Curriculum for Master Degree Programme in Food Value Chain Management

by

CHAIN Project,
Federal University of Technology, Minna

1.0 Introduction

The CHAIN Project FUTMinna, developed a Master Degree Curriculum in Food Value Chain (FVC) Management. This was done after consultations. This was done to guarantee that academic programs meet stakeholder demands and successfully support social and economic growth, a strong and industry-relevant curriculum must be developed. The results of a thorough peer-review process that was carried out to get input on the suggested curriculum for a new Master's degree program in food value chain management are presented in this paper.

A wide range of stakeholders were included in the peer-review process, including farmers, students, academics, businesspeople, and state ministry of agriculture representatives. Their combined knowledge, which came from academic research, real-world experience, and policy viewpoints, was crucial in developing a curriculum that takes into account the many possibilities and problems found in the food value chain industry.

The stakeholders asked the FUTMinna CHAIN team some questions, they also made comments and suggestions, as well as actionable recommendations that they felt if implemented, would ensure the successful implementation of the Master programme. This report documents the questions, comments, suggestions, and recommendations provided by these stakeholders. It seeks to highlight areas of strength, identify gaps, and propose actionable improvements to ensure the curriculum is innovative, practical, and aligned with both industry needs and academic standards. By incorporating this feedback, the program aims to equip graduates with the skills and knowledge required to manage and optimize food value chains effectively, fostering sustainable agricultural practices and contributing to food security and economic development.

2.0 Processes Adopted in the Development of the Curriculum

The development of master curriculum was in stages. Each member of the team was involved in developing the curriculum. The first draft was produced after series of physical meetings with stakeholders (entrepreneurs, students, teachers, farmers). After the various meetings, the stakeholders asked questions, made comments and suggestions, as well as actionable recommendations.

2.1 Stakeholder engagement

The report on engagement of the various stakeholders is as follows:

2.1.1 Farmers

The farmers, as key stakeholders in the food value chain, provided feedback based on their practical experiences, challenges, and needs. A meeting with the farmers and Project CHAIN Team members, FUT Minna, was held at Dama Village, Bosso Local Government Area, Niger State in January, 2024. This brought several farmers and farmer groups in the neighbouring communities.

The questions, comments, recommendations, they offered during the peer-review process for developing the curriculum for a Master's Degree Programme in Food Value Chain Management are as follows:

Comments and questions

Farmers made comments and asked the following quesions:

1. **Practical Relevance of the programme**
    - What are the goals and objectives of the curriculum?
    - How will this programme address some of the challenges that we face like practical issues such as input access, mechanization, irrigation, and pest management?
    - What specific benefits will the programme bring to them in terms of skills?
    - Observations about the disconnect between theoretical knowledge and on-the-ground realities in farming practices were made.
    - How will the programme contribute to improving food production and market access?
    - How will the programme contribute to improving farm incomes, profits and livelihoods in their farm operations?
    - Will there be strategies to reduce post harvest losses and increase value addition?
2. **Local Context**
    - Farmers commented on the extent to which the curriculum addresses specific agricultural challenges, such as climate variability, soil degradation, and access to markets.
    - Will there be hands-on training on modern technologies, field visits in the curriculum?
    - Will there be extension programmes and farm advisory services?
    -
3. **Role of Farmers**
    - Comments on how the curriculum incorporates the perspectives and needs of smallholder and large-scale farmers in shaping food value chains.
    - How will farmers be involved in shaping the curriculum?
    - How will graduates contribute back to the farming community?
4. **Policy and Advocacy**
    - Observations on whether the program equips students to advocate for policies that support farmers, such as subsidies, fair pricing, and improved infrastructure were made.
    - Issues on facilitating partnerships with other stakeholders in the value chain, such as processors, retailers, amd policy makers were mentioned and clarification sought
    - Whether or not there will be feedback mechanism to incorporate their suggestions into the programme

Recommendations

The following recommendations were made by theses stakeholders:

- Recommended the inclusion of courses on sustainable agricultural practices, including organic farming, agroforestry, and climate-smart agriculture.
- They suggested emphasizing post-harvest technologies and strategies to reduce losses and improve the value of farm produce.
- They recommended integrating training on affordable and accessible farming technologies, such as precision agriculture tools, mobile apps, and mechanized equipment.
- Suggested a focus on value addition through food processing and direct market access strategies to increase farmers' profitability.
- Encouragement of student involvement in rural communities to gain firsthand experience and develop solutions that are practical and scalable.

Feedback

- They appreciated involving farmers in the curriculum development process, ensuring their needs are considered.
- They made a call for more emphasis on solving infrastructural challenges, such as poor transportation networks and lack of storage facilities.
- Suggest better integration of indigenous knowledge and traditional farming techniques alongside modern practices.
- Concerns about whether graduates will be equipped to address the high costs of inputs, limited access to credit, and inefficient supply chains were raised.
- Questions about the program's ability to create practical solutions for smallholder farmers
- The expectation is that graduates will act as intermediaries, helping farmers adopt innovations, secure better market access, and navigate regulatory frameworks.

Fig. 2.1 Cross section of farmers during needs meeting with entrepreneurs in January, 2024

2.1.2 Feed Back from Students

Comments and Questions

- What are the key objectives of this programme?
- What makes master degree programme in FVC different from other similar degrees?
- Are there opportunities for exchange programmes?
- Will the programme offer flexible options like part-time, online or hybrid learning?
- Are there scholarships available for the programme?
- Students asked questions on career opportunities as to how the program will enhance their employability in the Nigerian agricultural sector or related industries.
- Students highlighted the importance of including hands-on training, fieldwork, and industry placements to complement theoretical learning.
- They wanted to know if there would be opportunities for internships
- They advocated for the curriculum to be tailored to Nigerian-specific food systems, cultural practices, and economic realities.
- Students suggested the inclusion of curriculum content from economics, technology, environmental science, and policy to make the program comprehensive.
- Students raised concerns about the affordability of the program, availability of scholarships, and flexible learning options might be raised.
- They wanted to know if there will be elective courses

Recommendations

1. **Incorporate Industry Linkages**
   - They recommended partnerships with local food industries, agribusinesses, and cooperatives for internships and collaborative projects.
2. **Focus on Entrepreneurship**
   - Suggested modules on agribusiness entrepreneurship, innovation, and start-up support for students aiming to launch their ventures.
3. **Leverage Technology**
   - Proposed the inclusion of courses on digital tools, precision agriculture, and blockchain for supply chain management.
4. **Sustainability Focus**
   - Recommended integrating topics like sustainable farming practices, waste reduction, and climate-smart agriculture.
5. **Soft Skills Training**

- Advised the inclusion of training on communication, leadership, and problem-solving skills to prepare students for leadership roles in the sector.

Feedback

- Students appreciated the quest for addressing food security and agriculture-related challenges in Nigeria.
- Positive remarks about multidisciplinary collaboration and inclusion of diverse stakeholders in curriculum development.
- Studets need clearer career pathways and support post-graduation.
- They raised concerns about the potential mismatch between academic content and the realities of the Nigerian labor market.
- They raised questions about how the program will remain relevant in a rapidly changing agricultural and technological landscape.

2.1.3 Feed Back from other Entrepreneurs

The entrepreneurs provided practical, industry-focused feedback during the peer-review process.

Comments

- They commented on whether the curriculum addresses real-world challenges faced in the food value chain sector, such as logistics, post-harvest losses, and market access.
- Concerns were raised about the program's ability to produce graduates with entrepreneurial mindsets and problem-solving skills.
- Observations were made about the need for the curriculum to focus on emerging technologies such as precision agriculture, blockchain for traceability, and digital marketing tools.
- Whether the curriculum adequately reflects Nigeria-specific challenges, such as infrastructure gaps, policy constraints, and cultural dynamics in the food industry.
- Entrepreneurs emphasized the importance of including financial literacy, access to credit, and venture capital as part of the training.
- They sought to know whether the program aligns with current market trends and consumer preferences in the Nigerian food sector.

Recommendations

- Recommended partnerships with food processing companies, logistics firms, and agricultural cooperatives to ensure practical exposure and knowledge transfer.
- Suggested emphasizing courses on food processing, branding, packaging, and creating value-added products to meet both local and export market demands.

