



## Australian International Food Security Centre

*Accelerating research delivery and adoption of innovations for food security*

"Food security is *the* issue of our time."  
(United States Secretary of State Hillary Clinton, 2011)

There are now one in seven people in the world (one billion people) who go hungry every day. The global food security situation continues to deteriorate due to population increases combined with low world food stocks, demand for biofuels, depleting resources, climate change and increasing energy costs.

The Australian International Food Security Centre (AIFSC) was announced by the Prime Minister of Australia, the Hon. Julia Gillard, in October 2011 at the Commonwealth Heads of Government Meeting in Australia.

The Prime Minister announced that the AIFSC would be established as a centre within the Australian Centre for International Agricultural Research (ACIAR). The Australian Government made a financial commitment to the AIFSC of A\$33 million over four years.

The AIFSC will have an international focus, recognising the significance of food security to developing countries across Africa, Asia and the Pacific region. However, initial focus will be given to advancing food security in Sub-Saharan Africa.



Traditional field preparation, Ethiopia

The AIFSC is making a significant contribution to addressing food security by providing a bridge between agricultural innovations (technologies, policies and practices) and their adoption by smallholder farmers, including livestock keepers. If adoption can be enhanced, this should increase agricultural productivity and diversity and generate additional income. This will in turn contribute to economic development and promote food security.

Our key focus is to understand the incentives and barriers to delivery and adoption, to accelerate the provision of practical solutions to benefit smallholders. We are giving attention to achieving better nutritional quality, safety and diversity of food; reduced losses post harvest, and better access to markets and other business opportunities. We are also focusing on education and capacity building of relevant institutions and individuals. Gender will be a central element of all our work, recognising that many smallholders farmers are women.

We are engaging with a broad range of national and international partners from researchers through to delivery and extension workers, from the public and private sectors, community groups and civil society.



Australian  
International  
Food Security  
Centre

[aciarc.gov.au/aifsc](http://aciarc.gov.au/aifsc)

## What is food security?

Food security is a complex concept involving three interrelated elements: Availability, Access and Utilisation. Improving any one of the three elements is necessary but not sufficient in itself to improve food security.

Availability relates to improving sustainable productivity in farming systems, including better natural resources management and conservation; and enabling policies to enhance productivity.

Access relates to generating more income from cash crops, livestock products and other enterprises to enable poor people to purchase food; and enabling market access for smallholders.

Utilisation relates to improving nutrition, increasing diversity in diets, reducing post-harvest waste and adding value to food.

### Addressing the greatest need

Agriculture has proved to be the initial driver of economic development leading to food self-sufficiency in most developing countries. The returns on investments in agricultural research are well documented. Gross domestic product (GDP) growth originating in agriculture is nearly three to six times more effective at raising the incomes of the poor than growth from other sectors like manufacturing or services.

There is a strong case for focusing the initial efforts of the AIFSC on improving food security in Africa. Worldwide, the highest proportion of rural poor live in Sub-Saharan Africa, and most are smallholder farmers. Here, one in three people suffer from hunger. As a cause of

poor health, hunger can perpetuate poverty by reducing people's ability to work and learn. Across Africa, the linkages between the agricultural sector and overall economic growth are particularly strong.

The African Union's New Partnerships for Africa's Development (NEPAD) and its Comprehensive African Agricultural Development Program (CAADP) argue that the agricultural sector can and must grow on average by 6% per annum to play its role in Africa's development. There is a substantial gap between yield potential and actual yields achieved by smallholder farmers. Productivity could be improved if the necessary inputs and services were accessible and policies were favourable to these farmers.

These inputs include planting material of high-yielding and adapted crop varieties, fertiliser, animal health products and animal feed. They also include essential rural-sector services such as financial services and technical advice and services (including market advice). Smallholders also need a favourable policy environment, as it affects market and regulatory frameworks as well as investment priorities. Research into all these areas has the potential to significantly boost agricultural performance.

When food security is improved, nutrition and health improve, which in turn promotes labour productivity. Therefore, efforts to reduce poverty and improve food security in Africa must focus on the agricultural sector.

