

Biochar and Insect-Composted Organic Fertilizers in Kenya(Bio-Kenya Project)

(A project supported by The French Embassy in Kenya through The National Research Fund (NRF)-Competitive Grant Scheme)



Meeting Report Project Inception, Review & Planning Workshop 23 -27th September 2024 Kisumu Hotel, Kisumu City

EXECUTIVE SUMMARY

Following the approval of the project “ Biochar and Insect-Composted Organic Fertilizers in Kenya(Bio-Kenya Project)” by The French Embassy in Kenya through the National Research Fund (NRF), a meeting was convened at Kisumu Hotel in Kisumu, from 23-27 September 2024 to: enhance stakeholders understanding of the project, proposed activities and expected results; seek the stakeholders commitment to effective and efficient implementation of the proposed project activities, and to foster collaboration among various stakeholders including government agencies, NGOs, research institutions and the private sector to create a coordinated effort in promoting and scaling up the use of biochar and insect-composted organic fertilizers. Expected outputs from the workshop included: (1) A good understanding of the proposed work and expected results, (2) A consortium of partners with commitment, motivation for teamwork for the success of the project, and (3) A formalized network of stakeholders, including farmers, researchers, policymakers and private sector representatives, committed to collaborating on the promotion and use of biochar and insect-composted organic fertilizers.

The meeting was presided over by Dr. Lauric Cecillon, on behalf of the French Ambassador to Kenya, who lauded the initiative and reiterated his Government's commitment to supporting the project and other similar initiatives across the country. Other speakers included Dr. Beatrice Inyangala, Principal Secretary, State Department for Higher Education and Research, who also lauded the initiative and thanked the French Embassy for its continued support over the years. The PS assured the embassy of the Government's support and commitment to ensuring successful implementation of the Bio-Kenya project. Similar sentiments were echoed by Dr. Dickson Andala, CEO-NRF; Dr. Eliud Kireger, Director General-KALRO; Dr. Abdou Tenkouano, Director General-ICIPE; Dr. Winston Akala, Principal-Koitaleel Samoei University College; Prof. Daniel Mugendi, Vice Chancellor-University of Embu; and Dr. Paul Calatayud, Regional Director-IRD, among many other dignitaries. The workshop realized all the intended results in both quantity and quality.

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1.0 INTRODUCTION

1.1 Background

The cost of fertilizers and other agricultural inputs is beyond the reach of most Kenyan farmers, resulting in low yields and contributing to food insecurity in the country. This situation is exacerbated by endemic poverty and limited sources of income. The situation can only worsen with climate change unless urgent remedial action is taken. These challenges cannot be met sustainably with chemical fertilizers, which increase soil acidity, greenhouse gases and the vulnerability of crops to biotic threats. Locally-produced organic fertilizers and soil improvers can provide a natural solution for regenerating soil productivity, but their use is limited by the time needed to produce them, their poor quality and limited availability on the market.

In Busia, Siaya and Kisumu counties, where the project will be implemented, agricultural production is severely limited by low soil moisture resulting from low and irregular rainfall, low soil fertility and low-input agriculture. All the three counties have high levels of poverty and malnutrition, as well as widespread soil degradation. Women farmers are in a particularly vulnerable position, especially as they generally do not own the land. Women and young people provide over 70% of the workforce needed for agricultural production, but men control the land and other resources for agricultural development.

The use of biochar, charcoal of plant origin obtained from biomass pyrolysis and used as a soil improver, and insect-composted organic fertilizers (ICOF) can significantly increase crop yields, suppress pests and diseases, reduce soil degradation and mitigate climate change through carbon sequestration, at minimal cost. Their use remains limited due to a lack of technical know-how. The three target counties generate large volumes of municipal and household organic waste, and are home to several sugar factories that produce large quantities of unused bagasse. This bagasse represents a threat to the environment, but an opportunity if valorized. They are also home to several irrigated rice-growing schemes that produce large quantities of rice straw and husks, which are generally burnt or fed to livestock. As a result, the three counties have sufficient agricultural waste to produce commercially viable quantities of biochar and ICOF, thereby offering great potential for improving agricultural production.

The project aims to improve food productivity and income generation among smallholder farmers in Busia, Siaya and Kisumu counties through the adoption of biochar and ICOF. This will be achieved by adapting biochar and ICOF to the

biophysical and socio-economic environments of smallholders through participatory action research. The project also aims to build the capacity of smallholder farmers, extension agents, researchers and local institutions in the sustainable use of biochar and ICOF through excursions, hands-on trainings and post-graduate scholarships. Finally, the project aims to support evidence-based policy formulation on sustainable production and utilization of insect-composted organic fertilizers and biochar by sharing project results with policy makers in round-table meetings, workshops and scientific conferences.