- They recommend courses on starting and scaling agribusiness ventures, marketing strategies, and overcoming challenges unique to the Nigerian environment.
- They advocated for inclusion of content on navigating regulatory frameworks, food safety standards, and advocating for supportive policies.

Feedback

- Commended the move to bring together stakeholders, including entrepreneurs, in the curriculum development process before drafting the curriculum.
- They suggest making the curriculum more hands-on with mandatory internships and project-based learning.
- They recommended creating a mechanism for regular updates to the curriculum to keep pace with industry developments.
- They raised concerns about whether graduates will be equipped to manage the high cost of production and distribution challenges in Nigeria.
- Entrepreneurs expect that graduates will contribute directly to solving pressing issues such as reducing food import dependency, improving rural livelihoods, and boosting Nigeria's agricultural exports.

2.1.4 Feedback from Teachers

Nigerian teachers, particularly those involved in agriculture, food science, and related fields, provided feedback that reflects their experience with pedagogy, curriculum design, and the needs of students in the Nigerian educational context. Below are comments, recommendations, and feedback they provided during the peer-review process:

Comments

- Teachers commented on whether the proposed curriculum aligns with existing programs and bridges gaps in students' foundational knowledge.
- How does the programme differentiate itself from existing programmes?
- Will the programme allow for specialization?
- What innovative teaching methods will be included?
- How can AI or blockchain be incorporated into the learning process?
- How can the programme foster critical thinking, creativity and collaborative learning among students?
- What types of student assessments will be used to assess competencies?
- Will there be regular reviews to adapt the curriculum to changing industry needs?
- Will the programme admit students with non agricultural backgrounds?
- Observations on the balance between theoretical content and practical application in the curriculum.
- Comments on the clarity and relevance of the program's learning outcomes and how they align with industry and academic goals were made.

- Whether the teaching methods proposed (lectures, case studies, workshops, etc.) are appropriate and effective for the subject matter.
- Observations on how well the curriculum addresses Nigeria-specific issues in food value chain management, such as smallholder farming challenges, post-harvest losses, and infrastructure gaps.

Recommendations

1. **Strengthen Practical Learning**
   - Recommended incorporating more hands-on activities, such as laboratory sessions, field visits, and collaborations with industry partners.
   - Suggested establishing demonstration farms or model value chain projects as part of the program.
2. **Focus on Teaching Resources**
   - Proposed the development of tailored teaching materials, including textbooks, case studies, and audiovisual aids, that reflect Nigeria's food systems.
   - Recommended providing training for faculty members to stay updated on the latest trends in food value chain management.
3. **Incorporate Interdisciplinary Content**
   - Suggested including content from economics, environmental science, technology, and policy to create a well-rounded curriculum.
4. **Digital and Technological Integration**
   - Recommended courses or modules on digital tools, such as data analytics, Geographic Information Systems (GIS), and supply chain software, to modernize the teaching approach.
5. **Student Engagement and Evaluation**
   - Proposed interactive teaching methods, such as group projects, problem-based learning, and industry challenges, to engage students effectively.
   - Suggested innovative assessment methods, such as capstone projects, oral presentations, and reflective essays, in addition to traditional exams.

Feedback

- Appreciated the program's potential to address skills gaps in Nigeria's agriculture and food sectors.
- Interdisciplinary approach and efforts to include practical and industry-relevant content were commended.
- Suggested reviewing the duration of the program to ensure adequate time for both academic and practical learning components.
- Concerns about the availability of qualified faculty members to deliver specialized courses in food value chain management were raised.
- Questions about funding and resources for practical components, such as fieldwork and internships.

- Expects that the program will prepare graduates to be effective educators, researchers, and practitioners who can contribute to Nigeria's agricultural development.
- Hopes for a focus on fostering innovation, critical thinking, and leadership skills among students.

2.1.4 Ministry of Agriculture Officials

Niger State Ministry of Agriculture officials (Fig. 2) provided feedback that reflects their policy priorities, sectoral knowledge, and vision for the state's agricultural development. Their comments, recommendations, and feedback during the peer-review process for the curriculum development of the Master's Degree Programme in Food Value Chain Management held on Wednesday, 8th November, 2023 include:

Fig. 2.2: Meeting with the Honourable Commissioner,
Ministry of Agricultureand other key officials of the Ministry
June, 2023.

Comments

1. **Alignment with National Policies**
   - Officials commented on whether the curriculum aligns with Nigeria's agricultural transformation agenda, food security strategies, and economic diversification goals.
   - Observations on the program's focus on supporting the National Agricultural Policy and other related frameworks.
2. **Relevance to Sectoral Needs**
   - Commented on the extent to which the curriculum addresses critical challenges in the food value chain, such as inefficiencies, post-harvest losses, and poor market linkages.
   - Feedback on whether the program reflects current trends and future needs of Nigeria's agriculture and food systems.
3. **Capacity Building**
   - Observations on the curriculum's potential to build human capital in the sector, particularly for areas like extension services, agribusiness, and policy analysis were made.
4. **Inclusion of Stakeholders**
   - Commentswere made on how well the curriculum considers the needs of smallholder farmers, cooperatives, agribusinesses, and other value chain actors.

Recommendations

1. **Policy and Advocacy Training**
   - Recommended including modules on policy formulation, implementation, and advocacy to prepare graduates for roles in influencing agricultural policy.
2. **Focus on Sustainability**
   - Suggested integrating topics on sustainable agricultural practices, climate-smart technologies, and environmental conservation into the curriculum.
3. **Strengthen Public-Private Partnerships (PPP)**
   - Advocated for curriculum components that encourage collaboration between public institutions, private enterprises, and non-governmental organizations.
4. **Monitoring and Evaluation (M&E)**
   - Recommended incorporating M&E frameworks to enable graduates to assess the impact of programs and interventions across the food value chain.
5. **Address Regional Disparities**
   - Proposed ensuring the curriculum addresses regional agricultural challenges, such as arid zone farming, flooding, and soil fertility issues.

Feedback

- Appreciated the program's potential to develop skilled professionals who can address critical bottlenecks in Nigeria's food value chain.
- Positive remarks were made on involving government stakeholders in curriculum design to ensure policy alignment.
- Suggested strengthening practical components to ensure graduates are job-ready and capable of solving real-world challenges.
- Called for more focus on issues like infrastructure development, trade barriers, and financing for agricultural projects.
- Concerns about the adequacy of funding and resources to support the implementation of the program, particularly its practical and field-based elements were raised.
- Questions about how the curriculum will remain adaptable to changes in policy, technology, and market dynamics were raised.
- The Ministry expects that the program will produce graduates capable of contributing to the national agricultural value chain and achieving sustainable food security.
- Hopes that the program will foster innovation and provide practical solutions to challenges such as low productivity, market inefficiencies, and value addition.

2.3 Further Steps Taken

These feedbacks subsequently guided the curriculum developing team to design a program that resonates with stakeholder expectations while equipping them with the skills needed to succeed in the food value chain sector. After the feedback, FUTMinna CHAIN Project team then proceeded to draft the curriculum.

The next stage involved taking the above curriculum prepared by CHAIN team FUTMinna to the Seminar organized by the consortium at the HSWT Triesdorf, Germany where all the partner universities brought their master curricula for deliberation. In that meeting, all the

submissions were scrutinized. It was agreed that common courses be developed which will be adopted by each partner institution. A total of six (6) courses were agreed upon to be included by each member university (that is, 3 courses in the first and 3 courses in the second semester respectively. This is to breed uniformity and standardize the program. It will also in the future enable staff/student exchange programs between the partner universities.

The agreed common courses are presented in Table 2:

Table 2: Agreed Common Courses

Common Courses	Semester	Credit Hour	Credit Unit
(1) Food value Chain Management	I	90	2
(2) Principles of Agripreneurship and product development	I	90	2
(3) Food processing technology	I	90	2
(4) Crop, livestock and fish value chain management	2	90	2
(5) Digital technology for Agri-food system	2	90	2
(6) Sustainability for Commodity and food value chains	2	90	2

The synopses for the common courses were also developed at the meeting in HSWT Triesdorf. Arising from that meeting and as next steps, respective universities were basked to include these courses in their local content with marked uniqueness.

