

Bio-Innovate Newsletter

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Message from the Program Manager

It gives me great pleasure to welcome you to the first of a series of newsletters that Bio-Innovate Program will be sending out quarterly to share programmatic progress news and events with our audience and engage our readers on current issues in biosciences innovation and bio-policy.

The challenge Africa is currently facing is how to create an enabling environment to integrate advances in biosciences into key economic sectors such as agriculture, environment, and industry. Bio-Innovate Program was established in 2010 to be a biosciences innovation and policy platform for creating effective partnerships along bioscience innovation value chains in the eastern Africa region. In order to deliver bioscience innovations to the market place to address specific problems, there is a need to work with the right partners along the product development value chain while ensuring that these partners are actively involved in the project implementation process from inception to the end.

The Program's vision is to be a model of how to transform research to innovation and ultimately pass these products to the end user, and in the process ensure that science, technology and innovation actively contributes to the socio-economic development and improve livelihoods in the region. To actualize this concept, the Program consortia projects are designed to include key actors along innovation value chains including scientists, private sector, and other market actors. In this regard, Bio-Innovate program is collaborating with universities, national and international research institutes, private sector companies, regional initiatives, NGOs and other developmental actors.

This first issue introduces the reader to what the Program is all about including the thematic focus and ongoing project activities. In subsequent issues, we will share with you programmatic activities from the field, progress, achievements, and challenges. Your views and comments are welcome.

Dr Seyoum Leta

THE PROGRAM AT A GLANCE

Program Focus	Biosciences Innovations and Policy
Thematic Areas	<ul style="list-style-type: none"> • Crop Production and Adaptation to Climate Change • Environmental Protection and Management • Technology Incubation • Innovation Policy Analysis
Target Countries	Burundi, Ethiopia, Kenya, Rwanda, Uganda, Tanzania
Consortia Projects	9
Partners and Collaborators	57
Funding	Sida and Private sector
Duration	2010 – 2014

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How Bio-Innovate Program works

Overview



Patrick Okori, a co-principal investigator in project 1 gives a field tour of sorghum trials in Northern Uganda.

The Bio-resources Innovations Network for Eastern Africa Development (Bio-Innovate) Program was established in 2010 to support multi-disciplinary biosciences and product oriented innovation activities in the eastern Africa countries of Burundi, Ethiopia, Kenya, Rwanda, Tanzania, and Uganda. The program comprises of nine innovation and policy consortia projects involving 57 partnering and collaborating institutions drawn from the six countries and outside the region. The program promotes the use of modern biosciences to improve crop productivity and resilience to climate change in smallholder farming systems, and to increase the efficiency of the agro-processing industry to add value to local bio-resources in a sustainable manner. The program has so far sent out two calls for proposals on Adapting to Climate Change in Agriculture and the Environment and Technology Incubation and Policy Analysis in eastern Africa that brought forth

the nine consortia projects funded for a period of three years from 2011 to 2013. The Program works closely with National Councils of Science and Technology in eastern Africa and the African Union – NEPAD Planning and Coordinating Agency (NPCA) in strengthening regional collaboration in science and technology and to push for the continent’s ability to exploit opportunities afforded by modern biosciences in line with Africa’s Science and Technology Consolidated Plan of Action. The Program is supported by the Swedish International Development Cooperation Agency (Sida) with a grant of SEK 90 Million (USD 12 M) for five years from 2010 to 2014. In addition, complimentary private sector players have been identified and invited to “invest” through matching funds as partners within respective consortia projects.

Bio-Innovate Program builds on previous investments, achievements, and experiences of its predecessor, Eastern Africa Regional Programme and Research Network for Biotechnology, Biosafety and Biotechnology Policy Development (BIO-EARN) and other regional initiatives. While BIO-EARN focused on building the region’s research for development capacity by training and expanding the knowledge and skills of African scientists and building R&D infrastructure, Bio-Innovate sets to harness this resource and mobilize the knowledge generated in delivering innovative solutions to solve a wide range of developmental issues in the eastern Africa region.

