Africa Innovations Institute

PROFILE

October, 2014

Africa Innovations Institute,
P.O. Box 34981,
Kampala, Uganda
www.afrii.org
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This booklet presents Africa Innovations Institute. It gives you an overview of the institute and is intended for readers who would like to know the setting and operations of the institute. It also guides potential partners and collaborators on areas of possible interest to them. Donors would find the programme areas particularly of interest.

The booklet covers the organization and management of the institute, its vision, mission and strategy; and the programmes and selected projects as of January, 2014.

The booklet is intended to give a brief synopsis of the institute and in no account attempts to present or was intended to present an exhaustive account of the institute and its activities. Readers interested in the deeper functioning of the institute are advised to visit the website at www.afrii.org or contact the Chairman directly.

Enjoy reading.

Professor G.W. Otim -Nape
CHAIRMAN
We at AfrII are here for a purpose: “to help those who need our help in order to survive better through farming.”

We do this by unleashing our collective intellects, dedication and innovativeness to making farming a more rewarding and fulfilling venture for those who depend on it for a living.

We believe that by doing this, God who created us for this purpose will reward us abundantly for helping his people survive better in a world full of challenges and frustration.
Who We Are
The Africa Innovations Institute (AfrII) is an indigenous, not-for-profit non-governmental center of excellence, established in 2005 and based in Kampala, Uganda.

AfrII undertakes research and innovations development on agriculture and food systems to ensure sustainable increase in farmers’ income, food and nutrition security and environmental sustainability in Eastern and Central Africa.

The institute brings together leading experts in agricultural and food systems innovations in Africa to adequately explore global science and the best innovations for accelerated agricultural development in Eastern Africa through participatory and consultative processes. These are aimed at contributing to the achievement of the Millennium Development Goals specifically 1&2 and the goals of AU/NEPAD’s comprehensive African agricultural development programme (CAADP).

Governance and Management
AfrII is governed by a Board of Directors headed by a Chairman; a management team headed by an Executive Director supported by Heads of Programmes and projects as determined from time to time depending on priorities and needs. An International Advisory Committee provides technical and management advice to the Board.

Our Vision
Smallholder farmers enjoying increased incomes and are assured of food and nutrition security.

Our Mission
To undertake innovative agricultural research and commercialisation of innovations that transform the lives and incomes of smallholder farmers while ensuring food and nutrition security and environmental sustainability.

Our objectives
1. To generate and accelerate utilization of knowledge and innovations for sustainable agricultural development and advancement of science and technology in Africa.
2. To facilitate learning and bridge information gaps through managing our knowledge base, publishing our research findings, sharing of lessons learnt and holding of conferences, seminars and camps.
3. To promote entrepreneurship and accelerate transformation of knowledge and innovations into agri-business ventures through partnerships and linkages with private sector players in agriculture and industry.
4. To promote and participate in capacity development in agriculture, research, science, and innovations for sustainability of the agricultural sector.

Our mandate
Research and innovations development that transforms the lives of small holder farmers in eastern and central Africa.
The Context
AfrII realizes the fact that for agriculture to contribute to achieving the MDG and CAADP goals of poverty reduction and food security, innovative approaches are needed. Such approaches would call for transforming research results or inventions into innovations, which ensures that farmers and businessmen turn new knowledge and technologies into food on their plates and/or income in their pockets. To do this, AfrII undertakes innovative research and provides technical backstopping to farmers and other actors along the value chain. It also works with the end-users to develop markets and connects producers and processors to markets and sources of funds and services; and forms institutional arrangements that unite groups of enterprising farmers, processors and other entrepreneurs and helps link them with potential partners and other services.

Partnerships and Linkages

The concept of partnership is fundamental to what we do - the development of new institutional arrangements and improved partnerships among stakeholders and remains central to innovations in agricultural production systems and the development of the sector as a whole. To achieve this, AfrII forges SMART partnerships with public, private, civil society, philanthropic and funding organizations that can help in addressing the challenges of translating research results into goods and services.

Our development work is planned and implemented in close collaboration with numerous international and national partners, institutions and individuals; local community based structures, farmer organizations, the media and academia.

Funding
AfrII’s work is financed through; private donations; enterprises; foundations, and; through general fundraising efforts. Additionally, AfrII has benefitted from partnerships with sub-sector associations; saving and credit cooperatives; micro finance institutions, and; private sector actors in various industries.