### Australia's comparative advantage

Australia has unique scientific expertise in dealing with a variety of agro-ecological conditions that are common to many parts of the developing world. This includes experience with climatic variability and extreme climatic events that affect farming, forestry, fisheries and livestock.



Australian  
International  
Food Security  
Centre

Within this context, Australia has built an efficient and sustainable food and agricultural sector in an export-focused and market-oriented environment. Through agencies such as ACIAR, the Australian Agency for International Development (AusAID) and CSIRO, Australian researchers and policy makers have maintained successful and enduring partnerships with national research institutions in developing countries, international agricultural research institutions and global research programs. Australia also has world-class teaching and research institutions that are well suited to advancing developing-world agriculture and food security.

### Accelerating the delivery and adoption of research innovations

The AIFSC is committed to accelerating the delivery and adoption of research innovations that will positively impact food security, over shorter time frames and larger areas than currently. This will require an understanding of the constraints and incentives to delivery and uptake, and devising new modes of operating to overcome such constraints.

#### - Bridging the gap between research and development

One of the mechanisms for accelerating research adoption is through building strong, strategic linkages between the deliverers of research and the deliverers of extension. The Centre will ensure that development partners are built into research project design from the outset. We will also use a range of innovations for sharing knowledge (e.g. mobile phones) to strengthen and facilitate effective delivery by both sectors.

#### - New and enduring partnerships

Improving food security in Africa will come through partnerships with people and institutions in Africa. These partnerships extend beyond agricultural research partnerships and include economists and social scientists as well

as partners from the private commercial sector, community groups and civil society.

#### - Matching African and Australian interests, needs and capabilities

There are many diverse countries in Sub-Saharan Africa, most with substantial and varying needs. The AIFSC will need to make clear choices in selecting countries and programmatic focus where our investments in the food and agricultural sector will make a significant impact and complement rather than duplicate other efforts.

A key mechanism for developing this focus, and the partnerships and projects to be supported by the AIFSC, will be matching identified needs in the countries of Africa with Australian and international expertise and experience.

### Informing strategic directions

The AIFSC is undertaking a range of consultations with African, international and Australian stakeholders to identify our research priorities and build partnerships. Early consultations with Australian stakeholders identified Australia's comparative advantages in agricultural research of value to food security challenges in Africa. ACIAR and the Forum for Agricultural Research in Africa (FARA) recently hosted a consultation that was enthusiastically received and identified a number of priorities from a smallholder focus, aligned to the CAADP.



Ethiopian children with fertiliser trees ready to plant.



Australian  
International  
Food Security  
Centre

[aciarc.gov.au/aifsc](http://aciarc.gov.au/aifsc)



## A framework for food security

A strategy for the AIFSC is being developed for the 10-year period 2012–2022. It identifies where the Centre should focus its activity to most effectively deliver greatest impact for food security. It is based on priorities and research capability identified through consultations with Australian, African and international stakeholders (see AIFSC Program Logic diagram).

The AIFSC programs are:

- **Sustainable and productive farming systems**—improving sustainable productivity in farming systems, including better natural resources management; enabling policies to enhance productivity.
- **Food markets, value chains and social systems**—generating more income from cash crops, trees and livestock products and other enterprises to enable poor people to purchase food; enabling policies, improved market access for smallholder farmers; understanding barriers to adoption.
- **Food nutrition and safety**—improving nutrition, increasing diversity in diets, reducing post-harvest waste and adding value to food.
- **Education, training and capacity building**—building individual and institutional capacity; critical mass of women and men trained to address food security issues; strengthening trade negotiations; emerging issues; institutional partnerships.
- **Communications and knowledge management**—innovations in information and knowledge delivery (e.g. ICT), bridging research and extension, fostering scaling-out mechanisms, empowering farming communities.

These program areas will also incorporate the principles of gender mainstreaming and aim to build resilience in food systems.

