



Terms of Reference: Consultancy to evaluate the Intensification of Push-Pull Technology for Improved Food Security, Nutrition, and Incomes

Background and context

The International Centre of Insect Physiology and Ecology (ICIPE, branded as icipe) is an international scientific research institute, headquartered in Nairobi, Kenya, that works towards improving lives and livelihoods of people in Africa. *icipe* focuses on sustainable development using human, animal and plant health as the bases and the environment as the foundation for sustainability. The centre's main objective is to research and develop alternative and environmentally friendly pest and vector management strategies that are effective, selective, non-polluting, non-resistance inducing, and affordable to resource-limited rural and urban communities while addressing the interlinked problems of poverty, poor health, low agricultural productivity, and degradation of the environment.

icipe is now seeking an experienced consultant for a final project evaluation of the project “*Intensification of push-pull technology for improved food security, nutrition, and incomes*” funded by Biovision Foundation for Ecological Development (Biovision).

Production and utilization of maize and vegetables, the main staple and cash crops in the East Africa, are severely constrained by many biotic and abiotic factors. Cereal stemborers, the fall armyworm, striga weed, and poor soil fertility are major constraints to maize production. This results in high levels of food insecurity, malnutrition, and poverty. Similarly, vegetables, which are a vitally important source of micronutrients, vitamins and minerals, and essential components of balanced and healthy diets are also attacked by various insect pests and there are no options to control them other than insecticides. Push-pull technology, developed by *icipe* and partners, provides an effective management of stemborers, fall armyworm, striga weeds and soil fertility, while sustainably providing high quality animal fodder, thus allowing intensification of smallholder cereal-livestock systems.

Vegetables are severely affected by insect pests and farmers have few options other than insecticides for their management. Thus, integration of vegetables within push-pull would provide a low input crop protection strategy for both maize and vegetables. The ecological basis of push-pull in maize – repellence and attractancy – was tested for vegetable-maize systems, providing a formidable tool for combatting pests in vegetables. Vegetables were easily integrated with maize without negative competition; and in addition, if such a combined push-pull system is developed for vegetables-maize system, an important driver for wider adoption of push-pull. The project therefore sought to further intensify the predominately cereal-based push-pull system with high value vegetables thereby enhancing the technology's potential to contribute to farmers' livelihoods, nutrition, and incomes.

Development Goal: To contribute to improved food security, nutrition and incomes while improving women empowerment and ensuring equity.

Project Purpose: Improving livelihoods of smallholder farmers via push-pull system for food security, nutrition, and incomes through its integration with high value vegetables in smallholder farming systems.

Objective 1

Participatory selection with local farmers of appropriate high value vegetable crops to be integrated within push-pull system, assessment of production and marketing challenges and opportunities.

Objective 2

Participatory research on agronomic design to integrate high value vegetable crops in push-pull systems and elucidate chemical ecology of pest management, cost-benefit ratios, factor productivity, and economic tradeoffs, and impact of the system on women and youth.

Objective 3

Package and integrate the technology information into dissemination processes and establish impact of the new system on farmers' livelihoods and assess impacts of the system on livelihoods.

The project was implemented in Western Kenya from 1.1.2020 to 31.12.2022. In these 3 years, it reached a total of 3,370 smallholder farmers households in over 119 groups in eight counties in western Kenya and facilitated a total of 1,262 on-farm trials, in partnership with the national extension system.

Purpose of the evaluation

The final evaluation aims to gather feedback from the participating farmers and stakeholders on the project and use this feedback to inform future on-farm farmers' participatory research, co-creation processes, informing further adaptive research and identifying opportunities for scaling up similar agri-based technological interventions. Specifically, the final evaluation aims to

- (1) To evaluate the effectiveness of the project in delivering on its project targets, goals, and its objectives, and assess its outputs and outcomes.
- (2) To generate robust information that *icipe*, Biovision and other external stakeholders could leverage to ensure sustainability of project outcomes and technology diffusion.
- (3) To evaluate the project's impact of the cereal-vegetable integrated push-pull system on the participating farmers, their households including possible changes in yields, income, nutrition and livelihoods
- (4) To identify and analyze the factors could have influenced the project's strengths and weaknesses, with focus on project design, implementation, and recommend possible areas of exploitation in ensuring sustainability of its outcomes.
- (5) To identify and analyze the factors that promote or hinder adoption and impact (especially food security), diffusion/efficacy of dissemination pathways used to promote VIPPT, the likely drivers to adoption/barriers to adoption, and farmers' recommendations for optimization of the system, and other interventions necessary for its sustained adoption.
- (6) Assess the effectiveness of the communication and dissemination strategies including the use of print materials, online platforms, workshops, and field days in reaching the target audience, including participating farmers and other stakeholders. The aim would be to identify any barriers or challenges hindering effective communication and recommend suggestions via feedback from

farmers/stakeholders on their preferences for receiving information for more effective strategies and platforms.