The Program is hosted at the International Livestock Research Institute (ILRI) and its day-to-day management is undertaken by a Program Management Team with the support of the technical advisory committee which provides oversight on implementation, review of the competitive grant scheme and monitoring and evaluation of activities.

Bio-Innovate is “Business Not-as-Usual”

The Program has gained from the experience of other regional initiatives carrying out similar work in the past and with the lessons learnt, the Program is using a unique approach in an attempt to deliver science & technology and innovation to the market place and ensure sustainability of the innovations.

There is great emphasis on partnership in implementing projects by creating innovation platforms through consortia that bring together key players in the product development value chain with a keen eye on uptake and sustainability of the innovations.

The Program while funding bioscience innovation activities is also addressing policy issues. An enabling policy environment is a prerequisite to supporting product development and delivery of innovations.

For a wider impact and in an effort to utilize resources efficiently, the Program has adopted a regional approach in addressing developmental issues, cognizant of the similarities in development challenges across the region whilst leveraging expertise and resources available in the region to promote sharing of limited R&D infrastructure and competencies.

The Program has designed an elaborate competitive grant mechanism to identify and fund innovative ideas that are tailored to address specific problems in line with the development agenda of the region. In addition, the Program has adopted a results-based management (RBM) approach in managing and implementing project activities. The approach focuses on results and outcomes as opposed to activities and outputs for impact.

Program's thematic focus and projects

The Program supports nine consortia projects that fall under four broad thematic areas:



Theme 1: Improving crop productivity and adaptability to climate change in small scale farming systems

Three consortia projects are funded under this theme. The projects focus on six crops: sorghum, millet, cassava, sweet potatoes, potatoes, and beans. The aim of these projects is to generate and promote technologies to boost productivity of strategically important crops in eastern Africa under the threat posed by climate change. This thematic area seeks to develop crop varieties that are high yielding and resilient to biotic and environmental stresses and that possess useful traits like good processing and nutritional quality; establish a platform for exchange of germplasm in the region; and design and test models for quality seed multiplication and delivery for these crops. Project 1 on delivering new sorghum and finger millet innovations for food security and improving livelihoods in eastern Africa has eight partners, project 2 on enhancing food security through improved seed systems of appropriate varieties of cassava, potato, sweet potato resilient to climate change has 10 partners and project 3 on value added bean technologies for enhanced food security, nutrition, income and resilience to cope with climate change and variability challenges in eastern Africa works with eight partners.

Theme 2: Waste treatment, production of bio-energy from renewable bio-resources and securing fresh water resources

The theme encompasses **two projects** that aim to develop agro-industrial waste and wastewater treatment technologies and production of value added products including bio-energy, mushroom and bio-fertilizers

from waste generated from sisal, coffee, banana, leather processing industries and slaughterhouses. The use of wastes for production of value added products would serve the agro-processing sector in the region by making it more resource efficient and sustainable and more competitive. Project 4 on sustainable utilization of agro-industrial waste through integration of bio-energy and mushroom production has three partners while project 5 on integrated process for sustainable agro-process waste treatment and climate change mitigation in eastern Africa has three partners.