## Prioritisation for impact

Within this framework, the development of the AIFSC's programs and the allocation of effort will be based on the following criteria and where these best intersect:

- identified country needs
- gaps in existing agricultural and food policy research for development work
- opportunities for bridging the gap between research and extension
- opportunities for leveraging off existing work
- opportunities for co-investment, especially with private-sector partners
- recognising the impact of gender on addressing food security
- opportunities for where Australian comparative advantage can have most impact and alignment with national interests.

This approach will result in some programs having more funds allocated than others to achieve maximum impact.

## Early activities

Three projects are being developed for early implementation and are in the final stages of development. They should begin by mid-2012. These projects leverage off existing initiatives, align with the Strategy and should produce early gains for the Centre.

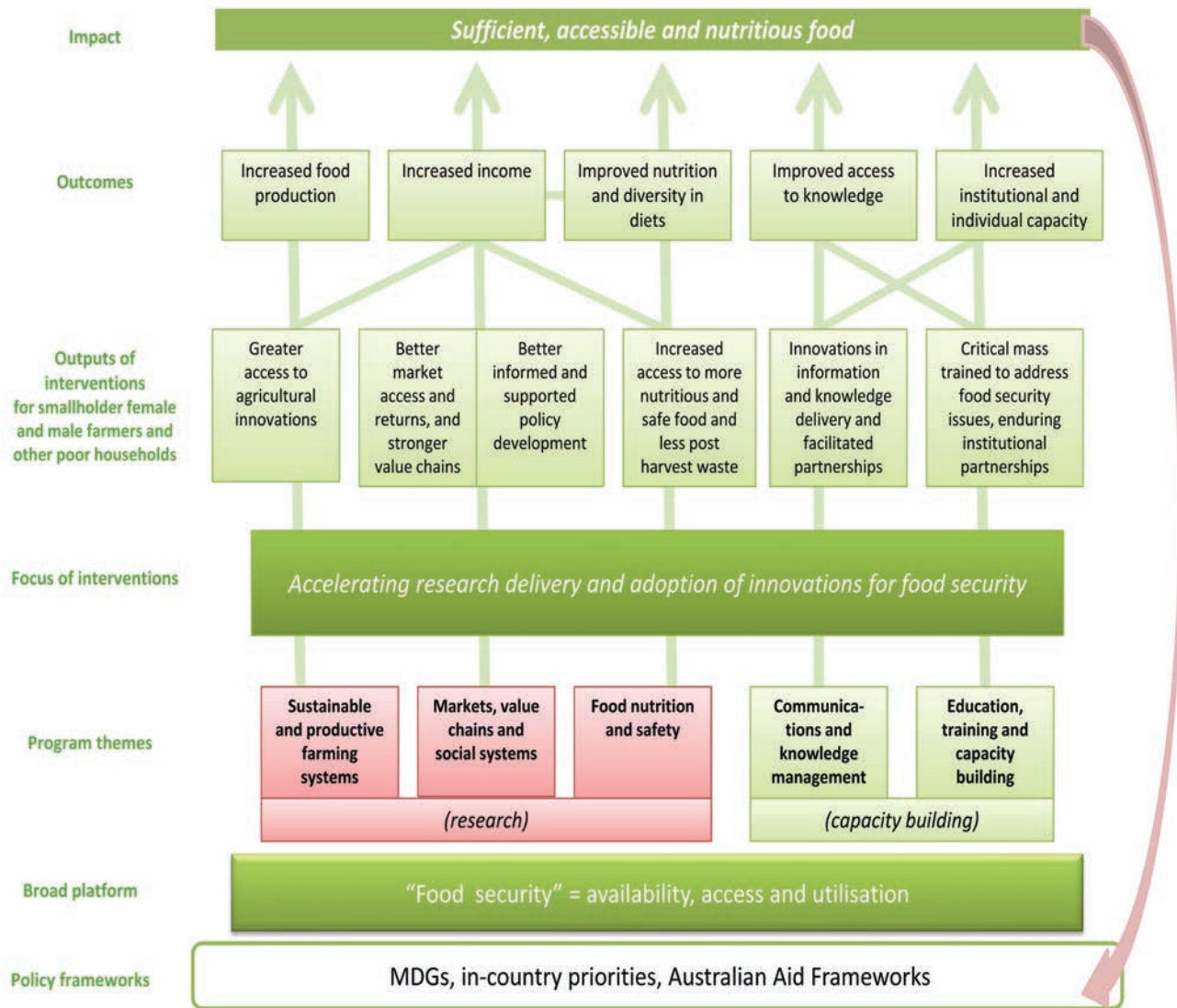


Farmer and single mother of four, Felista Mateo, has been testing new crop varieties through the SIMLESA program in Karatu district, Tanzania.



Australian  
International  
Food Security  
Centre

# AIFSC Program Logic



Australian International Food Security Centre

[aci.gov.au/aifsc](http://aci.gov.au/aifsc)

## Projects

### Improving sustainable productivity in farming systems and evergreen agriculture in eastern Africa

**Summary & objectives:** Enhancing food security options for poor rural people in eastern Africa through research that underpins existing national programs to scale up the use of trees within farming systems in Ethiopia and Rwanda and then scale out successes across similar ecozones in Uganda and Burundi. The project targets female and male farmers in two agro-ecological zones and involves research on effective mechanisms for scaling up and out under the national programs.

**Problem being addressed:** Lack of knowledge on: barriers to female and male farmers adopting use of trees in existing crop–livestock systems, appropriate species and management options and impacts of changing tree cover on long-term water, soil and livelihood parameters.

**Countries:** Uganda, Ethiopia, Rwanda, Burundi.

**Partners:** ICRAF, CIMMYT, ILRI, CSIRO, World Vision Australia, Ethiopian Institute for Agric. Research (EIAR), Rwanda Agric. Board (RAB), Istitut des Sciences Agronomiques du Burundi (ISABU), Nat. Agric. Research Org. (NARO) – Uganda.

