

Agriculture and Food Security

Program Prospectus for 2010-2015

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List of Acronyms

AFS	Agriculture and Food Security
AGRA	Alliance for a Green Revolution in Africa
CA	Canadian Dollar
CCAA	Climate Change Adaptation in Africa
CGIAR	Consultative Group on International Agricultural Research
CIDA	Canadian International Development Agency
CIFSRF	Canadian International Food Security Research Fund
FAO	Food and Agriculture Organization
ICT	Information and Communication Technologies
ICT4D	Information and Communication Technologies for Development
IDRC	International Development Research Centre
LAC	Latin America and the Caribbean
MENA	Middle East and North Africa
NARS	National Agricultural Research System
NGO	Non-Governmental Organization
RPE	Rural Poverty and Environment
UPE	Urban Poverty and Environment

1. Executive Summary

The era of cheap food has come to an end, and scarcity, higher costs, and more extreme price fluctuations are increasingly affecting developing countries. Technological improvements and better agri-food policies are needed, along with scalable innovations and community development. To be effective, these improvements must be economically viable, socially acceptable, and avoid environmental damage that poses risks to future generations.

A central hypothesis of the Agriculture and Food Security (AFS) program — one that is consistent with development experience — is that small-scale agriculture is a key factor in poverty reduction and food security. The program will examine this hypothesis in different contexts during its five-year duration. Thus, the program will support research to help small-scale farmers become more productive, resilient, and profitable. Research is required not only to identify on-farm production opportunities, but also to look beyond farms to the markets and value chains that link producers to consumers, including information and communication technologies. This research will be consistent with the emerging priorities of both developed and developing countries, which are increasing support and spending on agriculture and food security. The program is designed to fill the niches where IDRC excels, while being attuned to the activities and possible synergies with other donors and the development research community.

IDRC has a long-standing reputation for supporting good agricultural and natural resource management research. This new program will exploit opportunities to build on past programming by focusing on agriculture and food security. For example, the AFS program is well positioned to contribute to research with small-scale producers who are missed by larger attempts to increase productivity, especially those living in low to medium potential areas or in areas where land, water, and access to other resources is poor or contested.

The goal of the AFS program is to support research that generates new options for more equitable and productive agriculture to improve food and income security among poor women and men in developing countries. AFS will work with other organizations in Canada and the developing regions to develop and test innovations — technological, institutional, political, economical, and social — that will intensify and diversify small-scale agriculture, improve the nutritional quality of crops and increase incomes without adverse consequences to societies and the environment.

Working with existing high-performing research partners, as well as new IDRC recipients, AFS will respond to concept notes and carry out proactive proposal development. In the first two years, most of the program's budget will be committed to the five-year Canadian International Food Security Research Fund (CIFSRF) aimed at forging partnerships between Canadian and Southern researchers to carry out applied research that addresses food insecurity challenges in the developing world. Complementary themes and regions will be given priority to ensure balance with those not well covered by the CIFSRF.

Although the program's themes are global, emphasis and specific research priorities will reflect the regional contexts and specific needs of sub-Saharan Africa, South Asia, Southeast Asia, the Middle East and North Africa, and Latin America and the Caribbean.

2. Context and Background

a. Development Challenge and Situational Analysis

The 2008 food price increase highlighted again the interrelations between poverty and food security, when the number of poor people increased by about 100 million (Ivanic and Martin 2008; United Nations 2008). Using the standard \$1/day poverty line, 17% of the developing world or 1 billion people are poor (Chen and Ravallion 2008), of which 70-75% live in rural areas. They spend over 50% of their income on food (Banerjee and Duflo 2006) and many fail to consume the recommended daily calories and protein (von Grebmer et al. 2008). These people not only eat too little but their diets are often limited and they lack essential micronutrients such as iron, iodine, zinc, and vitamin A (Ahmed et al. 2007). Many of the rural poor depend in whole or in part on purchased food, even when farming is central to their livelihood. Significant numbers own no land or have access to very small holdings, so they depend primarily on income from agricultural labour for their livelihoods, perhaps augmented by collection from common-pool resources (forests, fisheries, etc.).