- (7) To gather feedback from farm communities and other stakeholders about the socio-economic impacts, ecological co-benefits, and agronomic/economic trade-offs or opportunity costs of implementing the vegetable integrated push-pull system.

Scope of the Evaluation

The evaluation will assess the results achieved during the project implementation periods. It will cover eight counties which have predominantly small-scale farmers relying on subsistence farming for their livelihoods but with varied climatic and agroecological conditions (Figure1). The original proposal initially covered four (4) counties of Kisii, Kisumu, Migori and Vihiga counties (Mid altitude humid and hot). As a result of increased interest from farmers and the need to test the technology in different agroecological areas, four (4) additional counties of Homa Bay and Siaya (dry and hot), and Bungoma and Trans-Nzoia (cold and dry) were introduced mid-2021.

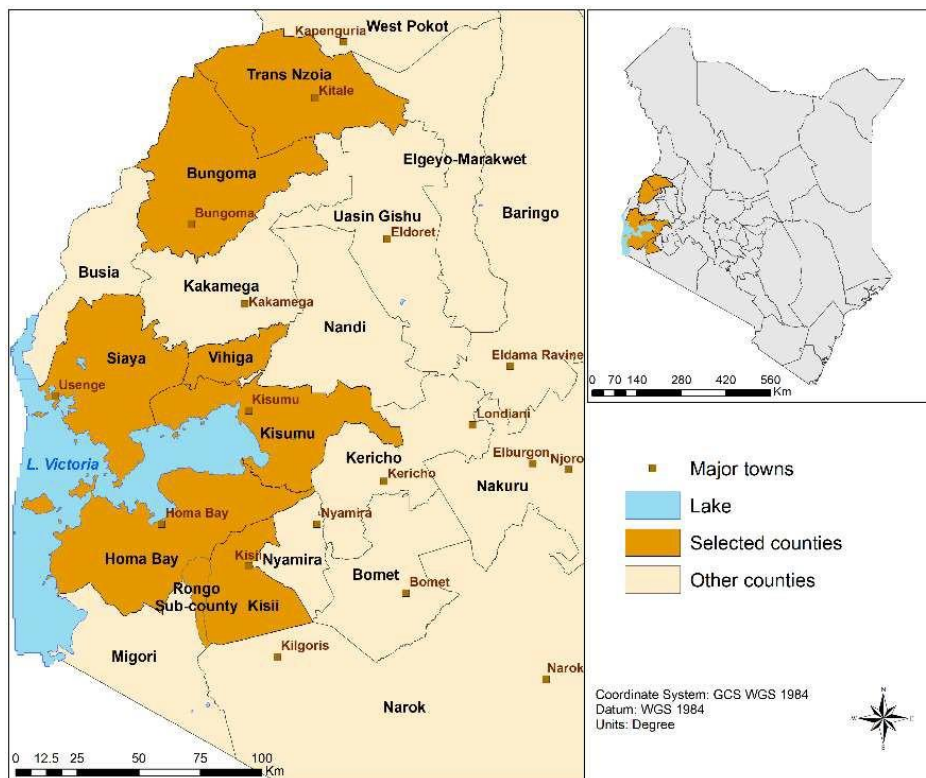


Figure 1: Targeted counties in Kenya for the sustainable intensification project

To achieve these objectives, the evaluation will address key evaluation questions organized around six evaluation criteria outlined at the end of this document. The consultant is welcome to adjust and fine-tune them.

Audience of the Evaluation

The primary audiences for the evaluation are the Biovision Foundation, International Centre of Insect Physiology and Ecology (icipe), and local implementing partners.

Evaluation Methods

The consultant will use a mixed-methods approach, incorporating both qualitative and quantitative data collection and analysis techniques, such as surveys, interviews, case studies, and statistical analysis. A set of recommended evaluation questions can be found at the end of this document.

Main Outputs and Deliverables

The following outputs are expected from the consultant:

A. Evaluation Inception Report includes the following contents:

- Executive Summary (Brief summary of the evaluation's purpose and scope)
- Brief background on the project: An overview of the project, including its goals, objectives, and target beneficiaries
- Evaluation Objectives: A clear statement of the evaluation objectives
- Evaluation methodology, including data collection methods, sampling techniques, and analytical frameworks
- Evaluation criteria and indicators to assess the project's performance
- Work plan and timeline
- Roles and responsibilities of the evaluation team
- Budget and resources needed to complete the evaluation
- Potential risks or challenges that may arise during the evaluation process

Annexes:

- Detailed evaluation methodology (if any), data collection tools.
- The evaluation design matrix indicates the evaluation criteria, questions, indicators, and how they can be collected and analyzed.
- A tentative outline of the final evaluation report
- The Terms of Reference (ToRs)
- Any other information deemed necessary (detailed tables, figures, etc.)
- List of stakeholders to be consulted.