Organizations who have provided funding to AfrII include; the Government of Uganda, the Bill and Melinda Gates Foundation, Department for International Development (DFID-UK), IDRC Canada, Rockefeller Foundation, European Union, Austrian Development Agency, The Food and Agricultural Organization of the United Nations (FAO), United Nations Development Programme, the Asden Trust-UK, the Sainsbury Family Charitable Trusts and the Foresight Programme of the Department for Universities and Innovations-UK.

Where we work
AfrII has a Secretariat located in Kampala, through which national and international level activities are conducted and field level operations are coordinated. Current operations cover eastern Africa and specifically Uganda, Rwanda, Burundi, Tanzania, Ethiopia, South Sudan, Burundi, Democratic Republic of Congo, and Kenya. Branches in Uganda are located in Kumi (eastern Uganda), Luwero (central Uganda) and Lira (northern Uganda) with possibility of expansion into other regions.
Overview

Commercialization of staple commodities and responding to market opportunities remains a key challenge to commercialization of agriculture in Africa. Anecdotal evidence suggests that, following liberalization, there is a growing and unfulfilled demand for most African food crops in local, regional and international markets.

Yet smallholder farmers in Eastern Africa have not been able to respond effectively to market reforms and exploit opportunities because of a number of structural and institutional constraints that limit market participation.

Through this programme component, AfrII works with key actors across prioritized commodities to address key constraints at both the supply and demand side of the value chain; support value addition; and enhance participation by smallholder farmers and SMEs and commercial firms in the value chains; and in commercialization of commodities.

Project 1: Cassava: Adding Value for Africa - II (C:AVA II)

C:AVA II - Is the second phase of the C:AVA project and is a global consortium comprised of; the Natural Resources Institute of the University of Greenwich UK and Federal University of Abeokuta, Nigeria; Ghana, Food and Nutrition Center, Tanzania; Chancellor College, University of Malawi; and Africa Innovations Institute, Uganda. The C:AVA II project aims to develop value chains for High Quality Cassava Flour (HQCF).

Project Goal

To increase the incomes of at least 16,000 smallholder households and processing employees in northern and eastern Uganda by improving and developing high quality cassava flour value chains over five years.

The Project aims at commercializing cassava for industrial use and developing markets through promoting the use of HQCF as a versatile raw material/intermediary product for carbohydrate-based and starch-based products for commercial application in bakeries, biscuit manufacturing, brewing, plywood / paper-board, animal feed, food industries, starch and others.

Mr. Michael Ikara of Popular Knowledge Women Initiative (P’KWI) Association in Kachede village Malera sub-county Bukeea district digging on his farm, where he has adopted proper spacing, row planting and timely weeding of cassava to boost productivity and supply of fresh roots for processing into High Quality Cassava Flour under the Cassava: Adding Value for Africa II (C:AVA II) project. C:AVA II is a consortium comprised of NRI-UK, FUNAAB-Nigeria, UNIMA-Malawi, FRI-Ghana, TFNC-Tanzania and AfrII-Uganda, and funded by the Bill and Melinda Gates Foundation.
It focuses on three key intervention points in the value chain:

1. Ensuring a consistent supply of raw materials;
2. Developing viable intermediaries acting as secondary processors or bulking agents in the value chains;
3. Driving market demand and building market share in food and non-food industry.

Through the C:AVA project the African Innovation Institute works to support rural smallholder farmers kick-start micro-enterprises along the HQCF value chain; exploit options for industrial application of cassava and cassava products, and; address challenges that limit cassava value chains reaching their full economic potential.

This objective is achieved through a number of interventions including; Farmer micro-enterprise institutional development. Through this, AfrII works to strengthen farmers’ institutional capacity for collective processing and marketing by supporting them to establish structures along the value chain at different community levels.

Key Activities:
- The C:AVA project focuses on activities directed towards farmer micro-enterprise institutional development.
- It also supports markets development and linkages along the value chain.
- AfrII also conducts activities geared towards ensuring quality, standards and certification along the HQCF value chain.

**Project 2: Sesame improves livelihoods of smallholder farmers in Northern Uganda**

Funded by the Austrian Development Agency (ADA) and led by ICRISAT Nairobi, this project aims at increasing the incomes of more than 6,000 smallholder households, entrepreneurs, and employees in the value chain by at least 20% from production, processing and marketing of high quality sesame grains in diversified markets, regionally and internationally.