The concept of food security has evolved from the physical availability of food stocks to a more complex concept linked to the poverty of individuals and households. According to the 1996 World Food Summit, "*Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.*" The definition includes three "pillars" of food security: availability, access and utilization.

Rapid rises in food price focus attention on international markets, particularly for thinly traded commodities such as rice, and raise questions about the right balances and trade-offs between reliance on imported food and domestic supplies. High agricultural prices can be good for farmers but food price increases hurt rural and urban consumers who are net food buyers. Environmental degradation, the loss of agricultural biodiversity and concerns about climate change suggest production variability and perhaps shifts in geographic distribution of crops and productivity limitations. Together these cause some people to wonder whether the 150-year downward (but cyclical) trend in food prices has come to an end and we face a future of growing scarcity, more expensive food and possibly more extreme price fluctuation.

Sustainable agriculture requires dynamic local practices and supportive policies and laws that make the best use of agricultural biodiversity. Adaptation to climate change will, to a very large degree, depend on the identification, development, and proper use of more resilient species and varieties of plants, trees and animals. Genetic variation is vital for the intensification and diversification of food production systems that can withstand changing environmental conditions. Agricultural biodiversity is a valuable, but

undervalued and untapped, source for vitamins and minerals to address deficiencies in nutrition.

In many regions, differences between the poor and better-off are increasing. Poverty and hunger also have important gender dimensions, affecting women and men differently (both as producers and consumers of food). Access to resources is frequently unequal. Households living in extreme poverty tend to be female headed. Even when households have a male and female head, intra-household access to, and consumption of, food often favour men and boys. Ethnic minorities, indigenous peoples, lower castes, the elderly, sick and disabled are frequently excluded from access to resources and markets, increasing their susceptibility to poverty and hunger. Despite these constraints, poor women and men adapt and innovate and can benefit from progress in science and technology. Research that helps small-scale agriculture become more productive, resilient, and profitable can contribute immensely.

It is well-established that small-scale agriculture is a key factor in poverty reduction and food security. There is strong empirical evidence to show that growth in small-scale agriculture significantly decreases poverty, in most cases also contributing to greater economic equality (Latin America and to a lesser extent North Africa are exceptions, due to the high inequities in land ownership) (Lipton 2005; Timmer and Akkus 2008). The United Nations estimates that economic growth generated in agriculture is, on average, four times more effective in benefiting the poorest half of the population than growth generated outside agriculture (United Nations Department of Economic and Social Affairs 2008). Research is a key strategy for growth in agriculture and increased food security. This research must recognize that agricultural production and the rural poor can be found under very different conditions in different regions of the world (a point emphasized in the 2008 World Development Report of the World Bank).

Over the period 1980-85 development expenditures on agriculture averaged about 17% of all official development assistance. This share fell continuously to less than 4% of all expenditures in the current decade. As a result of this long period of neglect and under-investment, agricultural yield increases have stagnated, the world supply-demand balance has deteriorated and the number of poor/undernourished people has remained high. Developing countries are beginning to address this with increases in support to their national agricultural research systems (NARS). Canada has now committed to additional spending on agriculture and food security of CA\$ 600 million over the next three years (other donors, including the World Bank, have also committed to increasing aid to agriculture). China has committed to building 10 agricultural technology centres in Africa to share its farming expertise, with the first (in Mozambique) opening in 2010.

Food security is now included as one of the Canadian International Development Agency's (CIDA) three thematic priorities. Strong interest in the topic within the Canadian research community is evident (e.g., University of Alberta "International Week" held in February 2009; Couchiching conference "The Global Politics of Food" held in August 2009; McGill "Conference on Global Food Security" held in October 2009). The Canadian International Food Security Research Fund (CIFSRF) announced on 16 October 2009, provides a new joint mechanism for IDRC and CIDA to help the

Canadian agriculture and food security research community engage with researchers in the Global South.