B. Draft Independent Final Evaluation Report and presentation in stakeholder workshop:

- Presentation of draft findings and recommendations, adhering to the content guidelines of the final report annexed below.

C. Final Evaluation Report (maximum of 15-20 pages without annexes) including the following content:

- Executive summary (brief introduction, key findings by evaluations questions, key bullets conclusions, key bullets recommendations)
- Introduction
 - a. Purpose of the evaluation
 - b. Target users/beneficiaries
 - c. Scope and objective of the evaluation
 - d. Methodology (be brief as this is already available in the inception report)

- Limitations
- Evaluation questions-key findings
- Conclusions and lessons learned i.e. discussion of lessons learned during the project, including challenges encountered, successes achieved, and recommendations for future projects.
- Recommendations i.e. specific recommendations for improvements, modifications, or changes to the project based on the evaluation findings.

Annexes:

- The ToR, detailed evaluation methodology, evaluation matrix, list of meetings attended, persons interviewed, and documents reviewed data collection tools, and any other relevant materials.
- Detailed tables and figures

D. Management response action sheet: The evaluator will prepare a summary of major issues and recommendations that need management response, responsible parties, and suggested timeline. This will be followed by a management response to the report, acknowledging the evaluation findings and outlining the steps (if any) that will/could be taken to implement the recommendations.

Timeframe of Activities and Workplan

The task is expected to be accomplished in 20 days with a first draft evaluation report due no later than 15 days and the Final Evaluation Report due not later than 20 days. The consultant will collaborate closely with the project team. The evaluation process should consist of the following components/activities and durations:

Key Activities/Deliverables	suggested time
Evaluation launch meeting: <i>icipe</i> Push-Pull project management staff and the consultant will hold a meeting to launch the evaluation.	1 days
Desk Review: Desk review of project documents, including the project proposal, the Logframe, periodic monitoring reports, quarterly technical reports, back- to-office reports, baseline survey reports, and training manuals.	2 days
Inception Report: The consultants will provide a detailed description of the timeline and work plan, sampling framework, key informant interview questions/checklist, list of stakeholders to be met, data collection tools and evaluation method to answer evaluation questions. The actual content of the inception report should not exceed 10 pages.	2 days
Data Collection and Analysis: Consultation of key stakeholders, including direct project beneficiaries in selected sites; project team; project partner’s intervention regions (the project team can advise on this list of actors).	5 days (including travel to the target area)
Debrief of Preliminary Results: The consultant will present the preliminary results and recommendations to the project team and project donor.	1 days
Draft Evaluation Report: the draft report based on the outline provided.	4 days
Half-day Stakeholder workshop to garner feedback and comments	1 day

Final Evaluation Report: The final report incorporating feedback of the project team and donor. The final report should not exceed 15-20 pages, excluding Annexes.	4 days
	20 days

Management Arrangements

The consultant shall report to the Project Manager at icipe or his designee during the consultancy period and will provide regular updates on the progress of the evaluation. The consultant will be offered a fixed-price contract to accomplish all the tasks and deliverables listed above. The consultant is expected to budget for his/her professional fees and subsistence costs. The project will provide transport services and accommodation. In addition, the project will organize documents and data requested and facilitate meetings with stakeholders. The consultant will report to Project manager for all administrative logistics and field work-related issues and for all technical evaluation matters. The project manager will facilitate access to all relevant data and facilitate meetings with stakeholders and ensure the overall quality control of evaluation deliverables.

Competencies of Evaluators

- At least a master’s degree in a relevant discipline including with specialization in M&E, agribusiness, economics, and agricultural economics, development project evaluation, etc.
- At least 10 years of proven experience in development project evaluations in Eastern Africa. Preferably a good understanding of agricultural intensification and impact evaluation.
- Familiarity with agricultural capacity development activities
- Knowledge and skills in qualitative and quantitative research methodologies and data analysis
- Good writing skills in English
- Adherence to good evaluation practices and ethical principles.
- Consultants shall present two previous evaluation reports related to rural development projects, preferable about the agriculture/horticulture sub-sector.

How to Apply

Interested individual consultants fulfilling the above criteria can submit technical and financial to *icipe* before or on **9th May 2023**.

The application should include technical proposal with the following contents.