Following the approval of the project by The French Embassy in Kenya and the National Research Fund (NRF), a meeting was convened to formally roll out the project, review progress of inception phase activities and develop action plans with clearly defined roles and responsibilities among other activities. The one-week workshop was held at Kisumu Hotel in Kisumu City, from 23-27 September 2024. It was attended by a total of 92 participants drawn from partner institutions; local farmers; County Governments of Busia, Kisumu and Siaya; public universities, Government Ministries and Departments, sugar companies, the media, national and international research institutions and non-governmental organizations (NGOs).

The meeting was graced by Dr. Lauric Cecillon, on behalf of the French Ambassador to Kenya; Dr. Beatrice Inyangala, Principal Secretary, State Department for Higher Education and Research; Prof. Dickson Andala, CEO-NRF; Dr. Eliud Kireger, Director General-KALRO; Dr. Abdou Tenkouano, Director General-ICIFE; Prof. Winston Akala, Principal-Koitaleel Samoei University College; Prof. Daniel Mugendi, Vice Chancellor-University of Embu; and Dr. Paul Calatayud, Regional Director-IRD, among many other dignitaries. The full list of participants is shown in Annex 2.

1.2 About this report

This report presents a summary of the proceedings of the workshop. It has been assembled by the Project Team from notes captured by a team of rapporteurs and supplemented with slides of actual presentations and copies of speeches made by various speakers during the workshop. It summarizes the presentations and key points that emanated from the plenary sessions and speeches made during the workshop. The workshop program and list of participants are given as Annexes 1 and 2, respectively.

2.0 SETTING THE WORKSHOP AGENDA

In a brief presentation, Dr. Hezron Mogaka outlined the objectives, expected outputs and process of the workshop as follows:

2.1 Workshop objectives

- To enhance stakeholders understanding of the project, proposed activities and expected results
- To seek the stakeholders commitment to effective and efficient implementation of the proposed project activities
- To foster collaboration among various stakeholders including government agencies, NGOs, research institutions and the private sector to create a coordinated effort in promoting and scaling up the use of biochar and insect-composted organic fertilizers
- To undertake a critical review of the proposed project activities and develop work plans with well-defined responsibilities and timelines

2.2 The expected outputs

- A good understanding of the proposed work and expected results
- A consortium of partners with commitment, motivation for teamwork for the success of the project
- A formalized network of stakeholders, including farmers, researchers, policymakers and private sector representatives, committed to collaborating on the promotion and use of biochar and insect-composted organic fertilizers
- Project implementation plans with well-defined roles and responsibilities

The whole purpose of agenda setting was to make participants conversant with the workshop program.

2.3 Workshop process

Annex 1 shows the workshop program. Day 1 of the workshop was dedicated to the official launch of the project. The day was characterized by speeches from representatives of the French Embassy in Kenya, State Department for Higher Education and Research, NRF, IRD, KALRO, ICIPE, University of Nairobi, University of Embu, Koitaleel Samoei University College and County Governments of Busia, Kisumu and Siaya. The climax of this day was a presentation on the overview of the proposed project by Dr. Kizito Kwena, and official launch of the project by Dr. Lauric Cecillon, on behalf of the French Ambassador to Kenya.

Day 2 was devoted to critically reviewing and planning activities for Component 1 of the project. This activity was led by Dr. Kizito Kwena, the Component Coordinator.

Day 3 had two sessions. The first session was used to discuss and plan activities for Component 2 of the project. The discussions were led by Dr. Denis Beesigamukama, the Component Coordinator. The second session was used to review and plan activities for Component 3 and this was led by Dr. Hezron Mogaka, the Component Coordinator.

Day 4 had two sessions too. The first session involved a field excursion to El Paj BSF and ICOF production farm in Kisumu County. The second session was used to visit Anyiko Rice Farmers Cooperative Society in Ugenya East Sub-County in Siaya County.

Day 5 was the last day of the workshop and was reserved for general discussions and agreeing on the way forward.

In total, the workshop lasted five days and each session was managed by a chair whilst proceedings were recorded by a rapporteur. The whole purpose of agenda setting was to make participants conversant with the workshop program.