Theme 3: Innovation incubation and promotion of targeted value chain

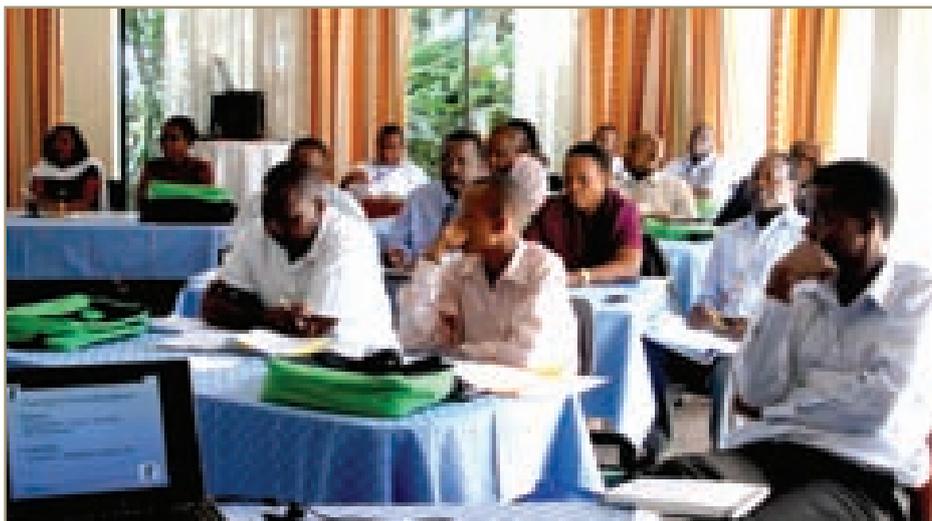
Three projects are supported under this theme that aims to seek opportunities for innovation incubation and preliminary testing of products for economic feasibility, marketing, and acceptability with wide applications in the region. The focus is on value added products for sorghum and millet, bio-enhanced maize and vegetable seeds and seedlings and industrial enzyme applications. Project 6 on use of biosciences for value addition and diversification to enhance commercialization of sorghum and millet products in eastern Africa has six partners, project 7 on bio-enhanced seeds and seedling for eastern Africa has four partners while project 8 on industrial enzymes for sustainable bio-economy: Large scale production and application in industry, environment, and agriculture has six partners.

Theme 4: Bio-resources innovation policy and sustainability analysis

This theme is informed by the need to provide a supportive policy environment for the ultimate development and promotion and uptake of bio-resource innovations. The goal of the project under this theme is to provide policy support services that are necessary to move research ideas and products to the market, and ultimately lead to a vibrant bio-economy in eastern Africa. **One project** addresses this thematic area. It is expected that through this project, Bio-Innovate partner organizations will gradually be able to develop and commercialize their bioscience innovations and that policies, strategies and plans to promote bioscience innovations will be more prominent in the policy and development agenda in eastern Africa. Project 9 on bioscience innovation policy analysis for eastern Africa has nine partners.

Program strategy for effective implementation of projects

Strengthening project management capacity



Finance Officers who attended the Results-Based Project & Financial Management training held in March 2012. The training brought together project implementers from all the 9 consortia projects.

Photo credit: Bio-Innovate-ILRI/
Samuel Mungai

Bio-Innovate has adopted the Results-Based Management Approach in conducting its business for effective management of the Program and supported projects and optimal delivery of results. In March this year, Results-Based Project and Financial Management training was conducted for the implementing partners to strengthen their institutional capacity and individual

skills in results-based project management. In addition, a comprehensive Standard Operating Manual has been developed to guide and facilitate effective management of the consortia projects. This manual covers all aspects of project management from inception to completion. The manual is available on the Program's website.

Evaluating our projects: Monitoring and review exercises to improve project implementation



Jacob Mignouna, a TAC member presents his assessment of one of the projects.

To ensure funding provided for projects is being used efficiently and with maximum impact, the Program has developed a continuous and

rigorous monitoring and evaluation (M&E) strategy that requires all partners in the consortia to participate in its implementation. The M&E system has an internal and external monitoring component. The lead implementing institution including the project consortium leaders, principal and co-principal investigators execute the internal component while the Program Management Team (PMT) working with the Technical Advisory Committee (TAC) undertakes the external element. In early 2013, an independent reviewer will undertake the evaluation of the Program and supported projects. This year, already the PMT has had the opportunity to review the progress of five of the nine consortia projects. This exercise that is conducted annually is set to continue until October 2012 and will enhance project implementation process by identifying and resolving challenges more efficiently.

Farmers' voices from the field: Implementing projects with the farmers in mind



Grace Akol, sorghum farmer

In Northeastern Uganda, Bukedia District, Makerere University has been working on 'delivering new sorghum and finger millet innovations for food security and improving livelihoods in eastern Africa' with a farmer's group known as Popular Knowledge (Wo) Men's Initiative (PIKWII), to test drought resistant sorghum varieties adaptable to agro-ecological regions that receive low rainfall. PIKWII is a farmers group that trains its members on good agronomical practices to achieve maximum yields and helps the farmers sell their produce using its networks and thus are able to fetch good prices for the farmers by cutting out middle men in the value chains. Grace Akol a PIKWII member is happy with the sorghum varieties from Makerere University, as they possess one or more characteristics that farmers growing sorghum in the region are looking for including fast maturity, drought tolerant, disease resistant, and even plant height with the sorghum head at eye level. With the promising sorghum lines that Makerere has promised to deliver, farmers like Grace will truly benefit.