After the meeting at Triesdorf, the team updated the master curriculum. This was later procedurally submitted to the Dean, Postgraduate School, FUT Minna for scrutiny. The submission was considered by the PG School Board where corrections were made in order to conform to the FUT Minna format. The master programme shall be called Master of Technology (M.Tech.) and not Master of Science (M.Sc.) as is the case in conventional universities. This is because, FUT Minna is a specialized University of Technology. The corrections were also effected by the team.

Comments by the Post Graduate Board Curriculum Review Team

After reviewing the document, the PG Board recommended as follows:

1) The removal of list of members of the consortium in the cover page
2) Replacement of **section 1.0** to read "Introduction" instead of Rationale for the Program
3) Under section **5.0 Aim and objectives** the word "of Technology" be included in the name of the program
4) Under section **"6.0 Admission Requirements"**, they recommended that qualifying examination be made compulsory for HND candidates
5) **Section 7.0** should be re-captioned to read "Duration of Programme" instead of Programme Structure and Duration

6) **Section 12.0 Thesis**, should include the appointment of supervisors and recommended the presentation of at least two Seminars by the students, namely, Proposal and Exit, and not just one Seminar
7) **Section 17.2 Distribution of Courses by Semester** to read **Course Structure**
8) Recommended the indication of common courses with asterisks
9) They recommended that list of available staff and areas of specialization be included. The manpower should be presented under the following categories:
   i) Academic staff
   ii) Technical staff
   iii) Administrative staff.
10) They recommended that list of physical facilities available should be included. They consist of
   i) Offices
   ii) Lecture halls
   iii) Laboratories/Studios
   iv) Seminar rooms
11) Inclusion of list of equipment
12) Include list of textbooks and journals in:
   i) SAAT Library
   ii) University Library
13) Include the list of required textbooks.

3.0 Conclusion

The peer-review process has provided valuable insights and constructive feedback for the development of the Master's Degree programme in Food Value Chain Management. The reviewers highlighted key areas for improvement including curriculum structure, course content relevance, and alignment with industry needs. Their suggestions for integrating practical approaches will help the students emerge with practical skills and as employers of labour in the food value chain sector.

The feedback enabled the refining to ensure that it meets academic standards and provide the requisite knowledge and skills required by stakeholders. This effort demonstrates a commitment to excellence to deliver impactful education that bridges academia and industry.

21.01.2024

Prof. Likita TANKO,
(Project CHAIN Team Lead, FUT Minna).

Feedback from Peer-review Processes for the Development of the Curriculum for Master Degree Programme in Food Value Chain Management

SEKU

JANUARY, 2025

Contents

1.0. Introduction

The South Eastern Kenya University (SEKU), through the School of Agriculture Environment Water and Natural Resources of South Eastern Kenya University (SEKU) engaged in a curriculum developed on MSc. Programme in Food Value Chain Management. The proposed MSc. program was part of the outputs of a collaborative EU-funded project "***Cooperation for Holistic Agriculture Innovation Nests in Sub-Saharan Africa-CHAIN***" and is intended to prepare proficient, highly skilled and innovative agribusiness and value chain experts capable of leading the commercialization of the country's agriculture in light of the dynamic nature of consumers' demand.

2.0 Processes adopted in the Development of the Curriculum

2.1 Appointment of curriculum drafting committee

A curriculum drafting committee comprising of Seven [7] members to spearhead the development of MSc. Food Value Chain Management was appointed by the Chairman, Department of Agricultural Sciences in line with the requirements of the Commission for University Education [CUE]. In developing the curriculum, consideration was given to the requirements of the Commission for University Education (CUE) as per the University Guidelines and Standards (2014), SEKU Academic Programme Development Policy, and SEKU ISO 9001 2015 Standards.

2.2 Needs assessment/market survey/situational analysis

A needs assessment survey was conducted with a goal to determine whether the academic programme sufficiently addresses the needs of the market. The methodological approach employed in conducting the needs assessment was based on a number of considerations. The team appreciated that a study of this nature and magnitude required the use of a mixture of methods of data collection and analysis. There would be no single method that would meet all the necessary requirements for the study. Thus, the following methods were utilized:

1. **Online survey:** The Committee conducted an online survey between 26th March 2024 and 2nd April 2024 using a questionnaire (shown below) with respondents drawn from different demographic, geographic, academic and occupational backgrounds from around Kenya.

QUESTIONNAIRE

NEEDS ASSESSMENT ON MSC FOOD VALUE CHAIN MANAGEMENT

SCHOOL OF AGRICULTURE ENVIRONMENT WATER AND NATURAL RESOURCES

SOUTH EASTERN KENYA UNIVERSITY

Preamble to the questionnaire

School of Agriculture Environment Water And Natural Resources of South Eastern Kenya University (SEKU) is conducting a needs assessment on development of a MSc. Programme in Food Value Chain Management. The MSc. program is intended to prepare proficient, highly skilled and innovative agribusiness and value chain experts capable of leading the commercialization of the country's agriculture in light of the dynamic nature of consumers' demand. The University has therefore, developed a questionnaire to seek your views. The survey will take about 10 minutes of your time and we kindly request you to complete the questionnaire. The information obtained here will be used for the purpose of this study only and will be treated with utmost confidentiality.

Thank you for your participation.

The program will consist of the following courses:

YEAR 1, SEMESTER ONE

1. Food Value chain management: Principles and practice

2. Research methods in Agribusiness and Value chains
3. Food Technology
4. Food Economics
5. Food Quality Management
6. Gender and Value Chain Management

YEAR 1 SEMESTER TWO

1. Food Marketing
2. Project Planning and Management
3. Seminar in Agribusiness and Value Chain Management
4. Investment Analysis and Business Plan Development
5. Crop value chain management
6. Livestock value chain management

YEAR 2

Thesis

PERSONNAL INFORMATION

1. Please indicate your gender by ticking inside the bracket below
   a) Male ( )
   b) Female ( )

2. Please indicate your age bracket by ticking inside the bracket below
   a) 13 – 17 years ( )

b) 18 – 30 years ( )

c) Under 30 years ( )

d) 30-40 years ( )

e) 41-50 years ( )

f) 51- 60 years ( )

g) Above 60 years ( )

3. Please indicate your highest level of education by ticking inside the bracket below

a) KCPE ( )

b) KCSE ( )

c) Certificate (post-secondary) ( )

d) Diploma ( )

e) Bachelors ( )

f) Masters Degree ( )

g) Doctorate Degree ( )

4. Please indicate your occupation.

_____

5. Which sector do you work?

(a) Public ( )

(b) Private ( )

6. What is your area of specialization?

a) Computer Science ( )

b) Engineering ( )

c) Health Science ( )

d) Life Science ( )

e) Social Science ( )

f) Other Specify----------

7. There is need for more specialized, Food Value Chain professionals nationally and regionally

a) Strongly Agree
b) Agree
c) Neutral
d) Disagree
e) Strongly Disagree

8. We need more Food Value Chain specialists to solve contemporary national challenges in the food and nutritional security issues

a) Strongly Agree
b) Agree
c) Neutral
d) Disagree
e) Strongly Disagree

9. Training MSc. Food Value Chain Management will help alleviate challenges facing the region in 21st century.

a) Strongly Agree
b) Agree
c) Neutral
d) Disagree
e) Strongly Disagree

10. Which name would you prefer the program to be called?

a) MSc.in Food Value Chain Management
b) MSc. in Agri-Food Value Chain
c) MSc. in Food Value Chain
d) MSc. in Food Systems Management

e) Other

11. If response to No.10 is other, kindly suggest an additional name

Your answer

12. Kenyan students are willing to be trained in these specialized areas of Agriculture

a) Strongly Agree
b) Agree
c) Neutral
d) Disagree
e) Strongly Disagree

13. Are the proposed course units adequate?

a) Yes
b) No

14. If no to 13 above, kindly suggest additional course unit

Thank you very much for your time.