In Africa, food security and agricultural development are central issues. The Alliance for a Green Revolution in Africa (AGRA) program is well underway, with well-funded seed development, soil health, market access and policy programs being implemented. The basic idea underlying AGRA is to create a “big push” for increased agricultural productivity in the small-scale farm sector. There are strategic opportunities for AFS to contribute: finding good practices to link new agricultural technologies and development models to existing farming systems and livelihoods; addressing other important aspects of food security such as animal production, fish farming and food nutritional quality; and more focus on low and medium potential areas. The AGRA strategy targets selected regions, crops and farmer groups in high potential areas. Other initiatives need to reach the millions of small-scale farmers living in a continuum of areas other than those with high agricultural potential.

Elsewhere in Asia and Latin America, the focus of the past Green Revolution, millions of small-scale farmers have been missed. In addition, the use (or overuse) of fertilizers and agricultural chemicals, along with utilization of water for irrigation, often generated environmental problems. Farmers in those areas with low to medium agricultural potential (defined by agroecological conditions, highly diverse production systems, more limited market access) also can contribute to poverty reduction and food security. One third of the developing world’s people live in lower potential areas, which account for 54% of overall agricultural area, 45% of crop land and 30% of total production value. The Green Revolution was most successful in Asia and Latin America, increasing productivity of rice and wheat in high-potential areas suitable for intensive production.

- Increases in productivity in other areas will need to contend with more diverse and challenging agroecological and socio-economic conditions, while doing a better job of environmental management.
- Effective ways to scale up sustainable land management options need to be developed.
- Much of the current focus is on staple crops, but additional emphasis on underutilized crops, livestock production in rangelands and fish cultivation, as well as the markets for this produce, is needed.

Technological breakthroughs and better policy, along with scalable institutional innovations and community development practice, are needed. To be effective, these need to be economically viable and socially acceptable. Participatory plant breeding has been tested and shown to efficiently provide a diverse set of varieties to address local context, but effective ways for it to contribute on a large scale need to be found. A major gap is in sub-Saharan Africa where participatory plant breeding has been little used and yet is best suited to contribute. Better functioning markets, post-harvest technologies and value chains that effectively serve small-scale farmers are needed. Adding to this is uncertainty due to climate change, which will require research into new varieties (e.g., drought tolerance), better soil and water management, and on contested rights/access (due to migration). Gender informs the suitability of all options developed and, thus, all

research requires a sound gender perspective from the start. High levels of migration to urban areas creates more net food buyers, requiring more complex food security policies that balance incentives for domestic production with increased integration with international food markets.

IDRC has a long-standing reputation for agricultural and natural resource management research. Since the 1990s, IDRC has supported research on rural populations in three key areas; which are all reflected in the work of Rural Poverty and Environment (RPE), from which the Agriculture and Food Security (AFS) program is evolving. First, a substantial body of work on safeguarding natural resources has contributed ideas about managing watersheds and water more effectively, conserving and using biodiversity and adopting more sustainable land-use practices. A core area of this work has focused on common pool resources and their often contested nature. Second, the Centre has invested significant resources in research to encourage knowledge sharing and development, such as promoting farmer participation, local knowledge systems, rural extension and communication, and multi-stakeholder platforms. A third key area has been research to strengthen rights and access to resources with an emphasis on marginalized people (indigenous, low-income) and gender equity analysis. This past work has only partially (and mainly recently) addressed mainstream rural development issues such as income growth from crop improvement (except by participatory means), access to markets, and rural-urban linkages.

Agriculture in marginal West African conditions: Two projects exploring ways to link environmental and resource management to improved livelihoods and food security were approved in 2009 (105431 Building Livelihood Resilience to Alleviate Poverty in Semi-arid Areas of West Africa and 105948 Amélioration des Moyens D'existence et de la Gestion des Ressources Naturelles pour une Sécurité Alimentaire Durable au Sahel). Past research with vegetable-livestock systems in West Africa laid important groundwork on production, but stopped short of linking to markets and consumers. In West Africa, one regional project (105431) is working with farmers and researchers to test and scale up vegetable-livestock systems, assess value chains, experiment with new enterprise forms that allow poor farmers (especially women) to participate in the value chains, and collaborate with policy makers to design pro-poor policy options. Similarly, past research in the Sahelian countries of Burkina Faso and Mali has identified a large basket of environmental/resource management and agricultural production technologies with potential to sustainably manage resources or increase food security. Yet most remain on the shelf. A second project (105948) is integrating resource, environmental and productivity considerations, selecting and testing most promising combinations with farmers and searching for ways to scale up use and get these technologies off the shelf and onto farms.