3.0 INTRODUCTION, PRESENTATION OF THE PROJECT AND OFFICIAL LAUNCH

During this session, representatives of the French Embassy in Kenya, State Department for Higher Education and Research, NRF, IRD, KALRO, ICIPE, University of Nairobi, University of Embu, Koitaleel Samoei University College and County Governments of Busia, Kisumu and Siaya delivered their remarks. This was preceded by a presentation by Dr. Hezron Mogaka on the workshop and its agenda and another one by Dr. Kizito Kwena on the overview of the proposed project. The following were some of the highlights of both the presentations and speeches:

3.1 Presentations

3.1.1 Introduction to the workshop and workshop agenda- by Dr. Hezron Mogaka

Dr. Mogaka outlined the objectives, expected outputs and process of the workshop. The workshop had two components: project launch, and review and planning parts. Project launch involved all the stakeholders and was concluded on

the first day while review and planning was reserved for project team members from partner institutions and proceeded for the whole week.

3.1.2 Overview of the project-by Dr. Kizito Kwena

Dr. Kwena gave an elaborate background of the study, its justification, objectives and expected outputs, and locations where it would be implemented. He also enumerated the activities that needed to be carried out to realize the various outputs under Component 1 of the project. Drs. Denis Beesigamukama and Hezron Mogaka did the same for Components 2 and 3, respectively.

Basically, the project is premised on the following observations:

- i. The cost of fertilizers and other agricultural inputs is beyond the reach of most Kenyan farmers, resulting in low yields and contributing to food insecurity in the country.
- ii. This situation is exacerbated by endemic poverty and limited sources of income. The situation can only worsen with climate change unless urgent remedial action is taken.
- iii. These challenges cannot be met sustainably with chemical fertilizers, which increase soil acidity, greenhouse gases and the vulnerability of crops to biotic threats.
- iv. Locally-produced organic fertilizers and soil improvers can provide a natural solution for regenerating soil productivity, but their use is limited by the time needed to produce them, their poor quality and limited availability on the market.
- v. In Busia, Siaya and Kisumu counties, where the project will be implemented, agricultural production is severely limited by low soil moisture resulting from low and irregular rainfall, low soil fertility and low-input agriculture.
- vi. All the three counties have high levels of poverty and malnutrition, as well as widespread soil degradation. This project seeks to reverse this trend.
- vii. The use of biochar, charcoal of plant origin obtained from biomass pyrolysis and used as a soil improver, and insect-composted organic fertilizers (ICOF) can significantly increase crop yields, suppress pests and diseases, reduce soil degradation and mitigate climate change through carbon sequestration, at minimal cost. Their use remains limited due to a lack of technical know-how.
- viii. The three target counties generate large volumes of municipal and household organic waste, and are home to several sugar factories that

produce large quantities of unused bagasse. This bagasse represents a threat to the environment, but an opportunity if valorized.

- ix. They are also home to several irrigated rice-growing programs that produce large quantities of rice straw and husks, which are generally burnt or fed to livestock.
- x. As a result, the three counties have sufficient agricultural waste to produce commercially viable quantities of biochar and ICOF, thereby offering great potential for improving agricultural production.

The project was designed to adequately address the above challenges with the overall objective of improving food productivity and income generation among smallholder farmers in Busia, Siaya and Kisumu counties through the adoption of biochar and ICOF. This objective will be accomplished using three approaches:

- i. Adapting biochar and ICOF to the biophysical and socio-economic environments of smallholders through participatory action research
- ii. Building the capacity of smallholder farmers, extension agents, researchers and local institutions in the sustainable use of biochar and ICOF through excursions, hands-on trainings and post-graduate scholarships
- iii. Supporting evidence-based policy formulation on sustainable production and utilization of insect-composted organic fertilizers and biochar by sharing project results with policy makers in round-table meetings, workshops and scientific conferences

Expected outcomes of this project will include:

1. Enhanced agricultural productivity and food security through improved soil fertility, increased crop yields and use of sustainable farming practices
2. Stimulated economic growth and improved livelihoods through job creation, increased farm incomes and market expansion
3. Environmental sustainability and climate resilience via carbon sequestration, improved soil and water management and waste reduction and resource use efficiency

3.2 Speeches

3.2.1 Introductory remarks-by Prof. Winston Akala, Principal-Koitaleel Samoei University College (KSUC)

Prof. Akala congratulated the project team for winning the grant and thanked The French Embassy, through the National Research Fund (NRF), for agreeing to support the proposed study for a period of two years. He welcomed all the participants to the meeting and wished them a very enjoyable stay in Kisumu.

