

An External Evaluation of Sweden's Support to Bio-Sciences Research and Innovation in Eastern Africa through BIO-EARN AND BIO-INNOVATE AFRICA Regional Programmes

Terms of Reference

1. Background

The Swedish International Development Cooperation Agency (Sida) has been supporting bioscience research, innovation and capacity building in Eastern Africa for almost two decades now. This support started through BIO-EARN (1999-2010), and evolved into BIO-INNOVATE phase I (2010-2016), and BIO-INNOVATE phase II (2017-2021). The latter is being implemented by International Centre of Insect Physiology and Ecology (*icipe*) through an agreement with Sida. The current agreement between Sida and *icipe* on support to BIO-INNOVATE phase II (2017-2021), stipulates an external independent evaluation to be carried out during the year 2020 (now amended to not later than 30 June 2021). In the agreement, partners-Sida (the funding agency) and *icipe* (the implementing agency of /BIO-INNOVATE), have agreed to undertake an external evaluation, which will not only review the performance of BIO-INNOVATE phase II, but also the overall impact of Sida support to bio-sciences research and innovation in the region particularly through BIO-EARN and BIO-INNOVATE (1999-2020). The outcome of the review should inform discussion of a possible continued Sida support to BIO-INNOVATE as from 2022 and beyond.

BIO-EARN (1999-2010) was a regional multi-institute collaboration initiative aimed to support East African countries of Ethiopia, Kenya, Tanzania and Uganda to benefit from advances in biosciences within their contexts for sustainable development. The programme consisted of a set of strategic regional interdisciplinary biotechnology R&D projects involving East African and Swedish universities and research institutes. The focus of the programme was to increase use of agricultural, environmental, and industrial biotechnologies to address local problems and capture opportunities created by these technologies. Projects were designed to respond to three main areas, namely: (1) improving the yield of sorghum, cassava and sweet potatoes, (2) improving the treatment and use of industrial and agricultural waste for the generation of bioenergy and value added products, and (3) strengthen the capacity of institutions to manage complex collaborative projects and initiate product development with the private sector. BIO-EARN also supported biotechnology policy development as well as enhancing regulatory capacity for biosafety. BIO-EARN completed its second and final phase in 2010 with its prior projects leading to BIO-INNOVATE Africa, also supported by Sida.

BIO-INNOVATE (2010-2020) is a regional initiative that supports scientists and innovators in the region to link biological based research ideas, inventions, and technologies to business and the market. The programme has been implemented in two phases: Phase I (2010-2016) and Phase II (2017-2020). Phase I (2010-2016) supported consortia-based research and innovation and policy projects involving 57 regional and international partners. Consortia projects focused on developing new drought tolerant, disease resistant crop varieties for sorghum, finger millet, cassava, and sweet potatoes adaptable to various agroecological zones of eastern Africa. In addition, a regional consortium to exchange/share sorghum and millet-based products amongst the three countries of Uganda, Ethiopia, and Tanzania, was supported. The consortia projects were hinged on building strong academia-industry partnerships. Besides, during this phase,

BIO-INNOVATE Africa developed innovative and adaptable approaches for wastewater treatment to respond to the deteriorating status of the environment. The phase was concluded in 2015.