**Duration:** 4 yrs

**AIFSC funding:** \$5.5 million

**Co-investment:** \$2.1 million

**AIFSC program alignment:** Farming Systems Program, by improving overall production through integrating trees into farming systems; and Social Systems Program, by providing technical advice to underpin national policy on tree planting programs and scaling out.

### Identifying socioeconomic constraints to and incentives for faster technology adoption: Pathways to sustainable intensification in eastern and southern Africa

**Summary & objectives:** Improving understanding of how socioeconomic factors, production risks (including climate variability) and policies determine technology adoption processes by smallholder farmers associated with the SIMLESA program. Building on economic datasets from SIMLESA baseline surveys, this study will provide insights for accelerating technology adoption and identify agricultural intensification strategies that are implementable and that will improve food security for African female and male farmers.

**Problem being addressed:** Lack of knowledge on barriers and incentives to adopting agricultural technologies.

**Countries:** Ethiopia, Kenya, Tanzania, Malawi, Mozambique.

**Partners:** CIMMYT, IFPRI, University Life Sciences (UMB), University Qld, Ethiopian Inst Agric. Res. (EIAR), Sokoine University (Tanzania), Egerton University (Kenya), University Malawi (Bunda College), University Eduardo Mondlane (Moz).

**Duration:** 4 yrs

**AIFSC funding:** \$3 million

**Co-investment:** \$1.8 million

**AIFSC program alignment:** Social Systems Program, by improving understanding of socioeconomic constraints to and incentives for faster technology adoption and through increasing smallholder farmers' market participation through increased productivity and policy recommendations; and Farming Systems Program, by increasing productivity through accelerated adoption of sustainable agriculture intensification technologies.



Australian  
International  
Food Security  
Centre

## Mechanisation entrepreneurship and conservation agriculture to leverage sustainable intensification in eastern and southern Africa (MELISA)

**Summary & objectives:** Evaluating and demonstrating small-scale motorised conservation agriculture mechanisation technologies, and identifying deficiencies in policy, market and access to knowledge in the subregion (including machinery, hire services and support).

**Problem being addressed:** Lack of knowledge of, and business opportunities for, use of small-scale machines (e.g. 2-wheeled tractors) in African smallholder agriculture.