3.2.2 Project in the context of The French Embassy- by Dr. Lauric Cecillon, Agric. Attaché, French Embassy

Dr. Lauric Cécillon, on behalf of the French Ambassador, elucidated the importance of the project to the French Embassy. He noted that the project aligned well with the embassy's action plan, particularly in the priority areas of agriculture and health, and would, among other benefits:

- (a) Create partnerships with youth and civil organizations and strengthen collaboration with the French Government through the French Embassy in Kenya
- (b) Meet the Embassy's goals and help the Kenyan Government to address the UN Sustainable Development Goals related to climate action and biodiversity
- (c) Benefit at least 1,000 individuals directly and over 50,000 indirectly
- (d) Focus on developing entrepreneurial skills for women and youth, while raising awareness among various stakeholders.
- (e) Has a strong component of capacity building that will see upto seven young women scientist get full masters scholarships.

Thus, the project has the potential to create significant impact among the target communities. Finally, he urged the project team to adhere to the approved project budget and ensure timely implementation of project activities and submission of requisite project reports. He wished the team well and assured them of the French Embassy's commitment and support to successful implementation of the project.

3.2.3 Project in the context of NRF- by Prof. Dickson Andala, CEO-NRF

Prof. Andala, the CEO-National Research Fund (NRF) highlighted NRF's key objective as improving soil health, food and nutritional security, and environmental sustainability. He also reiterated the significant effects of climate change on food security and soil degradation and emphasized the urgent need for effective solutions. To this end, Prof Andala was happy to note that Bio-Kenya project aligned properly with NRF's objective since it was designed to benefit local communities and enhance their resilience and livelihoods.

The CEO thanked the team for winning the competitive grant and assured them of NRF's support. He advised the team to undertake quality work and aim at creating impact in the three counties. Further, he encouraged them to generate important lessons that would benefit the whole country and advised them to utilize the funds prudently and expeditiously, given that it is a two-year project. He also expressed gratitude to the funders and partners who pledged to support the implementation

of the project. Finally, the NRF CEO underscored the importance of patenting the products that would emanate from the project before their commercialization to ensure their protection and promote sustainability.

3.2.4 Endorsement remarks by:

(i) **Dr. Beatrice Inyangala, PS-State Department for Higher Education and Research**

Dr. Beatrice Inyangala, the Principal Secretary for Higher Education and Research, described the Bio Kenya Project as a beacon of hope for the western region of Kenya, emphasizing its potential to enhance the livelihoods of local communities. She noted that the project aligned perfectly with the Ministry of Education's core mandate and recognized the invaluable contributions of partners such as the University of Embu, ICIPE, KALRO, KSUC, IRD, CIRAD and the Latin Network of Biochar in Cuba. According to her, the initiative was also in harmony with the BETA agenda, especially the activities on capacity building and economic empowerment of local communities.

Dr. Inyangala appreciated the enormous potential of the project to contribute to government priorities and foster collaboration among various partners. She lauded the plan by the project to formulate research-based policies that will positively impact community livelihoods and help the Government to address soil health concerns in the country. However, she expressed concern about environmental degradation and water pollution caused by wanton dumping of bagasse on the roadsides and fields in Western Kenya and hoped that the project will help cure this menace. She, thus, affirmed the government's full support for the project.

She expressed gratitude to all the universities involved in developing and implementing the project and thanked the French Embassy for financing the project. Dr. Inyangala encouraged other scientists to emulate the approach adopted by the project and wished the project team success in implementing the project.

(ii) **Prof. Winston Akala, Principal-KSUC**

Prof. Akala, the Principal of Koitaleel Samoei University College (KSUC) on his part expressed gratitude for the support provided by the Principal Secretary-Higher Education and Research through the NRF and acknowledged the French Embassy for funding the project, as well as the team that developed the project proposal. He highlighted the pressing issues of environmental degradation and declining soil fertility and soil health and expressed gratitude that this project aims to address

them and tackle food insecurity effectively. He reiterated that successful implementation of the project would empower farmers to improve soil fertility, enhance food security and nutrition, and enhance their entrepreneurial skills, especially women and youth. He hopes that this initiative will foster collaboration and partnership among stakeholders. Prof. Akala also extended his appreciation to the researchers involved in putting together the project: Dr. Kizito Kwena, a Chief Scientist at KALRO who is also the project's principal investigator (PI); Dr. Dennis Beesigamukama, Post-Doctoral Fellow at ICIPE and Co-PI; Dr. Hezron Mogaka, a Lecturer at the University of Embu and Co-PI; and CPA. Bruno Ogama, Environmental and Finance Professional at Koitaleel University College and Co-PI. Finally, he thanked the NRF and the French Embassy for selecting the Bio Kenya Project proposal, out of 65 applicants, for funding and assured them of KSUC's commitment to its successful implementation.