The committee received views from a wide range of stakeholders spanning a spectrum of specializations. They included Social Sciences, Life Sciences, Health Sciences, Natural Sciences, Business, Agricultural Sciences, staff and students.

The survey overwhelmingly supported the development and mounting of MSc. Food Value Chain Management at School of Agriculture, Environment, Water and Natural Resources at South Eastern Kenya University. There was a general feeling that the proposed programme will

enhance the quality of graduates to better handle current and emerging issues in food safety and quality through the value chain and at the regulatory level. A summary of the findings/recommendations is presented below:

Findings/recommendations on MSc. Food Value Chain Management

i. Eighty one percent (81%) of the respondents were satisfied that the proposed units are adequate. The 21% of the respondents who were not satisfied with adequacy of the proposed units suggested the following:
   a. Need to include a course in data analysis and food logistics
   b. The proposed units assume that crops and livestock are the only food. It would be good to explore other food sources and include them in the value chain. These include insects, aquatic food among others.
   c. The aspect of commercialization and innovation should be seen in the units as is in the introductory statement.
   d. How will the graduate of this programme impact the community? There is need for development of content on this in one of the unit. All farmers need this information, but cannot enroll for MSc.
   e. There is need to infuse Food safety (along the food chain)
   f. Macro and micro Economics, Statistics, Econometrics to be included in the curriculum
   g. Preferred name for the program to be Master of Science in Food Value Chain Management

2. Benchmarking: Through consultative meeting and discussions among 6 Higher Education Institutions in Africa namely SEKU, Jaramogi Oginga Odinga University of Science and Technology (JOOUST), Federal University Ndufu Alike Ikwo - AE-FUNAI, Federal University of Technology, Minna – FUTMINNA, University of Kara – UK, University of Lome - UL and European partners the in Cooperation for Holistic Agriculture Innovation Nests in Sub-Saharan Africa (CHAIN) Project.

3. Desktop literature review of relevant documents and studies: A review of available literature including the CUE, MoE guidelines, standards and policies as well as legal and administrative frameworks governing Higher Education.

2.3 Stakeholder Engagement

The South Eastern Kenya University (SEKU), School of Agriculture Environment Water and Natural Resources of South Eastern Kenya University (SEKU) conducted a stakeholders' engagement on 22nd August 2022 to determine whether the proposed MSc. Programme in Food Value Chain Management sufficiently addresses the needs of the market/employers. The MSc. program is intended to prepare proficient, highly skilled and innovative agribusiness and value chain experts capable of leading the commercialization of the country's agriculture in light of the dynamic nature of consumers' demand. A total of 19 participants drawn from 11 institutions were involved.

The stakeholders included: Universities [e.g. Machakos University; South Eastern Kenya University]; Kenya Forestry Research Institute [KEFRI]; World Food Programme [WFP]; International Crops Research Institute for the Semi-Arid tropics [ICRISAT]; Faith Based Organization [e.g. Anglican Development Services-Eastern {ASDE}; CARITAS]; United States Department of Agriculture [USDA]; Farmers' cooperatives [e.g. NZAMKA cooperative society]; Supply Chain Company [e.g. Makamithi Agrovet]; credit providers [e.g. Equity bank]. They agreed on the suitability of the MSc. programme in Food Value Chains Management and expressed their support for its mounting in SEKU (Appendix XI).

Earlier, other institutions including banks, County Ministry of Agriculture, Faith Based Organizations, Non-governmental Organizations and Supply Chain Actors, International Institutions and Farmers' Cooperatives had been involved in a Focus Group Discussion to establish the needs of the market in terms of training in holistic Agriculture and food value chains.

The Stakeholders' unanimously agreed that the MSc. Food Value Chain Management programme was adequate in form and content and was timely in response to food insecurity issues facing the country and Africa as a whole. In addition, the stakeholders had some questions/recommendations on the proposed programme. Some specific questions/comments are shown in the table below:

S.No.	Question/comment	Reaction/response
1	There was a concern whether the programme will be offered only at the main campus or it can be offered to satellite campuses to take care of the employed cadre of students?	It will be offered in all campus except where practicals will be required, they will need to be carried out at main campus
2	There was concern whether departments dealing with Food Technology were involved in the development of the programme	The answer was yes. It was further noted that a Food Scientist was present in the stakeholders' workshop.
3	A question was asked about the scope/extent to which the unit on Digital Technologies for Agri-Food Systems unit will cover	The course unit will cover all digital technologies along the food value chain starting from pre harvest to processing
4	It was also proposed that artificial intelligence need to be captured in the on Digital Technologies in Agrifood Systems.	Agreed with the proposal
5	AFVC 611: Seminar in Agribusiness and Value Chain Management**:** Proposed that aspects of communication and awareness to be included	Agreed with the proposal
6	It was proposed that AFVC 605: Gender and value chain management should include aspects of climate innovation, continental framework, Agricultural policies, post-harvest management	Agreed with the proposal
7	There was a concern whether Statistics/Econometrics was captured in the units to be offered	Stakeholders were informed that aspects of econometrics were captured in AFVC 606: Food Economics and aspects of statistics were captured in AFVC 602: Research

		methods in Agribusiness and food value chains
8	There was a question on how Seminar in Agribusiness and Value Chain Management will be graded?	Participants were informed that grading will be done through group discussions and presentations, continuous assessment and the pass mark to be 50%
9	Proposed incorporating proposal development in Y1 and further development in year 2	Research methods in agribusiness and value chains in Y1 captured proposal development
10	There was a concern whether aspects of Indigenous food value chain management and youth are captured in the curriculum.	Gender covers all aspects of age
11	It was also proposed that the title for AFVC 605 to be Gender mainstreaming and value chain management	Agreed to check on the possibility of improving the unit title.
12	One stakeholder wanted to know whether there was another Masters programme Agribusiness? To avoid duplication	There is no Masters programme in Agribusiness but there are other programmes namely: MSc. Agricultural Resource Management; and MSc. Agricultural Economics
13	Suggested that aspects of disability and inclusion needed to be included	Agreed with the proposals
14	Proposed that students can be encouraged to take an online course and get certificate on statistics and economics	Agreed with the proposal
	Complimented the Unit on Digital technology	Agreed with the compliment

15	AFVC 610: Need to capture aspects of sanitation	Agreed with the proposal
16	There was a question whether aspects of pest management are captured	Agreed to check and capture if they are not there

3.0 Conclusion

The peer-review process offered important perspectives and helpful suggestions for enhancing the Master's Degree programme in Food Value Chain Management. The reviewers pointed out essential areas that needed attention, such as the organization of the curriculum and the significance of the course material. The feedback allowed for the adjustment of the proposed curriculum to guarantee that it aligns with academic criteria and adequately responds to market demands.

Cooperation for Holistic Agriculture Innovation Nests in Sub-Saharan Africa

PEER REVIEW FEEDBACK REPORT: MASTER OF AGRICULTURAL COMMODITIES VALUE CHAIN MANAGEMENT (MACVCM) CURRICULUM

JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY (JOOUST)

2025

Table of Contents

Cooperation for Holistic Agriculture Innovation Nests in Sub-Saharan Africa

FEEDBACK FROM EXPERTS

1.0 Introduction

Two key quality assurance activities were undertaken to evaluate the Master of Science in Agricultural Commodities and Value Chain Management (MACVCM) programme at Jaramogi Oginga Odinga University of Science and Technology (JOOUST). The first was a peer review of the MACVCM curriculum conducted from 20th to 22nd May 2024. This review found the programme to be well-structured and comprehensive, aligning with JOOUST's mission and placing notable emphasis on value chain integration. However, it identified areas for improvement, including the need to strengthen the local relevance of digital technologies, better align course titles with content, and reinforce methodological and sustainability components. Recommendations included clarifying course objectives, refining overloaded content, and explicitly incorporating practical skills such as scientific writing and statistical software use. The second activity was a visitation by the Commission for University Education (CUE) from 12th to 16th May 2025. The purpose of this visitation was to assess the institution's overall preparedness to mount the MACVCM programme. The assessment focused on the adequacy of physical facilities, equipment, teaching materials, library resources, academic staff, and curriculum development policies, in line with the Standards and Guidelines for University Academic Programmes. This report integrates the findings of both evaluations, presenting a thematic summary, analysis of specific courses, and actionable recommendations to enhance the quality and readiness of the MACVCM programme.