Technical proposal (maximum 10 pages, excluding annexes)

- Demonstrated experience to handle the assignment.
- Understanding of the assignment
- Brief methodology (sampling, tools, timeline, etc.)
- Sample relevant works as annexes
- Curriculum vitae as annex

Proposal Evaluation Criteria

- Proposed approach and methodology 40%
- Competencies and track record 40%
- Financial proposal 20%

Shortlisted candidates will be contacted and their proposal used as the basis for initial discussion before a final decision is taken. Applicants should submit their application individually.

For any queries, please contact Procurement Officer at icipetenders@icipe.org.

icipe is an equal opportunity employer. It fosters a multicultural work environment that values gender equity, teamwork, and respect for diversity.

Annex 1: Suggested Evaluation Questions

The evaluation should address the following key questions:

Relevance: *The extent the project addresses the existing and emerging challenges in terms of changing climatic conditions, maize and vegetable pests and need for nutritional diversity.*

- a. To what extent has the project responded to the specific needs and priority demands of the small-scale farmers?
- b. How have the targeted farmers and other stakeholders been involved in defining the project focus, designing and testing the agronomic interventions?
- c. How do the project outcomes address the major challenges affecting the targeted agricultural sector within the targeted eight (8) counties of western Kenya and other small-scale farmers practicing subsistence farming elsewhere with similar agro-ecological challenges?

Effectiveness and Efficiency:

- a. To what extent and quality were the project's objectives achieved?
- b. How do the planned and used resources compare with the achieved outcomes and research outputs?

Innovation: *Push-pull technology was primarily employed to address the problems of invasive weeds and pests in a cereal cropping system. The inclusion of vegetable into a push-pull farming system was new addition to leverage on the benefits of proven functional agricultural ecosystem.*

- a. What new agronomic approaches and practices has this technology introduced?
- b. How can these new practices, technologies, or approaches be used to improve agricultural productivity, resilience, or sustainability?
- c. To what extent do stakeholders independently replicate the promoted technology? What are limitations and strengths of the technology in that sense?
- d. How strongly have the stakeholders developed ownership for the promoted technology and what role have the project's participatory approaches played in it?
- e. To what extent can these innovations be transferred to other Socioeconomic, cultural, agricultural contexts? And which factors would determine their adoption?

Scalability: *Can the project successes and lessons learnt be scale out to other areas and regions*

- a. What factors would need to be considered in order to scale up the project's approaches to other areas with different ecological and socioeconomic conditions?
- b. Do you think the project could be adapted or modified to fit different contexts or regions? If so, what changes would need to be made?

Gender and youth inclusivity: *This assess whether the project was sensitive to addressing different roles, needs of youth, men and women and whether it addresses gender inequalities during design, implementation and impact.*

- a. To what extent were women and youth involved in the project design and implementation?
- b. To what extent did the project intervention focus on addressing the specific needs of each group segment? What project elements and characteristics have been specifically driving gender inclusiveness, and were they used to their full potential?

- c. What kind of specific impact did the intervention have on the livelihoods of youth and women? What has specifically contributed to this? What additional measures during design and implementation could have improved this further?
- d. Were other stakeholders involved in addressing the possible youth and gender inequalities which could be in existence in the project focus areas?

Impact: *The positive and negative changes the project produces (directly or indirectly, intended, or unintended).*

- a. To what extent has there been an improvement in crop yields and income of the farmers involved in VIPPT (see the project's outcome indicators)?
- b. Which changes have occurred in the knowledge, attitudes and practices of the farmers, stakeholders who were trained and/or involved in vegetable push-pull intensification?
- c. To what extent and quality does the project's monitoring and evaluation system manage to address the project's logframe indicators, particularly the impact monitoring on outcome level? What are recommendations for its further development?
- d. How effective have the communication and dissemination strategies been including the use of print materials, online platforms, workshops, and field days in reaching the target audience, including participating farmers and other stakeholders?

Sustainability: *Whether the benefits of an activity are likely to continue after the project has been phased-out*

- a. What actions and strategies have been put in place through the project support to ensure project results sustainability, including institutional, financial, and environmental sustainability?
- b. How likely are the changes brought about by the project in inclusion of vegetable into a push-pull farming system continue in the long term?
- c. Has the project contributed to institutional and human capacities to sustain project activities and results beyond the project period?
- d. What is the level of the current state of inclusion of local partners in the project? How can this influence the sustainability of the project?
- e. What additional steps can be taken to support project sustainability?

Annex 2: Evaluation Report Outline

1. Cover page
2. Executive summary
3. Brief background on the project
4. Purpose and scope of the evaluation and clients of evaluation
5. Methodology of the Evaluation
6. Presentation of findings
7. Conclusion and Lessons Learned
8. Recommendations
9. Annexes