In addition, IDRC championed urban agriculture research in the 1990s. This work, continued in Urban Poverty and Environment (UPE) and evolved into a value chain perspective linking peri-urban producers with urban consumers. This dovetails into the RPE rural value chain research, which will be continued and expanded in AFS. More effective value chains will require better and more effective information systems, including research about how to better utilize information and communication technologies (ICTs) (AFS will learn from the portfolio of Information and Communication Technologies for Development (ICT4D) research linked to agriculture and food security in programming across regions).

There are clear opportunities to build on this past programming when transitioning to a focus on agriculture and food security. It will be necessary to remain well attuned to the activities of other donors and the development research community (Consultative Group for International Agricultural Research (CGIAR), the World Bank, NARS and the Gates Foundation among others), and this program needs to develop a complementary strategy that builds on past IDRC programming directions and targets small-scale agricultural producers, while positioning itself relative to other key research support and topics.

b. About the Program

Past IDRC programming has demonstrated that improving conditions for small-scale agriculture without over-exploiting natural resources and damaging the environment is not easy. This research has shown that a range of measures is often needed including: the design of better institutions and policies, attention to resource access issues, finding ways of managing watersheds more effectively, conserving and using biodiversity and adopting more sustainable land-use practices. Uptake of farm-level innovations often remains limited because the economics are wrong (e.g., it is costly, too labour intensive), rights and access to resources are unclear and/or contested, or extension/training programs are difficult and costly to implement. As emphasized in the RPE external evaluation, a major gap is finding ways to build on this past research by integrating refinements necessary for policy changes regarding poverty or the environment. This could extend to finding scalable ways to improve rural markets and agricultural production for poverty reduction and food security. Political will and technical knowledge to design and implement better policies and institutions is not always evident, but the external evaluation of the RPE program highlighted that the team has a strong base of experience and has had some notable success with projects that influence policy. Key areas of policy changes identified in the evaluation included water policy in Bolivia, indigenous people's rights over traditional medicinal plants in Kenya, changes in the forestry act and framing of the water policy in Bhutan, endorsing the precedence of customary laws on community forestry and biodiversity over national law in Nagaland, Nepal, Bangladesh, Burkina Faso and Senegal, and decentralization of fisheries and forests in Cambodia.

Building on this past research, certain themes and emphases will continue. The AFS program will build on its strengths at engaging people at a local level (noted in the RPE external evaluation) by enhancing their ability to develop and deliver knowledge that can influence behavior and policy. We will continue to keep a clear emphasis in our work on small-scale farmers, the poor and the excluded, with a keen eye on gender-based vulnerabilities. This emphasis requires that rights and access to productive resources and environmental services must remain key considerations, albeit by being more explicit about the links to poverty reduction and food security.

Compared to previous programming, the AFS program will pay more attention to strengthening interdisciplinary research capacities of research teams. This will be done by building on, but not replicating previously developed and field-tested approaches to strengthen social sciences capacities, and through the integration of promising new insights from disciplines such as environmental economics, policy studies, soil and

water management, plant breeding, agro-ecology, biology, and information sciences. The program will remain open, on a selective basis, to experiment with new concepts and methodological approaches as long as they have a clear focus on practical applications. Strengthening social and gender analysis capacities remains a critical task, not in terms of developing and testing new approaches, but in terms of institutionalizing (at the team and organizational levels) these capacities in applied agricultural and food security research.

The discussion above on what emphases will continue and be left behind suggests a clear evolution of AFS-supported research towards finding solutions that: improve livelihoods; focus on agriculture (including livestock and fish) and food; are scalable and effectively integrate technological, social and economic principles. One new feature in AFS will be supporting stronger links between Southern research organizations and the Canadian research and development community, through implementation of the CIFSRF. Examples of specific research topics are:

- Contributing to the development of gender responsive technologies and innovations to increase agricultural productivity, improve nutrition, and reduce post-harvest losses.
- Supporting on-farm research informed by sound social and gender analysis to identify technology adoption benefits and economic and ecological viability of small-scale farming.
- Developing ecosystem- and farming systems-adapted cultivars that reduce the dependence on high energy input agriculture and increase the adaptability to biotic and abiotic stresses.
- Developing underutilized species for the achievement of food, nutrition and income security.
- Addressing, based on sound social and gender analysis, deficient diets and the major micro-nutrient malnutrition challenges by increasing the nutritional value of crops, their use, and marketing potential.