(iii) Prof. Daniel Mugendi, Vice Chancellor-University of Embu

The University of Embu Vice Chancellor, Prof. Mugendi, who was represented by Dr. Kennedy Ocharo, was delighted to note that the BIO Kenya project aims to support smallholder farmers in Busia, Kisumu, and Siaya Counties by addressing key agricultural challenges of low soil fertility and food insecurity. He was particularly happy to note that the project will enhance soil health and productivity by converting organic waste into biochar and insect-composted organic fertilizers and provide jobs to local communities, especially women and youth. He observed too, that the project aligns perfectly with Kenya's Vision 2030 and the Bottom-up Economic Transformation Agenda (BETA) since it seeks to promote both agricultural and economic growth and environmental sustainability at the grassroots. He reiterated The University of Embu's commitment to effectively play its capacity-building role in the project. To this end, he was happy to note that 4 masters and 1 PhD students were already enrolled at the university with support from the Bio-Kenya Project. He thanked the project team for putting together the winning proposal and assured them of his full support.

(iv) Dr. Abdou Tenkouano, Director General, ICIPE

Dr. Mutyambai, representing the Director General-ICIPE, noted that food security continues to be a significant development challenge in the country and across the African continent. He attributed it partly to poor waste management, noting that only 5% of the multi-million tons of waste generated is recycled, leaving most of it to go to waste. Thus, addressing the issue of waste management was critical to foster sustainable development and ensure a more food-secure future. In this regard, Dr. Mutyambai was optimistic that Bio Kenya project would be a case

study of how to efficiently convert waste into wealth and create job opportunities for millions of unemployed women and youth. He thanked the team for winning the grant and assured them of ICIPE's full support.

(v) Dr. Eliud Keriger, Director General, KALRO

Dr. Eliud Kireger, the KALRO Director General, reiterated KALRO's commitment to developing and disseminating technologies, innovations and management practices (TIMPS) to increase agricultural productivity across the country and noted that the Bio-Kenya project fits perfectly in this framework. He thanked the team for winning the grant and assured them of his full support.

(vi) Prof. Charles Rombo, University of Nairobi

Professor Charles Rombo, representing the Vice Chancellor of the University of Nairobi (UON), thanked the project team for winning the grant and assured them of the university's total support. He highlighted the importance of partnerships and encouraged the team to form strong partnerships with all stakeholders in order to achieve its goal.

(vii) Mr. K. Onyango, CECM Agriculture, Kisumu County

The CECM for Agriculture in Kisumu County, Mr. Onyango, welcomed everybody to Kisumu and reiterated the importance of the project working with all stakeholders in order to achieve its objectives.

(viii) Dr. Simplicious Mukok, CECM Agriculture, Busia County

Mr. Emmanuel Ngetich who represented Dr. Mukok, the County Executive Committee Member for Agriculture in Busia County, thanked the project team for choosing to work in Busia County and assured it of full support from his office. He underscored the importance of the project in helping the county to attain food security and encouraged the team to collaborate with all stakeholders in order to achieve its objectives and create bigger impact in the county.

(ix) CECM Agriculture, Siaya County

Mr. Gideon Ombati, representing the Siaya County Executive Committee Member for Agriculture, echoed similar sentiments. He was optimistic that the project will effectively address soil fertility challenges and create jobs for women and youth, and hence, spur agricultural growth and economic development in the county.

(x) Others

Other stakeholders also welcomed the project and noted that successful implementation of the project will significantly improve soil health and increase agricultural productivity in the target counties. They were happy that the project plans to involve women, the youth and all other stakeholders in its implementation. This, they said, will create greater impact and enhance sustainability of the project.

3.3. Project launch-by Dr. Lauric Cecillon, on behalf of the French Ambassador to Kenya

Dr. Lauric also thanked the project team for putting up a winning proposal and assured them of the Embassy's support. He decried rampant food insecurity and poverty in the region despite decades of agricultural research and challenged the project team to come up with a lasting solution. Finally, he advised the team to utilize the funds prudently to make a difference in the lives of the starving millions in the Country, and declared the project officially launched.