2.0 List of Reviewers

1. Dr. Chrispine Omondi, - Drector - KALRO
2. Mr. Isaac Munyendo, - County Government of Siaya – Ministry of Agriculture, Livestock and Fisheries
3. Mr. John Odidi - Farmer in Agricultural Extension, Animal Health and Production, and Horticulture
4. Prof. Mathews M Dida – Maseno University – Plant Breeding and Genetics

3.0 Thematic Feedback

3.1 Digitalization and Local Relevance

Current Status

The curriculum's Digital Technology for Agri-food Systems course (AEB 5214) covers a broad "suite of current new technologies" (e.g. IoT, drones, robotics, blockchain). This range demonstrates a commitment to modernizing agriculture.

Peer Reviewers Input

Experts praised the inclusion of cutting-edge topics but stressed that locally appropriate technologies should be emphasized. For example, while advanced tools are taught, there should be focus on low-cost or locally available digital solutions for smallholders.

Recommendation

Supplement the digital tech content with case studies and examples from local or resource-constrained contexts (e.g. mobile-based platforms for small farms, simple sensors). Explicitly state in the syllabus that technology modules will include local innovation and adaptive uses.

3.2 Sustainability and Value Chain Resilience

Current Status

The Sustainability for Commodity and Food Value Chains course (AEB 5212) targets environmental, social, and economic sustainability (purpose highlights "multidisciplinary" sustainable practices). Its content covers sustainable energy, agroecology, waste reduction, and social considerations (e.g. fair trade), providing a broad view of food system sustainability.

Peer Reviewers Input

Reviewers noted that the *course title* ("Sustainability for Commodity and Food Value Chains") and *content* (broad sustainability concepts) should be aligned. There was concern the title emphasizes "commodities" but the content focuses mainly on general food systems and practices.

Recommendation

Review the course title or syllabus for consistency. If the aim is to address **commodity-specific** value chains (e.g. grains, horticulture), adjust content to include case studies of commodity supply chains. Otherwise, simplify the title to "Sustainability in Food Value Chains." Ensure the syllabus explicitly links sustainability concepts to the value chain perspective as stated in the title.

3.3 Research Methods and Communication Skills

Current Status:

The **Research Methods** course (AEB 5213) provides foundational training in research design, data collection, and analysis. Learning outcomes include formulating hypotheses, selecting designs, and communicating research clearly.

Peer Reviewers Input

Reviewers recommended adding scientific writing and presentation skills as an explicit section in AEB 5213. While one learning outcome addresses communication (L3678), reviewers felt a dedicated module on writing reports and delivering presentations would strengthen students' abilities to disseminate research.

Recommendation

Introduce a module on academic writing and oral presentation within AEB 5213. For example, add lectures or workshops on structuring research papers, citation standards, and creating effective slides. Incorporate assessment of a written research proposal and an oral seminar to ensure these skills are practiced.

3.4b Statistical and Analytical Skills

Current Status

The Statistical Methods course (AFB 5121) covers basic statistics (descriptive stats, probability, tests, ANOVA, regression). Notably, one outcome is to "Utilize Statistical Software".

Peer Reviewers Input

Reviewers observed there was no explicit mention of statistical software tools in the content, even though practical analysis often requires them. They also suggested adding econometrics topics to prepare students for applied research.

Recommendation

Ensure the syllabus explicitly includes hands-on training with software (e.g. SPSS, R, Stata). For example, in the syllabus or weekly plan, list software-based exercises. Integrate at least one econometrics topic (such as basic regression analysis beyond simple correlations) into the curriculum. Consider renaming the course to "Statistical Methods and Econometrics" if these elements are formally added.

3.5 Entrepreneurship and Innovation

Current Status

The Agripreneurship and Product Development course (AEB 5114) is designed "to equip learners with skills and knowledge to innovate, create, protect and run successful agricultural enterprises". It covers principles of agripreneurship and product innovation.

Peer Reviewers Input

Experts suggested rephrasing the course *purpose* to highlight creation and protection of innovations. Specifically, the recommendation was: "To equip learners with skills and knowledge to create, protect innovations and run successful agricultural enterprises." This wording emphasizes intellectual property and innovation management.

Recommendation

Update the course description to incorporate this focus on innovation protection. For instance, revise the purpose line in the syllabus to the reviewers' suggested phrasing. Additionally, consider adding a brief module on *intellectual property in agriculture* (e.g. patents, plant variety protection) to align with the revised emphasis.

3.6 Gender and Social Considerations

Current Status

The Food Processing Technology course (AEB 5113) includes a brief mention of gender ("Gender dimensions in food processing") as the last item in its content list. This acknowledges social aspects in food industries.

Peer Reviewers Input

The panel advised repackaging the gender dimension content. The current placement as a trailing sentence may not sufficiently highlight its importance.

Recommendation

Reframe and integrate gender/social considerations more explicitly. For example, create a separate sub-section in AEB 5113 titled "Gender and Social Aspects in Food Processing" instead of a standalone line. Alternatively, allocate a lecture or discussion to gender roles and equity in post-harvest systems. This ensures the topic is treated as a clear component of the course.

4.0 Course-Specific Feedback

4.1 AEB 5213 – Research Methods

Feedback

Peer reviewers recommended adding content on scientific writing and presentations to complement the course's focus on research design and analysis. Though one outcome mentions communication, practical writing skills should be emphasized.

Recommendation

Introduce explicit instruction and exercises in academic writing and oral presentation. For example, include a workshop on writing research proposals and evaluating peers' presentations.

4.2 AEB 5114 – Agripreneurship and Product Development

Feedback

The course purpose was revised per reviewers' suggestion to emphasize innovation. Current wording ("to equip learners with skills to innovate, create, protect and run enterprises") is similar but can be tightened.

Recommendation

Adopt the reviewers'' phrasing verbatim for clarity: "To equip learners with skills and knowledge to create, protect innovations and run successful agricultural enterprises". Optionally, add content on innovation management and intellectual property rights.

4.3 AEB 5112 – Agricultural Economics

Feedback

Reviewers noted that AEB 5112's content is overloaded. The syllabus lists a wide array of topics: production economics, farm management, policy analysis, rural development, international trade, etc. This breadth may be unmanageable in one course.

Recommendation

Consider **streamlining** the content. Focus on core agricultural economics principles and value-chain applications relevant to the program. Remove or shift peripheral topics (e.g. duplicate policy content if covered elsewhere). This will allow deeper coverage of essential concepts. For example, emphasis could remain on supply-demand, pricing, and farm-level decision-making, with detailed policy or development topics moved to other courses or optional seminars.

4.4 AEB 5113 – Food Processing Technology

Feedback

The course includes a sentence "Gender dimensions in food processing" as the final topic. reviewers suggested re-packaging this.

Recommendation

Elevate the gender topic within the course. Create a distinct section or lecture on gender/social issues in processing (rather than a lone bullet). This might involve case studies on how food technology impacts men and women differently, or women's roles in food processing industries.

4.5 AEB 5212 – Sustainability for Commodity and Food Value Chains

Feedback

Reviewers asked to ensure the title and content match. The course title references "commodity and food value chains," but the current syllabus focuses broadly on food systems.

Recommendation

Verify alignment between title and curriculum. If the course intends to cover general sustainability principles, consider renaming it to "Sustainability in Food and Commodity Value Chains." If commodity-specific aspects are desired, incorporate examples (e.g. sustainability issues in a particular crop's chain). Clarifying this will prevent confusion and better target student expectations.

4.6 AEB 5214 – Digital Technology for Agri-food Systems

Feedback

The syllabus presents an extensive suite of topics (e.g. data analytics, IoT, robotics, blockchain). reviewers noted this is current, but recommended an emphasis on locally available technologies.

Recommendation

Balance the curriculum by including content on appropriate technology. For instance, integrate a module on low-cost digital solutions (mobile apps for smallholders, solar-powered sensors) and encourage students to consider resource constraints. You might also partner with local farms to demonstrate affordable tech.