Outcomes have been designed in a graduated manner, ranging from easier to achieve outcomes to those that are very difficult to realize (Table 1). The first level is for the minimum that we expect would be achieved by the program from its basic activities. Outcomes in the intermediate level are harder to achieve and reflect a greater success of the program. Finally, at the highest level are outcomes that are very hard to achieve and likely to realized in a limited number of contexts and projects, but would reflect high-level success of the program if realized.

Table 1. Summary of projected program outcomes

Baseline	Minimum Impact	Medium Impact	High Impact
Viable options for agricultural intensification and diversification are limited for many small-scale farmers	10-15 specific improvements in production technology for staple crops, livestock and secondary crops are identified and several being scaled up	Progress occurs in developing and adapting production system improvements in 3-5 hard-to-reach areas and populations	1-3 countries where stakeholders have strengthened their research systems and are carrying on with their own funds research begun by the program
Limited engagement of Canadian researchers with Southern research organizations	10-20 research partnerships successfully produce applied food security research and attracting additional funding	The collaborative research supported by the program identifies 5-10 key innovations that can be scaled up to improve food security	Several breakthrough solutions are found with broad scope and impact for food security, for national or possibly international impact
Small-scale farmers have intermittent accessibility and rewards from value chains	Value chains for 5-10 staple crops, livestock and secondary crops are studied and specific opportunities to improve market access and increase incomes of the poor are identified using methodology developed by past RPE programming	3-5 value chain improvements and opportunities applicable to hard-to-reach areas and populations are studied, methodology to incorporate poverty reduction and natural resource considerations is further tested and improved, with the methodology and approaches being widely used by other researchers	Several new value chains are scaled up and directly benefiting to improved income and food security
Livelihood options from natural resource use are mainly based on traditional customs and uses	The political economy of access to productive resources is analyzed in 5-8 specific contexts (focusing on land, water, forest areas) where access is often contested	Political economy research in 3-5 cases effectively integrates natural resources and environment issues into the development of new income and food production strategies for the poor	Deep and well-recognized principles to guide effective resource management policy in are developed, taking into consideration political economy questions
Policies and laws for rural development and food security are often inadequate for poverty reduction and food security	Policy options and effective strategies for improved (and often decentralized) rural development are studied and tested in 5-10 countries in LAC. In other regions natural resource policy research analyzes consequences for food security	Several significant cases of national or territorial policy changes or impacts are informed by the program's research in LAC and research methodology and approaches developed and tested in LAC are being applied in several countries in other regions. Past natural resource policy research identifies food security implications.	3-5 examples of rural development and food security policies or programs influenced by the program have been implemented, including 1-2 cases of rural territorial policy influence

Finally, IDRC is well positioned and a recognized leader in rural-urban development strategies, including territorial approaches to development policy, with ongoing and highly visible research in all regions. This research tradition explicitly emphasizes the linkages between rural areas and urban centres, where food production occurs mainly in rural areas, but supplemented by peri-urban and urban agriculture. People living in rural and urban areas are bound together by a complex and dynamic set of socioeconomic relationships, resulting in financial, human, product and service flows and the need for integrative development policies.

3. Approach to Programming

a. Program Goal

The goal of the AFS program is to support research that generates new options for more equitable and productive agriculture to improve food and income security for poor women and men in developing countries. In order to do this the AFS program will need to support interdisciplinary, applied and impact-oriented research that responds to (often from regional and sub-regional perspectives) key factors and forces that are identified to lead to increased food insecurity.