An agreement between Sida and *icipe*, for a five-year phase II of the programme (2016-2021), was signed in October 2016. Phase II built on the successes of Phase I, but with a greater focus on moving innovative bioscience ideas, technologies, and inventions closer to market and deployment for beneficial societal use. The Programme aims at transforming the agro- and bio-processing sectors so that it is competitive and environmentally and socially sustainable, thereby expanding and diversifying growth opportunities for smallholder farmers and communities in eastern Africa. The primary beneficiaries are scientists, researchers, and innovators working in universities, research institutes, private sector companies and smallholder farmers and communities in Burundi, Ethiopia, Kenya, Rwanda, Tanzania and Uganda. The Programme also supports policy initiatives that foster bioeconomy development in the region. Smallholder farmers and agro-processors benefit through the technologies developed or promoted by the Program. The Program competitively selected 11 innovation projects (Cohort 1) in 2017; and additional nine projects in the second round of the call in 2018 (Cohort 2), making a total of 20 projects currently in the Program, with over 90 universities, research institutes and firms (Click [here](#) to see a description of the projects). Each phase II project is comprised of at least three team members from different organizations in at least three countries in eastern Africa. The projects run for at least three years. The projects are implemented under three categories including (1) category 1-consisting of 12 projects focusing on developing and piloting innovative and economically viable biobased technologies and products, (2) category 2- consisting of 7 projects incubating biobased technology businesses, mostly start-ups, and (3) category 3- consisting of one project aiming to develop a regional innovation-driven bioeconomy strategy for eastern Africa.

The desired impact of the Programme is improved productivity (and hence better living standards) of small holder farmers and communities in eastern Africa through value addition and agro/bioprocessing that is competitive and environmentally sustainable. The main desired outcome of the Program is increased capacity of scientists, researchers and innovators in eastern Africa to link innovative biobased research ideas, technologies and inventions to business and the market as well as to inform policy decisions.

It is expected that Sida's funding, since the inception of BIO-EARN in 1999, has consistently contributed to innovative bioscience ideas, innovative technologies and services that solve real African problems, influenced bioscience related policies in the region and created academia-industry-public partnerships to move technologies into the market and for beneficial use. An evaluation of Sweden's support/funding would be beneficial at this point to assess the progress so far made towards the projected impact and capture lessons to inform further Sida support to biosciences research and innovation in eastern Africa.

icipe, therefore, intends to hire the services of a team of consultants to carry out an external evaluation of this sustained Sida support. The results of the evaluation will assist *icipe* and Sida to improve program implementation and inform the development of the next phase of BIO-INNOVATE.

2. Objectives

- 2.1 The objective of the evaluation is to report on the performance of BIO-INNOVATE Phase II in meeting set objectives and milestones, and to undertake an analysis of challenges and deviations. The evaluation shall not comment on auditing in the BIO-INNOVATE program.
- 2.2 The objective of the *review* is to, with the discussion on bio-sciences/bio-safety in Africa in mid-/end-90's and the motives for the start of BIO-EARN as a point of departure, present how these original ideas have developed and changed throughout the years. Discuss impact of 20 years of Sweden's support.
- 2.3 Based on the evaluation and the review, *discuss* ideas and different scenarios for possible continued support to BIO-INNOVATE as from 2022 and onwards.

3. Scope of Work

3.1 Evaluation of BIO-INNOVATE Phase II, 2017-2021

3.1.1 Focus of the evaluation

The evaluation will focus on the performance of BIO-INNOVATE Phase II against its set objectives and milestones. It will also include an analysis of challenges encountered (including the effect of COVID-19 pandemic situation) and how they were addressed, any new ideas and best practices introduced to ensure smooth implementation. Recommendations from the evaluation will be used to:

- a. ensure that BIO-INNOVATE Phase II, hereinafter “the programme” continues to align with Sida's Strategy for Research Cooperation (2015-2021), and
- b. improve programme implementation and if necessary reorient or change the present management and/or implementation approach. The evaluation shall focus on the BIO-INNOVATE Phase II and should include, but not necessarily be limited to:
 - i. an evaluation of the overall progress and results from the inception of the current phase until the now,
 - ii. interrogate the progress, achievements and challenges with reference to the Results Based Framework (RBM) as well as Annual Work Plans and the extent to which the programme is fulfilling its mandate and delivery of expected results,
 - iii. the context in which the programme has been and is acting, as well as conclusions, recommendations and outlook for the future.