4.7 AFB 5121 – Statistical Methods

Feedback

Although an outcome already states "Utilize Statistical Software", reviewers felt the course should more explicitly teach software skills and include econometric concepts.

Recommendation

Embed specific software training into the course plan (e.g. tutorials using R or SPSS). Explicitly list software exercises in the syllabus. Add an intro to econometrics (e.g. basic multiple regression) either as new content or through a renamed module, to meet the reviewers' request for applied analytical skills.

FEEDBACK FROM COMMISSION OF UNIVERSITY EDUCATION

5.0 Objectives of the Visit

The specific objectives of the visitation were:

i. To assess the adequacy of infrastructure and facilities to support the delivery of the programme;
ii. To verify the availability of qualified academic and technical staff;
iii. To evaluate the adequacy of teaching and learning resources;
iv. To review institutional preparedness in curriculum development and implementation;
v. To make recommendations on the approval and rollout of the programme.

6.0 Methodology

The assessment was conducted through:

i. Review of documentary evidence (checklists, academic staff profiles, curriculum, and equipment lists);
ii. Physical inspection of facilities and infrastructure;
iii. Interviews with the proposed academic leadership and support staff;
iv. Evaluation of library holdings and digital resource subscriptions.

7.0 Findings

7.1 Facilities

The assessment team found that JOOUST had made commendable efforts in providing physical infrastructure necessary to support the programme. Key observations include:

1. A comprehensive facilities checklist was submitted for evaluation.

2. Office space was allocated for the Dean, School of Agriculture and Food Science; Chair of Department for Agricultural Economics and Agribusiness Management; the Academic Leader; and the School Examination Coordinator.
3. Academic staff shared offices in a ratio of six (6) staff per office.
4. Two (2) shared computer laboratories (CL1 and CL2) with a total of 73 desktop computers were available for student use.
5. A digital computer laboratory with 30 desktop computers was available within the library to facilitate access to electronic resources.
6. Several specialized farm facilities were in place, including:
    - Sericulture unit for silkworm rearing;
    - Fish hatcheries;
    - Aquaponics and hydroponics systems;
    - A 50-acre crop research farm at Siaya;
    - A dairy farm in Bunyala;
    - Black Soldier Fly unit for feed production;
    - Grasshopper and cricket breeding laboratory.
7. Two (2) shared postgraduate lecture rooms (LR01 and LR02), each with a capacity of 50, were available.
8. A postgraduate seminar room with a capacity of 12 was available for research discussions.
9. The university library had a seating capacity of 300 users.
10. A secure university examination office was available.

7.2 Equipment and Teaching Materials

1. The equipment and teaching materials checklist was found to be comprehensive.
2. The postgraduate seminar room was adequately furnished for graduate-level engagement.
3. The university's farm facilities were well-equipped and functional for demonstration purposes, supporting both crop and livestock-based learning.
4. Functional ICT infrastructure included 73 desktop computers in shared laboratories and relevant analytical software such as SPSS.
5. Internet connectivity with a bandwidth of 667 Mbps was in place to support online learning and research.

7.3 Core Texts and Journals

1. The university provided a comprehensive checklist of core texts and academic journals.

2. E-resources were found to be current, relevant, and accessible both on-campus and remotely.
3. Subscription to the Kenya Library and Information Services Consortium (KLISC) provided access to a wide range of scholarly materials.
4. An institutional repository existed and was accessible, with evidence of publications by teaching staff.
5. A dedicated postgraduate section in the library, seating 37 students and equipped with six (6) desktop computers, was in place.
6. Off-campus access to library resources was enabled via EZproxy.

7.4 Academic and Support Staff

1. A detailed list of academic and support staff was submitted.
2. The proposed Academic Leader for the programme held the rank of Professor with a specialization in Agricultural Economics, fulfilling the leadership requirements.
3. The appointment letter for the Academic Leader was availed for verification.
4. The programme had support from 16 full-time academic staff specialized in areas including:
    - Agricultural Economics
    - Agricultural Extension
    - Horticulture
    - Statistics
    - Fisheries and Aquatic Sciences
    - Agribusiness Management
    - Agricultural Rural Innovations
    - Seed Systems and Plant Breeding
    - Marketing
    - Business Administration
    - Economics
    - Entrepreneurship
5. Support staff in farm management, library services, business administration, and secretarial work were in place and appropriately qualified.

7.5 Curriculum Development Policy

1. The university submitted its Curriculum Development Policy for review.

2. The policy was found to be well-articulated, comprehensive, and aligned with the national standards for curriculum development and programme review.

8.0 Recommendations

1. The programme may be recommended for approval and implementation, subject to adherence to CUE guidelines and periodic monitoring.
2. The university should continue investing in specialized staff development and infrastructure expansion to cater to projected growth in enrolment.
3. Mechanisms should be maintained for periodic curriculum review in consultation with industry stakeholders to ensure relevance.
4. Continued support for digital learning infrastructure and access to emerging software tools in agricultural research is encouraged.

9.0 Conclusion

The Master of Science in Agricultural Commodities and Value Chain Management (MACVCM) programme at JOOUST has a strong foundation and has been positively received through both internal and external quality assurance processes. The May 2024 peer review offered clear and constructive guidance for curriculum refinement, highlighting the need to strengthen practical skill development, ensure coherence between course titles and content, and tailor digital technology and sustainability components to local contexts. Similarly, the May 2025 Commission for University Education (CUE) assessment found JOOUST to be satisfactorily prepared to mount the programme, citing adequate infrastructure, equipment, academic staff, and library resources, as well as sound academic leadership. To ensure the programme fully meets academic and industry needs, the specific recommendations provided should be implemented in alignment with existing curriculum documents and institutional quality standards. Each suggestion should be reviewed by the curriculum committee, and syllabus documents updated accordingly to support accreditation and delivery of a high-quality postgraduate programme.

Approved by:

Prof. Dr. Christopher Obel-Gor (PhD-AgEcon) Coordinator

ERASMUS CHAIN Project
Jaramogi Oginga Odinga University of Science and Technology

Cooperation for Holistic Agriculture Innovation Nests in Sub-Saharan Africa

JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

ERASMUS CHAIN PROJECT

DEVELOPMENT OF COMPETENCY-BASED MASTER OF AGRICULTURAL COMMODITIES VALUE CHAIN MANAGEMENT (COURSE CONTENT DEVELOPMENT)

REPORT

BY

MR. SAMUEL OHANGA: PROJECT MANAGER

APPROVED BY

PROF. CHRISTOPHER OBEL-GOR: PROJECT COORDINATOR

April 2024

Table of Contents

Executive Summary:

The two-day Workshop held from April 29th to 30th, 2024, at the Kisumu Campus, aimed to develop content for the Competency-Based Cooperation for Holistic Agricultural Innovation Nets (CHAIN) Masters of Agricultural Commodities Value Chain Management (MACVM) Curriculum. The Team was led by Prof. Christopher Obel-Gor as the Project Coordinator/PI, and other Project members including Prof. Dennis Ochuodho (Deputy PI), Prof. Silvance Abeka, Prof. Erick Okuto, Dr. Mary Orinda, Dr. Matilda Ouma, and Samuel Ohanga, the Project Manager/M&E Officer. The meeting was focused on the development of content for the additional course units excluding the 6 Common/Compulsory course units already adopted at the Triesdorf Workshop by all the Consortium Partner Universities. Course content elements were to consider focal thematic areas including data management, precision agriculture, and innovations within agricultural food value chains. Recommendations arrived at included the notion of incorporating Fieldwork Practicum/Research concept proposal development in Year 1 Semester 1 of study and aligning faculty information with the requirements of the Commission for University Education (CUE).

Introduction:

The MACVM Curriculum aims to address the challenges faced by farmers and relevant stakeholders in the agricultural value chain by developing a comprehensive competency-based curriculum. The meeting's objective was to collaboratively develop content structure and materials for the programme, drawing from expertise and best practices in the field.

Programme Description:

The Programme seeks to equip students with knowledge and skills relevant to the agri-food industry's complexities, focusing on data management, precision agriculture, and innovations. Targeting postgraduate students, the programme in total comprises 12 course units with defined purposes, learning outcomes, mode of delivery, assessment methods, and recommended reading materials.