AFS will work with research and development organizations from Canada and developing countries to develop and test innovations that are relevant and can be applied in practice across locations in Africa, the Middle East, Latin America and the Caribbean, and Asia. As a result of this program, researchers will test a wide range of options to increase and diversify agricultural production and help small-scale farmers and the poor benefit from value chains, while managing their resources more sustainably. It will be necessary to invest in understanding how solutions can be scaled up.

b. Program Outcomes

The AFS program will make contributions to knowledge with an appropriate balance between rigorous quantitative and qualitative research. In practice, most supported work will be field-oriented research, usually with the effective and extensive participation of small-scale (men and women) farmers, value chain participants, food consumers, government officials, policy makers, civil society organizations. But, the AFS program will support some high-level conceptual and policy research specifically designed to contribute to key international policy and development debates. This will help respond to a recommendation from the RPE external evaluation that key lessons and findings of field research be better communicated to the international research and development community. The focus on small-scale agriculture will include a sub-set of studies that specifically target the ultra-poor.

The field of agriculture and food security has a strong scientific basis and ample field experience over the past 40 years. Added to this is the strong global record of work (including, but not limited to, IDRC) on sustainable natural resource management and more effective community and citizen participation in research and decision processes.

Other development organizations and Southern countries themselves are now investing more resources in agricultural development and food security, particularly in Africa. But there are specific niches (especially in lower to medium potential areas and with specialty and underutilized crops and animals) where other programs like AFS can effectively operate. A strong research base in the CGIAR (currently being restructured and revitalized) is expected to provide a solid international research system. Some large national research systems (e.g., in Brazil, India, China and Morocco) are strong and well positioned to lead research in their countries. Others (many Sub-Saharan countries as well as selected countries in Asia and Latin America) have had their national systems devastated by poor funding, bureaucratic structures and privatization. This is a limitation, but also provides an opportunity for a program like AFS to play a positive and proactive role in some countries. Finally, a vibrant research-NGO sector and some strong farmer organizations have emerged over the past several decades and could play significant roles in partnership with researchers.

The suite of projects supported under the CIFSRF is integral to AFS and expected to include new knowledge, skills, technologies, innovations, tools, and improvements to existing practices related to agricultural production and food security. This will be reflected in specific technologies developed and tested, new cultivars and vaccines, research publications (refereed, technical, and trade) and a cadre of new graduate students trained. The new knowledge and technologies are expected to start to make visible (but clearly emergent) contributions, in the countries where research take place, to increased agricultural productivity and improved food security. Canadian research organizations will be better linked with Southern research organizations, with some partnerships successfully raising additional funds and the work continuing after the CIFSRF ends. Developing country organizations should have demonstrated improvements in their capacity to develop, implement, and support cutting edge solutions for agricultural production and food security. These improvements should be focused on the small-scale farm sector and food security benefits directed at poor rural and urban households. Specific results should target women and men farmers.

c. Program Strategy and Approach

In practice, the large share of the AFS budget (and staff time) that will be committed to the CIFSRF will provide a built-in capacity for AFS to identify and exploit emergent outcomes. The fund will select research projects in a range of topics and regions from two calls during the first year of the program. The call in year 2 will fill gaps from the first year of the CIFSRF, identifying emerging outcomes early in the project cycle. AFS will begin exploratory programming on themes not suited to the CIFSRF (e.g., value chains, food security policy) in years 1 and 2 of the program, transiting to larger projects in years 3-5 that build on lessons learned, what has worked (or not), as well as new research directions that are suggested from review of emerging results of the portfolio of funded projects (see Figure 1). AFS will utilize several programming modalities. The CIFSRF will rely on open competitive calls for proposals. In addition, regular IDRC responsive programming and proactive proposal development by program officers will be utilized in non-CIFSRF projects. The CIFSRF will forge new and strengthen existing partnerships between the Canadian and Southern research communities.