The project pursues the following objectives:
- Assess, identify and develop current and potential growth markets for high quality sesame grains and products
- Removing constraints to sesame productivity and post-harvest quality
- Scale-up and scale-out successful technologies and approaches to improve chain competitiveness
- To enhance the capacity of value chain actors to meet end-user demands for increased reliability, quantity and quality of sesame grains on a sustainable basis

The partners in the project are;

Austrian Institute of Technology and, the national Semi-Arid Institute, Serere. The project is generating exciting new knowledge on the genetics and new varieties of sesame and new technologies for controlling pests and diseases.

Another project, on research to increase productivity of sesame, is funded by the Food and Business Research Council of the Dutch Ministry of Foreign Affairs.
Climate Change Programme

The Context

Climate change is a big challenge to Uganda’s agricultural development. The weather is variable, unpredictable with frequent episodes of unusual weather events, such as floods, droughts and hailstones which have had negative socio-economic impacts on agricultural production and the wellbeing of the people.

It is postulated that the country will experience a pronounced negative impact of global climate variability and Uganda will be among the countries hardest hit by the immediate impacts of climate variability, especially in fragile ecosystems such as the cattle corridor, a region currently experiencing unusually severe droughts, frequent dry spells resulting into reduced water and pasture availability.

The situation has been exacerbated by increasing population pressure and changes in land use patterns which has resulted into food insecurity and heightened competition and conflicts over resources.

Project 1: Adaptation to the impact of climate change and variability

Overall Objective:
This project seeks to develop and enhance community based climate change adaptation initiatives and supportive policy measures that improve food security and health among rural communities in the Ugandan cattle corridor.

Specific Objectives:
• To characterize the resilience of agriculture-based livelihoods with regard to the effects of climate variability on food security and health among the rural communities in the Uganda cattle corridor
• To determine the past and current trends of climate variability in the project area and their likely impacts on food security and health on a local and regional scale with particular attention paid to agro-pastoralist livelihood systems.
• To strengthen community based livelihoods resilience and adaptation capacities and inform institutionalized adaptation initiatives and supporting socio-economic and policy measures.

Partners
Gulu University (Faculty of Science, Faculty of Medicine, Department of Geography); Makerere University (School of Veterinary Medicine; College of Health Sciences School of Gender and Women Studies; and School of Agricultural and Environmental Sciences)

Project 2: Securing Livelihoods in the Cattle Corridor of Uganda

Overall Objective:
To improve and secure livelihoods in the Uganda cattle corridor through ecosystem management.

Specific Objectives:
• To determine the livelihood-specific strategies and priorities for improving ecosystem management and securing improved livelihoods
• To introduce and promote functional and sustainable village level innovation platforms for promoting knowledge sharing on adaptation and resilience building targeting improved
Climate Change Programme

ecosystem management and improved and secured livelihoods
• To pilot specific strategies and innovations for improved ecosystems management and ensuring improved livelihoods of communities.
• To out-scale the promising and more successful strategies and innovations for wide-scale impact

Project 3: Enhancing Resilience to Climate Change and Variability: Cassava and Sweet Potatoes in Uganda

Overall Objective
To examine the impacts of climate change and variability on cassava and sweet potato production in Nakaseke and Nakasongola districts of the Uganda cattle corridor.

Specific Objectives
• To understand how the importance and roles of cassava and sweet potatoes have changed over the last decades and what factors (including environmental and climate variability) are responsible for these changes.
• To assess the impact of climate change and variability on yields of cassava and sweet potatoes, (the major food crops) in Nakaseke and Nakasongola districts and recommend best strategies to enhance resilience and adaptation to the changes.

Project 4: Climate Smart Agriculture Practices in the Cattle Corridor of Uganda

Climate-Smart Agriculture (CSA) which addresses the challenges of increasing productivity and incomes; enhancing resilience of livelihoods and ecosystems; reducing and removing greenhouse gas emissions from the atmosphere, would best address the challenges of climate change and variability in Uganda’s cattle corridor.

Despite its promise in bringing resilience to climate change impacts, CSA practices are less known in the cattle corridor and farmers are ignorant about it. Further the suitable CSA practices have not yet been demonstrated in the region and the agriculture policies, which should support it are absent. Thus this project aims at building capacity of communities and enhancing adoption of Climate Smart Agriculture (CSA) practices is crucial to achieving future food security and climate change goals in the cattle corridor of Uganda.