3.1.2. Framework for the evaluation

Keeping in line with the programme's theory of change, results frameworks and implementation plans, the evaluation shall assess the following issues:

- a. *Relevance*

Evaluate the extent to which the programme design and intervention support the Sida strategy as well as ongoing national, regional and continental African strategies in bio-sciences research and innovation.

The keys of interest will include:

- i. Is the program consistent and in line with these strategies?
- ii. Is the program in line with the national and regional environmental programs and priorities, and will it contribute to be a part of them?
- iii. Is there clarity and adequacy of program design with respect to logical consistency of inputs, activities, outputs and progress towards achievement?
- iv. How appropriate are the indicators for monitoring performance and to what extent are they being used by the program management to track progress?
- v. Has the program taken into consideration recommendations given in the BIO-INNOVATE Phase I Final Evaluation of July 2015?

b. Effectiveness

Assess the extent to which the program has achieved its goals and objectives of this phase. The following questions will be important:

- i. To what extent has the program contributed to research, innovations, policy and decision-making in the region?
- ii. To what extent are the identified and anticipated outcomes results of program activities rather than external factors?
- iii. What are the reasons for the achievement or non-achievement of outputs or anticipated outcomes?
- iv. Were the Results Based Management (RBM) framework and the Annual Work Plans effective in directing implementation of the program, or what could be done to make implementation more effective?

c. Efficiency

Assessment of the extent of output delivery in relation to inputs, including assessments of expenditures vis-à-vis activities. The following questions will be important:

- i. Has the program been managed and set up with reasonable regard for efficiency? Has BIO-INNOVATE Standard Operational Procedures (SOPs) helped in program implementation, including internal management and control assessments of universities and research institutions as well as anti-corruption practices?
- ii. What measures have been taken during planning and implementation to ensure that resources have been efficiently used?
- iii. Were the outputs delivered as agreed? Could the same outputs be achieved by other means at a lower cost in the same or shorter time?
- iv. Is the original design of the program still valid in relation to the approved financial resources, or is there a need to reassess the scope?
- v. Have support, monitoring and evaluation to sub-projects at universities and research institutions been adequate?

d. Sustainability

Assessment of the long-term continuation of program activities and benefits. The following questions will be investigated:

- i. To what extent is the sustainability of the program being addressed?
- ii. What is the extent of ownership of the program among stakeholders and beneficiaries?
- iii. Is the program sharing experiences with other similar initiatives – at national, regional, African and/or international level?
- iv. Are the partnerships sustainable beyond the program’s lifespan?

3.2 Review of Sweden’s support to Bioscience research and innovation in East Africa from 1999-2020 (BIO-EARN Phase I and II to BIO-INNOVATE Phase I and II) - the journey

3.2.1 Focus of the review

The review will highlight how the original ideas of BIO-EARN have developed and changed throughout the years and evolved into BIO-INNOVATE and present the impact of 20 years of Sweden’s support to bioscience research and innovation in eastern Africa.

The review will focus on the following aspects of Sweden’s support:

- a. Discussion of the ideas on support to bio-sciences research and policy development as well as bio-safety regulatory capacity building in Africa in the mid-/end-90’s,
- b. The set-up of BIO-EARN, the regional cooperation, the position of African and non-African stakeholders, and Sida,
- c. Objectives and the theory of change, as expressed in the program documents and applications to Sida for support to BIO-EARN/BIO-INNOVATE,
- d. Progress and challenges, as expressed in reporting from BIO-EARN/BIO-INNOVATE,
- e. Assessments from Sida, as expressed in memos for continued support to BIO-EARN/BIO-INNOVATE,
- f. Review of program evaluations documents, especially the mid-term reviews, the external evaluations, and a review of “A Decade of Bio-science Development in Eastern Africa” – assessments, conclusions, and recommendations.

3.2.2 Assessment of the impact of 20 years of Sweden’s support

This component will discuss the impact and lessons learnt of 20 years of Sweden’s support to bio-sciences research and innovation in Africa through the BIO-EARN and BIO-INNOVATE programs.