3.4. Plenary

During the plenary discussion held after presentations and speeches by various guests, participants raised a number of issues. The following issues arose during the plenary:

- What kind synergies and partnerships does this project seek to create and exploit?
- What is the role of sugar millers in the project?
- Is it possible to make any impact in two years?

Dr. Kwena, the PI, responded to these issues. He reiterated that the project is designed to involve all stakeholders through the participatory action research approach it has embraced.

He also pointed out that sugar millers will supply bagasse, one of the raw materials needed to produce biochar, and participate in biochar validation trials. Regarding the possibility of creating impact within two years, Dr. Kwena conceded the period was short but said it was sufficient to show some progress e.g. the percentage of farmers who will have adopted certain biochar and ICOF technologies.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The workshop realized all the intended results in both quantity and quality. The following were the key achievements of the workshop:

4.1 Achievement of workshop objectives

4.1.1 Project launched and stakeholder commitment built

Stakeholders now understand the Bio-Kenya project, its objectives, planned activities and expected outputs. They were also able to recognize the importance of their role in its implementation. The multiplier effect of their subsequent actions will undoubtedly improve stakeholder ownership of the project. Similarly, the project team was able to know some of the farmers concerns that should guide them in developing realistic action plans. Finally, the project was successfully launched by The French Embassy in Kenya and NRF. This gives the project team the impetus they had waited for quite some time to proceed to implement the project.

4.1.2 Project implementation plans with well-defined roles and responsibilities developed

Project team was updated on the progress made by partner institutions in implementing inception phase activities as well as existing opportunities on which the project could build. Team members had the opportunity to share experiences and learn from each other. Finally, the team was able to develop and agree on work plans with well-defined timelines and responsibilities to complete various tasks.

4.1.3 Workshop process completed

Except for delays in starting the workshop on Day one, all scheduled activities were realized, albeit with shortened time allocation in some cases. However, the launch would have been more exciting had more fanfare been infused.

4.2 Recommendations and Way Forward

A number of issues were raised and discussed during the workshop. This section of the report is a condensation of what the team resolved to do in implementing the launched project.

- Prof. George Karuku from the University of Nairobi should finalize identification of graduate students that will work with the project and share their details and their research topics with the project team as soon as possible.
- Mr. Bruno Ogama should set-up and operationalize the project WhatsApp group and on-board all project team members and project students

- The project team should compile and share proceedings of the inception workshop
- The project team should compile and submit a one-pager article on the workshop to NRF for publication
- Mr. Bruno Ogama should fast-track fabrication of carbonizers and procurement of ICOF equipment.
- Dr. Hezron Mogaka should conclude baseline surveys and convene write-shops to compile baseline reports
- Members should observe deadlines for submitting reports

ANNEX 1

WORKSHOP PROGRAM

Day 1: 23 September 2024

SESSION ONE: INTRODUCTION TO THE WORKSHOP

Chairperson: Prof. Rose Korir, Deputy Principal -KSUC Rapporteur: Ms. Lydia Nyawira

08:00 hrs-08:30 hrs	Registration- Workshop Secretariat
08:30 hrs-09:00 hrs	Introductions – Prof. R. Korir
09:00 hrs-09:30 hrs	Welcome Remarks/introduction of Guests- Prof. W. Akala, Principal-KSUC
09:30 hrs-10:00 hrs	Introduction to workshop agenda- Dr. Hezron Mogaka
10:00 hrs-10:30 hrs	Tea break/ Group photo

SESSION TWO: PRESENTATION OF BIOCHAR/ICOF PROJECT

Chairperson: Dr. Paul Calatayud, Regional Director-IRD Rapporteur: Ms. Lydia Nyawira

10:30 hrs-10:45 hrs	Project in the context of The French Embassy- Dr. Lauric Cecillion
10:45 hrs-11:00 hrs	The project in the context of NRF– Prof. Dickson Andala
11:00 hrs-11:30 hrs	Overview of the project- Dr. Kizito Kwena- KALRO
11:30 hrs-11:45 hrs	Short Speeches- Prof. W. Akala
11:45 hrs-12:00 hrs	- Prof. Daniel Mugendi, VC-University of Embu
12:00 hrs-12:15 hrs	- Dr. Abdou Tenkouano, DG-ICIFE
12:15 hrs-12:30 hrs	- Dr. Eliud Kireger, DG-KALRO
12:30 hrs-13:00 hrs	Plenary Discussions - Open to All
13:00 hrs-14:00 hrs	Lunch break