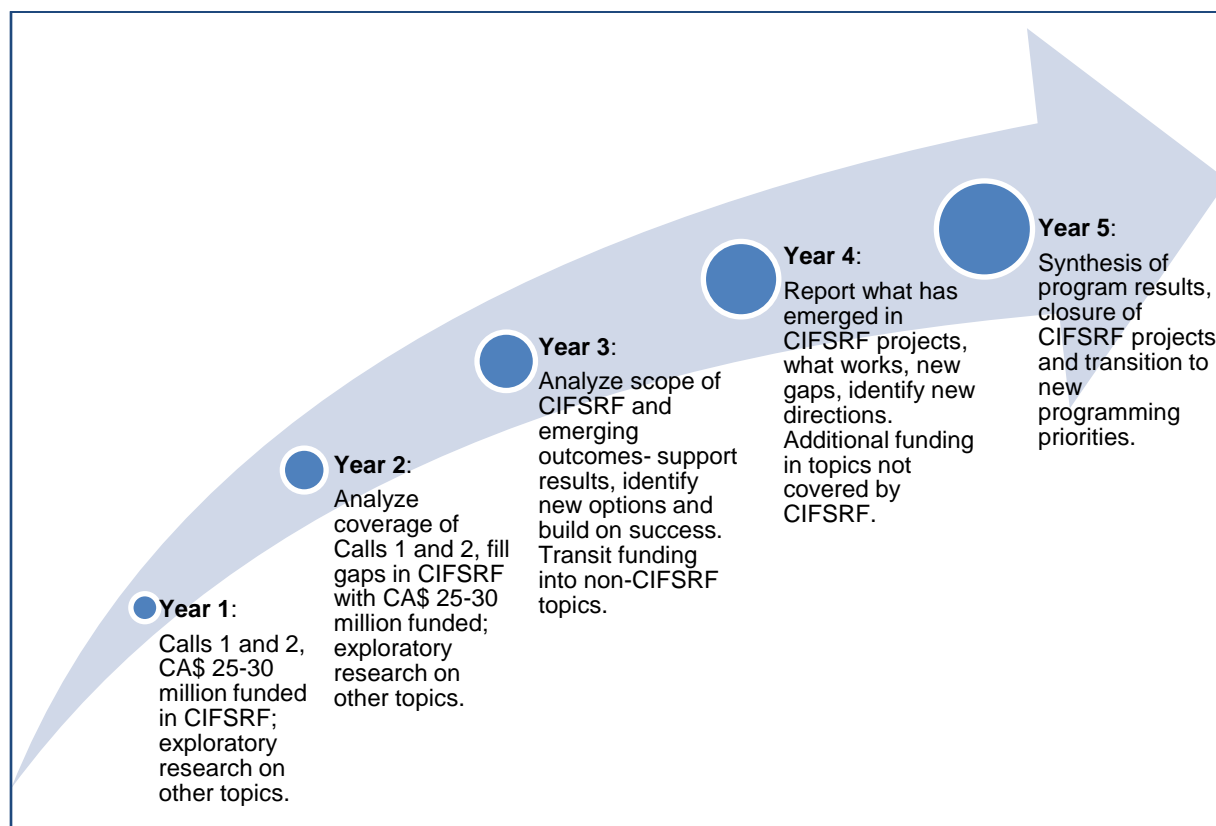


Figure 1. A timeline of the Agriculture and Food Security program 2010-2015

Although AFS will build on past programming and partnerships where appropriate, the particular design and requirements of the CIFS RF will orient the AFS program portfolio (Table 2) heavily towards an emergent strategic position (orientation toward more technical approaches to agricultural productivity and food security than past programming) and strategic perspective (new partnerships, including a strong presence of Canadian partners). Indicative percentages in Table 2 show the approximate shares of program resources for different portfolio components.

Table 2. Program portfolio (% denotes the approximate proportion of funding)

	Mature	Intermediate	Emergent
Strategic Position	Strong basis and outcomes and methodologies on environmental management from past programming for application to food security questions (5%).	Extending results, methods and outcomes emerging from programming on rural territorial development and policy in Latin America more fully in other regions (10%).	CIFS RF research (55%) allocated in years 1 and 2 of program. Research on a number of themes and topics related to agriculture and food security will be new.
	Large portfolio of appropriate and useful social and gender analysis methodologies available from past programming and applicable for food security questions (5%).	Value chain research on benefits and potential for adoption by small-scale farmers (10%). A base of work on climate change in LAC, Africa and S. Asia is completed or underway, positioning continued research on implications and adaptation for food security (10%).	Research to follow up on, complement and synthesize this funding will occur in years 3-5 (5%).