The following questions will be sought:

- a. What is the impact in research training, research capacity, policy/decision-making and management, communication and partnerships, etc.?

- b. What is the perception among the beneficiaries and other stakeholders of the progress in regional development made by BIO-EARN and now being made through BIO-INNOVATE program, and do they anticipate benefitting from the outcomes?
- c. To what extent have the BIO-EARN and BIO-INNOVATE programs contributed to the strengthening of institutional capacities in sub-projects at universities and research institutions?

3.2.3 Future scenarios for BIO-INNOVATE Phase III

This component of the evaluation will focus on discussing the possible continued support, different options/scenarios, to a BIO-INNOVATE phase III after 2022 and onwards in the context of the current landscape of bio-sciences research and innovation and bio-economy development in Africa. Key issues to assess may include:

- a. The set up/model, moving further towards the market/start-up funds with a selected number of promising innovations, and/or take a step backwards and start all over again with new promising ideas/innovations,
- b. The balance between support to research, innovation and/or policy development and advocacy,
- c. Whether support should be to fewer, larger and a limited number of sub-projects,
- d. Should support be focused geographically within the continent, have an international/global outlook or a regional co-operation outlook?
- e. Implications of African strategies and priorities e.g. African Union Development Agency (AUDA-NEPAD) for continued funding?
- f. What would support to female researchers entail; would the focus be on scholarships, fellowships, secondments, or networks?
- g. What would be the thematic direction of the support? And how would health related issues be captured?
- h. What would be the priorities for program monitoring and evaluation, communication and dissemination of results and learning?
- i. What would be the synergies with national programs, e.g. National Agricultural Research Systems, Sida supported bilateral research co-operations, etc, regional economic blocks, and international organisations, e.g. *icipe*, BecA/ILRI Hub, the CGIAR system, etc, and synergies with PASET Regional Scholarship and Innovation Fund for applied sciences, engineering and technology?
- j. How would long-term financial sustainability be guaranteed? What would be needed to bring new donors on board?

4. Methodology and Time Frame

4.1 Methodology

The evaluation will be undertaken by a team of two individual consultants. The assignment shall be carried out as a combination of desk reviews, interviews and field visits to the BIO-INNOVATE Program Management Office (PMO) in Nairobi as well as to selected sub-projects at universities and research institutes in partner countries in Eastern Africa (i.e. Burundi, Ethiopia, Kenya, Rwanda, Tanzania and Uganda). The team would also visit or make contacts with relevant institutions in Sweden that participated in either BIO-EARN or BIO-INNOVATE

programs. Where not possible to undertake field visits due to the ongoing COVID-19 pandemic situation and related travel restrictions, staff at sub-projects will be interviewed electronically (Skype, Zoom, TEAMS, etc). The BIO-INNOVATE PMO in Nairobi and staff at sub-projects will assist in setting up meetings and making all necessary preparations. The Consultants may be assisted by field research assistants who will preferably be PhD students enrolled in relevant disciplines in universities in Eastern Africa.

4.2 Timeframe

The assignment is expected to commence on 19 October 2020 and should be completed by 30 March 2021. Table 1 shows the timelines for the expected outputs.