Emmanuel Musabyimana, potato farmer

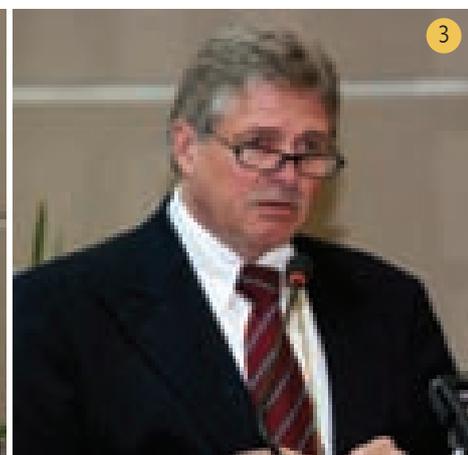
Emmanuel Musabyimana is a farmer from Musanze District in Rwanda's Northern Province. He owns a five-acre piece of land on which he practices subsistence farming. With the small acreage that farmers have for farming activities in many parts of Rwanda, Emmanuel's land size is considered large. Working with Rwanda Agricultural Board (RAB), a partner in project consortium 2 on 'enhancing food security through improved seed systems of appropriate varieties of cassava, potato and sweet potato resilient to climate change in eastern Africa', Emmanuel is set to become a seed multiplier and distributor. RAB is constructing a screen house on a section of Emmanuel's land that will be used for multiplication of potato seed. Emmanuel's participation in the project is part of an initiative for creating an innovative and sustainable seed delivery system for potatoes in Rwanda. The idea is to have farmers multiplying high quality potato seed for other farmers thus creating sustainable value chains that will continue well after the completion of the project.



Maria Kopito, beans farmer

Working with Kenya Agricultural Research Institute (KARI-Katumani), a partner in project 3 on 'value added bean technologies for enhancing food security, nutrition, income, and resilience to cope with climate change and variability challenges in eastern Africa', Maria Kopito is a Maasai farmer growing beans in Ntulele, Narok County, Kenya. She gets her seeds from KARI-Katumani who provide her with better yielding bean varieties, adaptable to her region, which hardly receives sufficient rainfall to gainfully undertake rain-fed farming. Participating in a recent farmers' participatory bean selection event conducted by KARI-Katumani, Maria was part of hundreds of farmers who through the training and guidance from KARI-Katumani scientists were able to agronomically identify and select bean lines that are resistant to disease, tolerant to drought, early maturing and better yielding in the field trials in Narok. "I have been farming for the last eight years and with the recent support from KARI-Katumani, I foresee increased yields from the promising bean varieties KARI-Katumani will give me", Maria said happily. Narok is primarily a large-scale wheat growing region and only farmers who can afford the intensive capital input required can grow wheat. The rest are left to either hire out their large tracks of land or grow food crops of which only beans do well due to the short maturation period required.

Bio-Innovate Program in photos



1, 2, 3, Calestous Juma, professor at Harvard, Carlos Seres, ILRI's Director General and Bruce Scott, Partnerships and communications Director then addressing the gathering during the Bio-Innovate Program launch in March 2011.

4, Invited guests and project leaders after the launch of the Bio-Innovate Program in March 2011.



5, Jimmy Smith (in the foreground sitted) Director General ILRI, the Program Management Team (PMT) and participants of the 'Experience Sharing and Results-Based Management Training for project and financial managers in March 2012.

6, Gity Behravan (third from right), First Secretary and Sida Representative for Regional Cooperation Embassy of Sweden Nairobi, after participating in the technical advisory committee project review meeting in April 2012.



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7, Theresa Sengoomba, TAC chairperson giving her comments during a review meeting for project 2 in Kigali, Rwanda in June 2012.