Needs Assessment:

The programme's development was informed by a Needs Assessment component conducted in eight Lake Victoria Economic Block (LVEB) Counties in Kenya, to identify Gaps and Opportunities within the Agricultural Commodities value chain concerning postgraduate education. Insights from this assessment, coupled with benchmarking from the Triesdorf workshop in Germany, guided the MACVM curriculum development.

Programme Design:

The curriculum framework was designed to incorporate Fieldwork Practicum/Research Concept proposal development before coursework, providing a pivotal, fundamental and unique head-start practical learning experience to the students. The programme's logic model outlines course components, activities, stakeholder engagement strategies, and risk mitigation measures.

Implementation Plan:

Key follow-up actions include ensuring the incorporation of Fieldwork Practicum/Research concept proposal development into the programme regulations and aligning faculty information with CUE requirements. The implementation plan outlines timelines, responsibilities, and monitoring and evaluation mechanisms.

Conclusion:

The development of the Competence-Based CHAIN Masters in Agricultural Commodities Value Chain Management programme marks a significant milestone in addressing challenges within the agricultural sector. By incorporating fieldwork and aligning with regulatory standards, the programme holds promise for contributing to sustainable agricultural development. The next steps involve finalizing programme regulations and faculty alignment, paving the way for implementation.

Next Course of Action

1. It has been agreed upon that the course shall be distinguished by permitting students to engage in fieldwork/proposal development before commencing coursework, as recommended by the principal partner. Dr. Orinda and Professor Gor are tasked with coordinating with Director BPS to ensure that this is integrated into the regulations for postgraduate studies and other relevant policies and guidelines.
2. Ag. Dean, Dr. Orinda, and Professor Gor are to ensure the provision of information concerning faculty-staff who will be involved in the programme. This information must adhere to the requirements set forth by the Commission for University Education (CUE) for new programmes.
3. Ag. Dean, Dr. Mary Orinda should consult the department where the programme is domiciled and the Registrar (ASA) office to create codes for the courses.
4. Ag. Dean, Dr. Mary Orinda is also tasked with liaising with the Registrar (ASA) office to furnish information on other programmes and their respective contact hours.

Pictorials: CHAIN Project Curriculum development Workshop 28th –to- 30th April at JOOUST, Kisumu Campus

Approved for Circulation:

Signed:  Date: 30th April, 2024

Prof. Christopher Obel-Gor (PhD-AgEcon), Principal Investigator
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REPORT

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Peer Review on the curricula of Master in Food Value Chain

Title of the Master: Conservation and Processing of agricultural products

University of Kara (UK) / University of Lomé (UL)

OUTLINE

I. Perception questionnaire

1.1. The questionnaire

1.2. The output

II. Stakeholder meeting

2.1. Commencement

2.2. Presenting the background and the curricula proposed

2.3 Stakeholder inputs

- Inputs on the curricula content
- Inputs on placement during practical semester
- Comments on the motivation text, accreditation process and others

III. Closing

IV. Annexes

I. PERCEPTION QUESTIONNAIRE

Prior to the meeting, a preliminary survey questionnaire was submitted to experts of some processing units such as units producing the local sorghum-based drink “Tchoukoutou”; units processing fruit and vegetables (pineapple, mango, papaya, etc.) into dried products, juices; and derivatives of cosmetic.

1.1. The questionnaire

The following three questions were asked to respondents:

1- Do you encounter (or are you aware of) any difficulties in preserving and/or processing agricultural products?

a- Yes

b- No

c- Other

If yes, what are the 3 main difficulties encountered (Please list according to order of importance)

a- Humidity (mold on products)/ Difficulty improving processes

b- Stabilization of finished products/Preservation methods

c- Marketing/Packaging problems

2- The university is in a *process of creating a Master program in Conservation and Processing of agricultural products. What do you think of this program?*

a- It is relevant (important) in the current context.

b- It is not relevant (important) in the current context. If not, what kind of value chain training would you like to see?

c- None of the above

3- *What skills do you think graduates from this Master should have to ensure that they are effective on the market? List 5 skills in order of importance*

a- Practical work/Certification/ Raw material storage

b- Internships/Entrepreneurship and innovation/Quality control of raw materials

c- Entrepreneurship and project management/Technological processes and innovations/Raw material calibration

d- Preservation techniques for local products / Supply chain of products

e- Product distribution skills/Food technology

1.2. The questionnaire output

All respondents (100%) are knowledgeable about problems/difficulties occurring during the conservation and processing of their products. Difficulties raised by respondents include (but not limited to):

- preparation and bottling
- pasteurization
- quality and quantity of raw material supplies
- working capital
- quality assurance of finished products
- high cost of energy (gas), which is the main component of natural preservation

- Moisture (occurring of mildew)
- Stabilization of finished products (Preservation methods)
- Packaging problems
- Marketing problems

Regarding the relevance of the Master program being created, 90% of the respondents found the Master program relevant and market-needed. They unanimously raised concern about the lack of practical skills in students graduating from universities and recommend for the new Master to put emphasis on practical-oriented learning. They also mentioned some skills/competences needed for a student to be effective after graduation. These include:

- conservation of raw agricultural products
- hygiene in the processing chain
- sustainable management of raw material production
- product certification
- financial and human resources management of a farming business
- quality management and food safety
- supply chain management, agricultural cooperatives and logistics
- Innovation and product development
- marketing and sales management
- Processes and technological innovations, raw material calibration
- Preservation techniques for local products
- Product distribution skills / Food technology

Following the questionnaire output, a stakeholder meeting was held to present the content of the proposed curricula.

Sample images of the survey questionnaire

II. STAKEHOLDERS MEETING

2.1. Commencement

The meeting was held in Sotouboua, about 300 Km far from the main town Lomé, in the central region of the country. This meeting brought together staff from the two public universities (UK and UL) and key actors of the private sector, particularly enterprises specialized in the processing of agricultural products, famers cooperatives, and exporters. The meeting started at 8 AM, by a welcome message of the chairman Dr Souho the staff of the two universities in charge of the CHAIN Project, followed by a brief introduction of the participants. He highlights the important role of the staff from the two universities in charge of the CHAIN Project in Togo to provide a room for insightful inputs and comments from stakeholders on the proposed curricula, while addressing challenges for its implementation.

2.2. Presenting the background and the curricula proposed

Prof. Tchabi welcomed everyone and briefly outlined the context of the meeting. He specified that this project is carried out in partnership with a German university, the Weihenstephan-Triesdorf University of Applied Sciences, holding a long-term experience in practical-oriented curricula. He stated that a request was made to this university to support Togolese universities in implementing more practice-oriented trainings. Thus, taking their curricula as starting point, and based on the output from the preliminary survey questionnaire, a draft curriculum of the Master's program entitled "*Conservation and Processing of Agricultural Products*" was developed. The presence of stakeholders is essential by their ability or experience to improve the draft curricula, and to ensure that graduates will be better prepared to meet the needs of business market after their training. He briefly explained to the attendee that the main innovation of the proposed training is the students start the training program with a long-term internship (4-6 months) in an enterprise, corresponding to first semester, named “Practical semester’ in the curricula.

Dr. Ouadja then took the floor to present the draft of the curricula to the participants. He highlighted all the proposed modules for the four semesters, with a brief description of each module.

A the end of the presentation, Professor Banito thanked Dr. Ouadja for his presentation and reminded everyone that the content of the program is still in draft form to prevent its premature dissemination on social media.

A coffee break was organized at 9h30 a.m. for a duration of 15 minutes.