SESSION THREE: LAUNCH OF THE PROJECT

Chairperson: Prof. Akala, Principal-KSUC Rapporteur: Dr. L. Koskei

14:00 hrs- 14:05 hrs	Brief remarks from key stakeholders - Hon. Dr. S. Mukok
14:05 hrs- 14:10 hrs	- Hon. S. K'Okoth
14:10 hrs- 14:15 hrs	- Hon. K. Onyango
14:15 hrs- 14:25 hrs	- H.E. Prof. A. Nyong'o
14:25 hrs- 14:35 hrs	- Dr. P. Rono
14:35 hrs- 14:45 hrs	- Dr. B. Inyangala
14:45 hrs-15:00 hrs	Official launch of the project - H.E. Arnuard Suquet

15:00 hrs-15.10 hrs Vote of thanks/announcements/prayers- **CPA B. Ogama**

End of day 1

Day 2: 24 September 2024

SESSION 4: PROJECT IMPLEMENTATION PLANS AND RESPONSIBILITIES

Chairperson: Dr. Kwena Kizito

Rapporteur: Ms. E. Okwuosa

08: 30 hrs- 10:30 hrs Work plans, methodologies and responsibilities for Component 1

10:30 hrs-11:00 hrs **Health break**

11:00 hrs-13:00 hrs Work plans, methodologies and responsibilities for Component 1 cont'd

13:00 hrs-14:00 hrs **Health break**

14:00 hrs-16:00 hrs Work plans, methodologies and responsibilities for Component 1 cont'd

16:00 hrs-17:00 hrs **Health break**

17:00 hrs-18:00 hrs Networking

End of Day 2

Day 3: 25 September 2024

SESSION 5: PROJECT IMPLEMENTATION PLANS AND RESPONSIBILITIES

Chairperson: Dr. Denis Beesigamukama

Rapporteur: Prof. J. Mugwe

08: 30 hrs- 10:30 hrs Work plans, methodologies and responsibilities for Component 2

10:30 hrs-11:00 hrs **Health break**

11:00 hrs-13:00 hrs Work plans, methodologies and responsibilities for Component 2 cont'd

13:00 hrs-14:00 hrs **Health break**

SESSION 6: PROJECT IMPLEMENTATION PLANS AND RESPONSIBILITIES

Chairperson: Dr. Hezron Mogaka

Rapporteur: Dr. L. Omoke

14:00 hrs-16:00 hrs Work plans, methodologies and responsibilities for Component 3

16:00 hrs-17:00 hrs **Health break**

17:00 hrs-18:00 hrs Networking

End of Day 3

Day 4: 26 September 2024

SESSION 7: FIELD VISITS/EXCURSIONS

08:30 hrs- 12:00 hrs	Visit El Paj BSF and ICOF production farm in Kisumu County
12:00 hrs-13:00 hrs	Health break
13:00 hrs -17:00 hrs	Visit Anyiko Rice Farmers' Cooperative Society in Siaya County

End of Day 4

Day 5: 27 September 2024

SESSION 8: WRAP-UP AND WAY FORWARD

Chairperson: Mr. Bruno Ogama

Rapporteur: Dr. L. Koskei

08:30 hrs-09:30 hrs	Recap of field visits
09:30 hrs-10:30 hrs	Cross-cutting issues
10:30 hrs-10:45 hrs	Health break
10:45 hrs-13:00 hrs	Way forward
13:00 hrs-14:00 hrs	Health break