8, His Excellency Mahamouda Ahmed Gaas (middle), State Minister for Ministry of Science and Technology (MoST), Ethiopia during a courtesy call made by the PMT to his office in June 2012.

9, Project managers listening in during the 'Experience Sharing and Results-based Project Management training in March 2012

Donors and partners

Donors

Swedish International Development Agency (Sida)
Private sector matching funds

Partners

Universities from eastern Africa

Addis Ababa University (AAU-Ethiopia)
Hawassa University (HU-Ethiopia)
Jomo Kenyatta University of Agriculture and Technology (JKUAT-Kenya)
Moi University (MU-Kenya)
Maseno University (MSU-Kenya)
University of Nairobi (UoN-Kenya)
Pwani University College (PC-Kenya)
National University of Rwanda (NUR-Rwanda)
Sokoine University of Agriculture (SUA-Tanzania)
University of Dar es Salaam (UDSM-Tanzania)
Makerere University (MAK - Uganda)

Universities outside the region

Swedish University of Agricultural Sciences (SLU-Sweden)
Lund University (LU-Sweden)
University of Georgia-Athens (UGA-USA)
University of Helsinki (UoH-Finland)
Brandenburg University of Technology (Germany)
Technical University of Denmark
National Institute for Interdisciplinary Science and Technology (NIIST-India)

National Research Institutes (NARIs)

Ethiopian Institute of Agricultural Research (EIAR-Ethiopia)
Institut des Sciences Agronomiques du Burundi (ISABU-Burundi)
Rwanda Agricultural Board (RAB)
Kachwekano Zonal Agricultural Research and Development Institute (KAZARDI-Uganda)
Kenya Agricultural Research Institute (KARI-Kenya)
Mikocheni Agricultural Research Institute (MARI-Tanzania)
National Crops Resources Research Institute (NaCRRI-Uganda)
Selian Agricultural Research Institute (SARI-Tanzania)

Regional Initiatives

Biosciences for Eastern and Central Africa (BecA-ILRI hub)
African Technology Policy Studies Network (ATPS Nairobi-Kenya)
Pan African Bean Research Alliance/International Centre for Tropical Agriculture (PBRA-CIAT)

International Research Institutes (IRCs)

International Crops Research Institute for the Semi-Aid tropics (ICRISAT)
International Potato Center Sub-Saharan Africa (CIP-SSA)
International Service for the Acquisition of Agri-biotech Applications (ISAAA)

Stockholm Environment Institute (SEI-Sweden)

Councils/Ministries for Science and Technology

Directorate of Science, Technology and Research, Rwanda (DSTR)
Kenya National Council for Science and Technology (KNCST)
Ministry of Science and Technology (MoST), Ethiopia
Tanzania Commission for Science and Technology (COSTECH)
Uganda National Council on Science and Technology (UNCST)

Private Sector

Kenya

Alpha Seed Company Limited
The Real IPM Company Limited
Kilifi Plantations
Kisima Farm
Trufoods Ltd

Tanzania

Banana Investment Ltd
Bassaajjabalaba Hides and Skin
Genetic Technologies International Ltd (GTIL)
Mohammed Enterprises Tanzania Ltd (Sisal Plantations)
Morogoro Ben's Winery (MBW)
Sumbawanga Agriculture and Animal Food Industry (SAAFI)

Ethiopia

Coffee Plantations Development Enterprise
Leather Industry Development Institute, Modjo Tannery and Bekas Chemicals Plc.
Addilo Complementary Foods Process Unit
Modjo Tannery Sc.Co.
Red Barna

Uganda

Centre for Research in Energy and Energy Conservation (CREEC)
Lisha Products Limited (Uganda)
Uganda National Seed Potato Producers Association (UNSPPA)

Rwanda

Urugaga Imbaraga (Rwanda)

Stakeholders

International Livestock Research Institute (ILRI)
Swedish International Development Agency (Sida)
AU-NEPAD Agency

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The Bio-resources Innovations Network for Eastern Africa Development (Bio-Innovate) Program supports multi-disciplinary biosciences and product-oriented innovation activities in the eastern Africa countries of Burundi, Ethiopia, Kenya, Rwanda, Tanzania and Uganda