2.3. Stakeholder inputs

Following coffee break, stakeholders were invited to provide their comments and inputs on the curricula. This important phase was organized into three steps:

- First, comments and inputs were given on the modules proposed
- Second, comments and inputs were received regarding the placement during the first semester
- Third, comments were provided on some aspects of the text motivating the creation of the Master program

2.3.1. *Inputs on curricula content*

The major inputs or comments addressed by stakeholders are the following:

- Mr. Tanko, Director of the enterprise “Tanko Timati” (specialized in the processing of tomato) raised a question regarding the orientation of the training: is it intended for technicians, business leaders, or researchers? He also mentioned the importance of courses on project management.
- Mr. Koriko, a leader of the enterprise “AGRO SOLUTION” (specialized in the processing soybean into oil and other products) expressed his satisfaction for the Master program and pointed out its innovative aspect. However, he highlighted the necessity to introduce in the curricula courses that will address product traceability, food packaging, industrial electricity, and renewable energy. He emphasized the importance for graduates to gain knowledge on hygiene practices, production economics and recycling of agricultural products-based waste.
- Mr. Dandonogbo, from the company NIOTO highlights the importance for the teachers/lecturers to gain some industrial experience, by updating their skills/knowledge from enterprises. He also proposed progressive approach to address processing of agricultural products over three semesters by providing insights, first into traditional (indigenous) techniques used by farmers or others to process foods, then moving to semi-industrial processing, and finally to industrial processing of agricultural products.
- Dr. Andanlete pointed out the need to consider local (indigenous) techniques of product processing during the training, and to focus on packaging, especially the materials used. He highlighted the need to clearly define the objectives of the placement during this master program, and to distinguish it from what has been done so far for internship of students.

Before answering to stakeholders, Prof. Banito**,** thanked them for the inputs, comments and questions on the modules proposed. He said, “I am happy with the exchanges, and that is why we organized this stakeholders meeting to let you have a glance to the proposed modules”. He stressed that the training should enable students to be employable or self-employed by the end of their studies. Interestingly, many of concerns raised by stakeholders regarding courses are already taken into account, as elements of “core modules”. Therefore, Dr Ouadja was asked to present the content of each core module (six in total). For some courses or competences proposed by stakeholders and that were seen relevant, it was proposed to address them as elements of the module “seminar” to provide ground knowledge to students.

2.3.2. *Inputs on placement during practical semester*

There was a very long and constructive debate regarding the placement of students in the first semester. Discussion was held around the following questions: should the placement be organized in one long stay in an enterprise or should it be split into two or three short stay? Should the student stay in only one enterprise or should he move to at least two or three different enterprises? Following are some suggestions by participants.

- Mr. Agossou to propose alternating internship and courses by two months. He also suggested workshops to strengthen the teachers' skills.
- Mr Gnassingbe to stress out the need for student to visit more than one enterprise during the placement for a large cover of experience, He argued that many of our enterprises are small scale

ones, and often specialized in processing only one product. By interning in different enterprises, student has the chance to see and practice for different products processing.

These propositions were seen relevant. However, at first glance, this would demand more work and more cost. The participants have therefore charged the university teams to evaluate the feasibility of these propositions in the university context.

2.3.3. ***Comments on the motivation text, accreditation process and others***

- Question was raised about the entry profile. Can the graduate from chemistry attend the master? The answer was “No”, due to the fact that a graduate from chemistry does not have a background required for this Master program.
- Regarding the accreditation, Dr. Andanlete (The Head of the commission in charge of accreditation at UK) provided a pipeline to ease and speed up the accreditation process of the new Master being created. He mentioned for example the need to provide a document from an expert consultant demonstrating the relevance of the training program, with a clear argument on the profiles of the instructors, financial challenges, and specialization. Dr. Tchabi pleased him to kindly share the guideline document for the accreditation with the project teams.
- Other raised concerns include the health insurance issues on the placement, support to enterprises hosting students, seminars to raise students' awareness of consulting and selling their intellectual expertise, and involving experts from the enterprises in lecturing.

III. CLOSING

The session ended at 4.0 PM after a rich and constructive discussion. The contributions helped clarify several key aspects related to the orientation of the training, particularly the balance between theory and practice, strengthening the teachers' capacities, and adapting the courses to industrial and local realities. The proposed curricula emphasized the need to prepare students not only for employment but also for self-employment, stressing the importance of placement to acquire practical skills. The project teams have to judge the type of Master to be created (Vocational or basic training) depending on the context of their universities. Overall, the curricula got full adhesion of the stakeholders and inputs from the attendee regarding some skills will be taken into account as elements of the module “Seminar”. Finally, it was argued that full involvement of experts from enterprises in teaching is also required to strengthen the quality and relevance of this program.

IV. ANNEXES

4.1. LIST OF PARTICIPANTS

Workshop for the Exchange and Validation of the Master's Program Curriculum in Agricultural Products Conservation and Processing

(University of Kara - University of Lomé)

List of attendance

N°	Full name	Sex	Function	Institution	Contact	Signature
1	DANDONOUGBO KOFFI	M	Chef Service QHSE NIOTO	NIOTO	90222018	[signature]
2	ADAN CETE ADJANOLA Assionfam	M	Enseignant CF/UK	FaST/UK	91360499	[signature]
3	NADIO N. Abouwalion	M	Enseignant-chercheur	ISMA/UK	90891149	[signature]
4	BOKOBANA Essolakina Maguim	M	Directeur ISMA	ISMA/UK	91411069	[signature]
5	GNASSINGBE Sandou Assimarou	M	PCA	FENOMAT	90163171	[signature]
6	KORIKO Mounirou	M	DG	AgroSolutions et DEV SARL U	90 26 66 09 agrosolutions.dev@gmail.com	[signature]
7	AHARH Mtelo/S.c M. KAROUKE	M	DG	SMIA-C	93-18-78-75	[signature]
8	SEIDI Alirou	M	Consultant ABOU-	ABOU-BABA	92203181	[signature]
9	OURO-AKONON Fousséni	M	Chargé de la Production	CFJ-TOGO/AEA	90898280 cfjtogo@cfjtogo.org	[signature]
10	KAKPO Kossi	M	Directeur	Agrifocus & Tiwa	96040106/91906014 agrifocus.togo@gmail.com	[signature]
11	MAMOUDOU-TANKO Ismael	M	Directeur	TANKO food (Lomé)	90086154	[signature]
12	KOMBIENI Emmanuel	M	Doctorant	ISMA/UK	90305632 emmanuelkomb@gmail.com	[signature]
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14	Dr LABA Bakouma	M	DG	TROPIC BIO	tropicbio@gmail.com 90018644	[signature]
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17	ARIGBE MASHOUDOU	M	Président	SEPET	90910452 sepet2021@gmail.com	[signature]
18	AGBERE Abdou-Fataou	M	Directeur	AIN-TCHARBA	93253778@gmail fatphysique78	[signature]
19	AGOSSOU Affo Bindé	M	Directeur	AGROCOMPLEX	96243497/99413157 agrocomplex.int@gmail.com	[signature]
20	LAWSON-AMLEN Laté	M	Directeur	AFRIK EXCEL	90324047	[signature]
21	SOUHO Tiatou	M	Enseignant-chercheur	FaST/UK	90882306	[signature]
22	TCHABI Atti	M	Coordinateur CHAIR/UK	ISMA/UK	90781381	[signature]
23	AKOHIN Delofon	M	Informaticien	Université de Lomé	90092898	[signature]

24	ATIGLO-GBENOU Adjiwavi	M	Enseignant	UL	90750502	
25	DOSSOU Bayi Reine	F	Chef de division SATA	ESTBA-UL	92732050	
26	DJERI-HIASANI	M	Transformateur	CAJOU EXPOIR	90362246	
27	FANIAH S. Nago-	M	Enseignant	UK	80227875	
28	OUADJA Batcha	M	Enseignant	UK	99967112	
29	ADOM Mèwozenon	M	ingenieur	UK	70940955	
30	Pr BANITO Agnassim	M	Coordonnateur CIFAIN-UL	UL	90033345	
31	ALI Allassani	M	Technicien ITRA	ITRA	91138676	
32	HAFAN Augustin	M	Entrepreneur	DOS DELICES SA	82726592	
33	AYIVI Togblassa Jeanne	F	Entrepreneur	TOGO Soja	92804395	
34	ASSIH Begbao Crédo	M	Entrepreneur	Agroconcept+	90994907	
35	OGNANIKITAN Koffi Dodji	M	Entrepreneur	NSCPA Maniac	9115 0910	

4.2. SAMPLE IMAGES OF THE STAKEHOLDER MEETING