Project 5: School and Community Woodlot Project, Northern Uganda

Project Goal:
Increased availability of fuel wood, poles and other agro forestry products in schools and homesteads in five subcounties in Kole district

Objectives
• To establish and manage central nurseries for production of Candlenut trees (Aleurites moluccana) seedlings and Eucalyptus hybrid clones in primary schools, churches and communities in five subcounties of Kole district.
• To train community in vegetative propagation of Eucalyptus hybrid clones using macro cuttings.
• To train school teachers and pupils in primary schools in the five sub-counties of Kole district on agro forestry best practices, tree nursery and woodlot management.
• To establish and manage tree seedling nurseries and woodlots in a number of schools per sub-county in Kole district.
• To train parents of beneficiary pupils and support them to establish and manage wood lots in a number of house- holds in Kole district.
• To establish school agro-forestry clubs and tree planting association to further the intentions of the project on a sustainable basis.
The Context

During the last two decades, there have been incidents of high profile epidemics of human, animal and plant diseases worldwide. The burden is worst in Africa compared to other continents. For plants, diseases and pests are major threats to African food security. Cassava mosaic disease (CMD), for example, attacks one of the most important subsistence crops in sub-Saharan Africa and a particularly severe form of the disease was identified in Uganda in 1988.

For animal diseases, Africa is regarded as having the highest burden of infectious animal diseases in the world. For example, 12 of the 15 most contagious diseases (formerly OIE List A) are found. Furthermore, the spread of livestock diseases in Africa has worsened in recent years. A serious aspect of animal diseases is their impact on human health as regards to their ability to cause illness and even death of humans.

These burdens can produce a spiral of social, economic and environmental decline. Consequently, early detection, identification, monitoring and response are vital in developing cost-effective strategies to minimize their impacts.

Project 1: Establishment of the Eastern Africa Center for Infectious Disease Surveillance

Supported by AU-STRC, the Food and Agricultural Organization of the United nations (FAO) and the Fore-sight Programme of the UK Government Office of Science and Innovations (Government of UK) this project is intended to initiate start up activities that will lead to the implementation of the provisions of the AU policy framework “AU Science and Technology Framework for the Detection, Identification and Monitoring of Infectious Diseases in Africa”, through the creation of the Eastern Africa Centre for Infectious Disease Surveillance (EACIDS) and the implementation of disease surveillance research, networking, knowledge and information sharing using the “One medicine” concept.

The main purpose of the project has been to initiate start up activities that will lead to the implementation of the AU policy framework “AU Science and Technology Framework for the Detection, Identification and Monitoring of Infectious Diseases in Africa in eastern Africa.”
Specific objectives were:

- Undertake an inventory of institutions, programmes and individuals involved in plant, animal and human infectious disease surveillance in eastern Africa and challenges they face.
- Seek consensus, among institutions and individuals involved in infectious diseases (animal, human and plant) surveillance activities in the region, for the feasibility and scope and a roadmap for the development of an initiative to support crosssectoral (plant, animal and human) and interdisciplinary management of infectious disease risks in the region.
- Identify and seek consensus on strategic infectious disease priorities, develop a business plan and a program of action for implementation in the region.
- Promote networking among institutions working on infectious diseases in the Eastern Africa region to undertake enabling research, in partnership with their counterparts in north, which will underpin the surveillance programme in Eastern Africa.

A report concerning stakeholders' views and the status of disease surveillance capacity and programmes in the Eastern African region has been published. A database has been established and can be visited at www.eacids.org. EACCDS has developed a strategy and business plan and is looking towards implementing it.

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**Africa Future Disease Risks: Animals**

- Trans-boundaries animal diseases/major epidemic diseases that limit market access: FMD, Peste des Petits Rumunants (PPR), CBPP;
- Zoonotic diseases: HIV related infections, Avian influenza;
- Vector borne or associated diseases: Haemorrhagic fever-African Swine fever (ASF), wildlife derived haemorrhagic fevers, aquatic haemorrhagic diseases.

**Africa Future Disease Risks: Plants**

- Air borne (mostly fungal diseases): spores can be carried over long distances by wind or jet currents, their rapid spread can overwhelm any limited capacity to contain them: rusts e.g. on maize, coffee.
- Vector borne (mostly viral diseases): vector populations may grow or change as crop intensification increases and other agronomic and climatic changes occur.
- Seed borne diseases (mainly fungal, bacterial and viruses): will arise due to intensification, commercialization of agriculture and increasing regional or global agric trade.
The Context
Capacity, the ability of individuals, organizations and societies to perform functions, solve problems, and set and achieve goals to the satisfaction of stakeholders is critical in national and regional developments. Several studies have identified this element as a critical limiting factor in African agricultural development. Consequently, sustainable creation, utilization and retention of national and regional capacity to effectively implement agricultural development programmes in order to improve people’s livelihoods become fundamentally important.