Table 1: Timeline for outputs/deliverables

No.	Output	Duration	Progress	Due date	Remarks
1	Inception report (not more than 10 pages), containing the following: a. Detailed methodology, including evaluation framework. b. Data collection tools, including key informant interview questions to answer the evaluation questions. c. Workplan and timeline for the assignment. d. List of documents to be reviewed. e. List of persons/stakeholders to be interviewed.	4 days	20%	Mid-Oct. 2020	To be reviewed and approved by <i>icipe</i>
2	Evaluation launch meeting (virtual) with <i>icipe</i> management and Program Management Team.	1 day	N/A	Mid-End Oct 2020	To discuss logistics and kick off the evaluation
3	Desk review of Program documents, including the Program proposals, the M&E framework, periodic monitoring reports, technical reports, minutes of the Program Annual Review Meetings, field reports and other relevant documents.	20 days	N/A	Mid- Nov 2020	N/A
4	Data collection and analysis, includes consultations with key stakeholders, including direct sub-project beneficiaries in selected sites; Program staff; Program partners, members of the Program Advisory Committee, officials of relevant government institutions, and other relevant actors.	22 days	N/A	End- Jan 2021	N/A
5	Debriefing on preliminary findings in a meeting with Program Manager and other staff either physically at <i>icipe</i> or virtually.	1 day		Beginning Feb 2021	To review progress
6	Draft report of findings, lessons learned and recommendations.	10 days	40%	Mid Feb 2021	To be reviewed and approved by <i>icipe</i> and Sida

7	Final report of findings, lessons learned and recommendations.	5 days	40%	End Feb 2021	To be reviewed and approved by <i>icipe</i> and Sida
8	Presentation of the report at the <i>icipe</i> /Sida Annual Review Meeting	1 day	N/A	End Mar 2021	Physical meeting at <i>icipe</i> in Nairobi, Kenya.

5. Resources

icipe and Sida will provide the consultants with all the relevant documents for the evaluation. *icipe* will also provide contact information for the persons to be interviewed or sites to be visited and make the necessary logistical arrangements for the consultants' travel, accommodation and meals. Sida will provide the consultants with previous external evaluations of BIO-EARN and BIO-INNOVATE Phase I, so that they do not have to start the review entirely from scratch.

6. Reporting requirements

The consultants shall deliver an evaluation report not exceeding 50 pages including references (Layout Margins Normal, font Times New Romans, size 12). The report shall include an executive summary (10%), and sections on background (10%); findings (40%); recommendations (35%), and references and other sections (5%). The annexes may include the Terms of Reference, evaluation and impact assessment methodologies, list of meetings attended, list of persons interviewed, and documents reviewed, data collection tools, clean quantitative/qualitative data using agreed data management software, and other documents as may be deemed appropriate.

7. Payment schedule

- a. 20% on acceptance (by *icipe* and Sida) the submitted inception report detailing the understanding/interpretation of the terms of reference and the methodology of carrying out the assignment,
- b. 40% at the submission and acceptable (by *icipe* and Sida) of draft report of findings, lessons learned and recommendations,
- c. 40% after acceptance (by *icipe* and Sida) of a final report of findings, lessons learned and recommendations.

8. Skills and experience

- a. A PhD in social science, chemical and engineering sciences, agriculture, environment and natural resources, business management, monitoring and evaluation or other relevant disciplines, with at least 5 years' proven experience in program evaluation in Sub Sahara Africa (SSA); or Masters degree with at least 10 years' proven experience in program evaluation in SSA.
- b. Strong knowledge of the development issues in SSA, national and regional science, technology and innovation policies as well as the African Union Agenda 2063 and United National Sustainable Development Goals (SDGs) 2030.

- c. Strong logical sense of political, economic, social and environmental situation in Sub-Saharan Africa.
- d. A good understanding of innovation and the role universities and public research institutes play in the process of transferring knowledge to end users.
- e. Experience in dealing with international research or development institutions.
- f. Practical experience in commercializing technology, business incubation and technology start up is an added advantage.
- g. Previous experience with evaluation of large and similar regional science and innovation Programs or projects.
- h. Demonstrated skills in collecting, analyzing and processing data.
- i. Excellent writing and communication skills.

9. Criteria for selection of the consultants

The selection criteria to be used is a combined scoring method, where the qualifications, competence and track record will be weighted at a maximum of 40%, consultant's approach and methods at a maximum of 30% and the price offer at a maximum of 30%. Each consultant will be asked to submit a proposal as a preliminary criterion for being included on the team of consultants.