**Countries:** Ethiopia, Kenya, Tanzania, Malawi, Mozambique, Zimbabwe.

**Partners:** CIMMYT, Charles Sturt University, Ethiopian Inst Agric. Res. (EIAR), Kenya Network for Dissemination of Agric. Technologies (KENDAT), Bunda College of Agric. - Malawi, Instituto de Investigacao Agraria de Mocambique (IIAM)- Mozambique, Directorate of Research & Development (DRD) - Tanzania, University Zimbabwe (Dept Soil Science & Agric. Engineering) – Zimbabwe, FAO, Internat. Dev. Enterprise (IDE), African Conservation Tillage network (ACT), Bangladesh Agric. Res. Inst. (BARI), ICAR (Division of Agric. Engineering) – India.

**Duration:** 4 yrs

**AIFSC funding:** \$4 million

**Co-investment:** \$2.3 million

**AIFSC program alignment:** Social Systems Program, by identifying opportunities for machine import, manufacture, maintenance and service provision; and Farming Systems Program, by increasing productivity with use of mechanisation and conservation agriculture practices.



AIFSC's programs in Africa focus on the delivery of benefits to African farmers and their families.

## Scoping studies

- A preliminary study to improve income and nutrition in eastern and southern Africa by enhancing vegetable-based farming and food systems (addressing Nutrition and Social Systems Programs)—Malawi, Mozambique, Tanzania.
- Strengthening food security through family poultry and crop integration in eastern and southern Africa (addressing Nutrition and Social Systems Programs)—Tanzania and/or Zambia.
- Assessing research priorities for blue water use in food production in southern and eastern Africa (addressing Farming Systems Program)— Botswana, Ethiopia, Kenya, Malawi, Mozambique, Tanzania, Uganda, Zambia, Zimbabwe.
- Farming systems and food security in Africa: Priorities for science and policy under rapid global change (addressing Farming Systems and Social Systems Programs)—all Africa.



Australian  
International  
Food Security  
Centre

[aci.gov.au/aifsc](http://aci.gov.au/aifsc)





A young girl with her chicken at ACIAR's Newcastle disease community chicken vaccination day, Mozambique.

### Further Information

Australia:

Mellissa Wood, Director

Phone: +61 2 6217 0500

Email: [aifsc@aciar.gov.au](mailto:aifsc@aciar.gov.au)

Kenya:

Liz Ogutu, Liaison Officer

Phone: +254 20 4277 124

Mobile: +254 721 493915

Email: [Elizabeth.Ogutu@aciar.gov.au](mailto:Elizabeth.Ogutu@aciar.gov.au)

Web: [aciar.gov.au/aifsc](http://aciar.gov.au/aifsc)

In announcing the AIFSC, the Prime Minister committed to host an international conference on African Food Security at the end of 2012. The conference will formalise the Australia–Africa research partnerships and commit to the priorities of the AIFSC.

### Operations

The AIFSC has a Director and a small team located at ACIAR's headquarters in Canberra, Australia. The AIFSC will also open a regional office within Africa with additional staff, to act as an interface with African partners and to support the AIFSC's operations in Africa.

The Centre will establish a high-level International Advisory Committee, who will provide a mixture of strategic and programmatic advice to the management of AIFSC and the ACIAR CEO. This Committee will also inform and advise the Commission for Agricultural Research as required.

The AIFSC will draw on a wide range of expertise, including ACIAR's scientific staff and, more broadly, the scientific and development communities and the private sector in Africa, Australia and internationally.

In addition, the Centre will adopt new ways of working and forge new partnerships. For example, Challenge Funds will pose specific food security 'challenges' seeking proposals for novel, multidisciplinary solutions. This approach encourages new partnerships and innovative responses to complex problems.

The Centre will also seek to leverage Australian aid dollars through co-investment with like-minded donors for the greatest impact on food security in Africa.



Australian International Food Security Centre

[aciar.gov.au/aifsc](http://aciar.gov.au/aifsc)

Partnerships for food security