End of workshop

ANNEX 2

LIST OF PARTICIPANTS

S/No.	Name	Affiliation
1.	Prof. Rose Ruto Korir	KSUC
2.	Mrs. Beatrice Despioch	Ungana Ltd
3.	Dr. Kennedy Ocharo	University of Embu(UoEm)
4.	Dr. Lilian Omoke	UoEm
5.	Prof. Jayne Mugwe	Kenyatta University(KU)
6.	Dr. Mwende Ngje	KU
7.	Dr. Duncan Mugambi	UoEm
8.	Mr. Bruno Ogama	KSUC
9.	Dr. Paul Calatayud	IRD
10.	Ms. Juliana Muli	Farmer
11.	Dr. Ismael Oduor	KSUC
12.	Ms. Loice Koskei	KSUC
13.	Prof. Samuel Mwonga	Egerton University
14.	Dr. Joab Ooko	KSUC
15.	Dr. Denis Beesigamukama	ICIPE
16.	Dr. Hezron Mogaka	UoEm
17.	Prof. George Karuku	University of Nairobi (UoN)
18.	Ms. Elizabeth Okwuosa	KALRO
19.	Mr. Symon Kirui	KSUC
20.	Ms. Judy Jemutai	UoEm
21.	Mr. Ezekiel Kamau	UoEm
22.	Mr. Shadrack Kiprotich	UoEm
23.	Ms. Anastasia Kyalo	UoEm
24.	Dr. Ann Muriuki	KALRO
25.	Ms. Faith Wakhungu	NRF
26.	Ms. Lydia Muriithi	UoEm
27.	Mr. Jacob Njagi	NRF
28.	Mr. Newton Mwangi	KSUC
29.	Mr. Wilson Tiparo	KSUC
30.	Dr. Kizito Kwena	KALRO
31.	Dr. Eliud Kireger	KALRO
32.	Prof. Winston Akala	KSUC
33.	Prof. Dickson Andala	NRF
34.	Mr. Gideon Ombati	MoA-Siaya County
35.	Mr. Emmanuel Ngetich	MoA-Busia County
36.	Mr. Kenneth Onyango	MoA-Kisumu County

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37.	Prof. Charles Rombo	UoN
38.	Dr. Daniel Mutyambai	ICIFE
39.	Dr. Beatrice Inyangala	Ministry of Education
40.	Dr. Lauric Cecillon	French Embassy-Nairobi
41.	Dr. George Ayaga	GEOWIS Africa
42.	Mr. Henry Tanui	KALRO
43.	Ms. Jane Mseli	USAID
44.	Mr. Samuel Odhiambo	BS-Green Smart
45.	Mr. Martin Onyango	Anyiko Coop. Society
46.	Mr. John Oduor	Anyiko Coop. Society
47.	Ms. Rose Oyath	Anyiko Coop. Society
48.	Dr. Harun Gitari	KU
49.	Eng. Kerich Daniel	KIRDI
50.	Winnibald Wang'ombe	Lunabo WRUA
51.	Aziz Mbarak	IRD
52.	Shaphan Yeng Chia	ICIFE
53.	Mr. Bernard Rono	KALRO
54.	Felgona Rabedi	Farmer
55.	Mr. Paul Kibogo	ICIFE
56.	Mr. Omoro Vincent	MoA-Kisumu County
57.	Mr. Richard Mutai	KSUC
58.	Ms. Jenipher Lutomia	MoA-Busia County
59.	Mr. Absalom Okwara	County Government of Busia
60.	Mr. Daniel Omondi	Achiego SHG
61.	Ms. Vollem Adhiambo	Achiego SHG
62.	Ms. Carolyne Minayo	KALRO
63.	Mr. Ezekiel Oyata	GLUK
64.	Mr. Godrick Ogola	MoA-Siaya County
65.	Ms. Esther Nafula	Nambale Magnate
66.	Ms. Molly Atieno	Victoria Green Farms
67.	Mr. Moses Otieno	Finish-INR
68.	Ms. Lydia Samoei	KSUC
69.	Ms. Menaga Meenakshisundam	ICIFE
70.	Ms. Sabina Atieno	BSF Green Smart
71.	Mr. John Muthoni	ICIFE
72.	Mr. Philip Kazungu	ICIFE
73.	Ms. Jane Njagi	ICIFE
74.	Ms. Veronica Kemunto	IRD
75.	Mr. Shadrack Kiplimo	Hydro-Victoria
76.	Mr. Vincent Wanzala	Tangakona Coop. Society
77.	Mr. Elija Onjolo	MoA-Kisumu County
78.	Ms. Sabina Uduy	ICIFE
79.	Ms. Caroline Odera	WISE-HUB

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80.	Eng. David Onyango	El Paj
81.	Mr. Samson Kandira	Tangakona Coop. Society
82.	Dr. Karel Van den Meersche	CIRAD
83.	Mr. Michael Midiwo	KSUC
84.	Mr. Kelvin Munene	UoEm
85.	Mr. Maurice Murimi	UoEm
86.	Ms. Joyce Kitala	KSUC
87.	Mr. Newton Mwangi	KSUC
88.	Mr. Pancras Odanga	West Kenya Sugar Company
89.	Ms. Esther Oruko	County Gov. of Kisumu
90.	Dr. Colly Clemont	IRD
91.	Mrs. Catherine Otaga	Tangakona Coop. Society
92.	Mr. Mathew Odipo	MoA-Busia County