This Programme supports national and regional organizations, programmes and institutions to develop their individual, organizational and societal capacities for implementation and sustainable management of selected development programmes, commodities, pests and disease situations. The specific projects in the programme include;

Project 1: Enhancing the Science, Technology and Innovation Capacity of Root and Tuber Crops in ACP countries

The ACP Root Crops project aims to strengthen the science and technology capacity of scientists to use tropical root and tuber crops to contribute to a wide range of development issues including poverty reduction and food security.

Overall Objective
To strengthen the science, technology and innovation capacity of ACP countries to use tropical root and tuber crops to contribute to a wide range of development issues within the context of local needs and resources.

Specific Objectives
- To incorporate relevant strategies for root and tuber crops into national and regional policies
- To develop best practices in enhancing capacity to use science, technology and innovation documents
- To enhance the degree of interaction between knowledge providers and users through participatory approaches
- To build on existing knowledge used by enterprises and civil society
- To improve the effectiveness of knowledge providers at working to meet the needs of industry and other end users
- To increase the number of joint proposals developed between research users and providers

Project 2: Building Science and Innovations in Sustainable Management of Infectious Diseases - Eastern Africa

Overall Objective
The overall objective of the project is to contribute to increased agricultural production and food security in East Africa through creating an enabling environment, strengthening and utilizing human and institutional capacity for sustainable management of crops and livestock diseases in East Africa.
**Capacity and Institutional Development Programme**

**Specific Objectives**

- To strengthen the capacities of frontline crop and animal health practitioners and communities in surveillance and management of pests and infectious diseases of crops and livestock.
- To support the development of favorable policy environment for implementation of sustainable crop and livestock pests and disease surveillance and management.
- To strengthen advocacy, information and knowledge management and sharing on crop and livestock pests and disease surveillance and management.
- To strengthen cross-border co-operation on crops and livestock pests and infectious disease surveillance and management.

**Projected Outcomes**

- At least 900 frontline crop protection and veterinary staff of agriculture and livestock ministries, parastatals, private sector and civil society organizations trained as Training of Trainers (ToTs) with skills and competencies in crop and livestock disease surveillance and management.
- 324,000 immediate beneficiaries and 11,340,000 final beneficiaries resulting from 3 individual ToT workshops annually at community level.

**Project 3: Support to the Implementation of the Comprehensive African Agricultural Development Programme (CAADP)**

The Comprehensive African Agricultural Development programme (CAADP) is a Programme of the AU/NEPAD. It provides an integrated framework of development priorities aimed at restoring agricultural growth, rural development and food security in the African region.

Through this programme AfrII staff has been able to support a number of countries and organizations in Eastern and Southern Africa such as Swaziland, South Sudan, ASARECA and NEPAD to review and strengthen their agricultural sector strategies and plans. Increased availability of fuel wood, poles and other agro forestry products in schools and homesteads in five subcounties in Kole district.
Agriculture, Environment and Human Welfare

Agricultural and environment sustainability. The world population is projected to increase to 8–10 billion people by 2050. This will result in doubling in global food demand. Therefore, agriculture must double its output if global food and nutrition security are to be maintained. Agriculture has the capability to meet these needs but this must happen without compromising environmental integrity and ecosystem services. These concerns have heightened the need for more sustainable agricultural practices. This programme aims at using agriculture to achieve improved human welfare, particularly food and nutrition security, household well-being and sustainability of farming and the environment.

Agriculture, food and nutrition. Africa is endowed with abundant natural resources than any other continent. Its arable lands, good soils, favourable climate, and rich biodiversity are adequate for her to produce enough food to feed its entire population. Despite the above potential, food insecurity and malnutrition among the population are high. At least 200 million people on the continent are undernourished and the trend is on the increase; while the actual number of stunted and underweight children increased by more than 12 million from 1980 to 2000 and is still rising.

The consequences of these are huge. Malnutrition is considered a major cause of death (more than 28% of all deaths) in Africa. Moreover, malnourished children are stunted and suffer from intellectual impairment; while the adult counterparts are less productive and are more likely to be ill. Further, undernourished mothers give birth to low birth weight babies, thus transferring the broad economic disadvantages of malnutrition in their own lives to their next generation.

Ironically, the majority (50%) of the food and nutrition insecure population in Africa are smallholder farmers, who produce over 90 percent of the continent’s food supply. Consequently, the key for addressing food insecurity and malnutrition lies in using multi sectoral approaches to promote and encourage production and consumption of diverse nutritious foods by smallholder farmers and their household members.

Project 5.1. Improving Nutrition Outcomes through Optimized Agricultural Interventions (A2NU)

Aims and Objectives. Funded by the Bill and Melinda Gates Foundation, the objectives of the A2NU project are to: (i) generate tools and frameworks for diagnosing the opportunities to incorporate nutrition interventions into agriculture investments; (ii) design, test, and rigorously evaluate results of the interventions (proof of concept) and offer technical assistance; (iii) document evidence and best practices; (iv) advocate for evidence-

**Cross-Cutting Issues**

Gender and Equity:

Our work is continually guided towards promoting gender equality and women’s empowerment. Within our framework we integrate specific key concerns of women in our sectoral response and mainstream gender as a cross-cutting issue in all our programmes. This component is manned by experienced and committed staff with an earnest passion for gender issues.

Organizational development:

AfriII strives to enhance its internal capacity in order to increase its effectiveness and efficiency in implementing its mandate. Presently, efforts geared towards diversifying its resources base, acquisition of its own research laboratories and farm; upgrading the look and utility of our website; improving the collection and dissemination of resources; scaling up the geographical coverage; and strengthening results based management through our monitoring evaluation system.

HIV/AIDS:

AfriII recognizes that HIV/AIDS affects all people of all ages, race, religions and social status, causing far reaching consequences for the social, economic and political life. Due to the fact that the socio-economic implications of HIV/AIDS are more greatly felt at family, household and community levels and the impact of the epidemic at the microlevel is eventually felt at the macro-level, affecting key indicators of national development, AfriII’s programmes conduct activities directed towards reducing the population’s vulnerability to HIV/AIDS and mitigating its impact.

Natural Resources Management:

Environmental degradation is a serious threat to the developing world. The rural poor are especially dependent on natural resources for their livelihoods, and poor people are also most vulnerable to the effects of environmental disasters and pollution. AfriII thus integrates natural resource management as a key element in the implementation of its projects in order to ensure the achievement of lasting poverty reduction and sustainable development.

**The Consortium members.** The consortium members are (1) FANRPAN- the implementing partner, (2) Africa Innovations Institute (AfriII), Uganda; (3) ACDI/VOCA through its affiliate ASI, USA; (4) Natural Resources Institute (NRI) UK; (5) Farm Africa, UK; (6) LCIRAH/LSHTM, UK and (7) Sokoine University of Agriculture (SUA), Tanzania;

**Project 5.2. Vital Signs Project.**

Agricultural activities impact the ecosystems and the benefits they provide to people. These result into unsustainable production systems and ecosystem services. Consequently better data and risk management tools are needed to guide agricultural development decisions; ensuring that they protect both people and nature. The project is funded by the Bill & Melinda Gates Foundation, implemented by Conservation International (CI) in partnership with the Earth Institute at Columbia University and the Council for Scientific and Industrial Research in South Africa. It is being implemented in Tanzania, Ghana, Ethiopia and Uganda. The Africa Innovations Institute is the Vital Signs partner in Uganda and is responsible for coordinating and managing implementation of project activities in the country.

**Key activities**

**Collection of better data.** Vital Signs gathers on-the-ground measurements of several different indicators of sustainability. These measurements help to create an accurate picture of the relationship among agriculture, nature and human well-being. The indicators measured include sustainable agricultural production, water availability and quality, soil health, biodiversity, carbon stocks, climate resilience, household income, nutrition and market access.

**Sharing of data and tools.** Vital Signs provides the key data and the analytical tools that decision-makers need to evaluate trade-offs, manage risk and inform decisions. By doing so, it influences policymakers to work toward resilient ecosystems and sustainable livelihoods for smallholder farmers.

**Building local and national capacity.** The project builds local and national capacity, for environmental monitoring, among scientists, civil society, government leaders and the private sector, throughout Africa and the entire world.

Women due a critical role in agricultural production and are therefore key in sustainability of production systems. Consequently, their interest and needs in agricultural production should be taken into account. In this picture, women in Soroti district, Eastern Uganda, help in selecting cassava roots for sale.