	Mature	Intermediate	Emergent
Strategic Perspective	<p>Research partners and networks are already working or interested in food security implications and questions. Utilize selectively in ongoing programming.</p> <p>Some research organizations and networks are positioned to explore social and gender implications of agricultural development and food security research. Others are better positioned to provide strategic collaboration and consultation on social and gender issues with other research organizations that focus on agriculture and food security.</p>	<p>Rural territorial development research is now being discussed or applied in other regions. A high-performing existing partner is well positioned to play a lead role in broadened testing and use. Main risk is that territorial approach has most widely been tested in LAC.</p> <p>Models and methodologies for value chain research have been developed, which need to be tested in other circumstances, including integration of ICT4D concepts.</p> <p>New partners and continued work with promising projects are needed to extend work on climate change to implications for agriculture and food security. Existing partners from CCAA program will be used in Africa. In Asia and LAC there are some existing partners, but new partnerships will also be needed.</p>	<p>Mostly new partnerships (90% of fund based on open calls for projects) but some funding (10%) reserved for ongoing partnerships (likely some IDRC).</p> <p>Follow up programming in years 3-5 can draw on new and ongoing successful partnerships.</p> <p>All programming in the CIFSRF will involve a Canadian partner, greatly strengthening the presence on IDRC with the Canadian agriculture and food security research community, but almost all partnerships will be new.</p>

The CIFSRF is a joint initiative between IDRC and CIDA. The fund recognizes a need to harness and leverage Canadian capacities relevant to agriculture and food security research, in partnership with organizations in the South. While the CIFSRF does not specify capacity building as an explicit goal, it will contribute via the likely participation of graduate students conducting their research within specific projects involving universities.

The CIFSRF will be open to effective partnerships between Canadian and developing country academic, private sector, civil society, and research-based organizations. Most of the support will go to large-scale projects (CA\$ 1-5 million) lasting 2 to 3½ years. Call definitions and processes, along with selection of projects for funding will be subject to a Governance Committee co-chaired by IDRC and CIDA. Members of the AFS team (as well as some program officers from other IDRC teams for proposals that overlap with their priority areas) will support a Scientific Advisory Committee (co-chaired by IDRC and CIDA). Policy research per se is not being supported but synthesis of the projects (a planned activity of the Fund) is expected to inform policy options for agricultural development and food security.

d. Regional and Thematic Priorities

We use the 2008 *World Development Report* classification of agriculture operating in three “worlds” (agriculturally-based countries, transforming countries, urbanized countries) to initially illustrate how regional context can affect thematic priorities. These are intended to be illustrative with specific nuances and options identified as the programming unfolds (e.g., submissions to the open calls of the CIFSRF).

Countries in Sub-Saharan Africa are primarily agriculturally-based, where the agri-food sector is a primary motor of economic growth and means for poverty alleviation. Food insecurity is rife, primarily in the small-scale farm sector but also among the urban poor. Accordingly, strategies for agricultural growth in the small-scale farm sector can contribute to poverty alleviation, contribute employment and income opportunities via value chains, and improve food security by providing a larger amount and more diversified supply of locally-produced food to urban and rural consumers. Key entry points for research in Sub-Saharan Africa will include: finding productivity-enhancing solutions to increase agricultural production and diversity of major staples, as well as underutilized food crops, animals and fish production; increasing resilience of smallholder agricultural systems to climate change and other shocks (markets, conflicts, policies); and improving market and income opportunities for the poor.

As a region, South Asia accounts for more than one third of the food insecure people in the developing world. South Asia is a rapidly transforming region but it also has elements of an agriculturally-based region. By virtue of its size and population density, India alone has significant numbers of food insecure people – and with China, the FAO reports that the region accounts for 42 percent of the chronically hungry people in the world. Statistics also hide regional, local and intra-household dimensions of food insecurity including extensive undernourishment of children less than 5 years, micro-nutrient deficiencies and unequal entitlements to food, water or healthcare services. South Asia as a region is susceptible to the vagaries of climate change and its impact on the monsoon system. In the absence of reliable weather-related information or inclusive agricultural insurance systems this has significant implications for agricultural productivity and food security. Key entry points for research in South Asia include: improved seeds, practices and timely access to weather, climate and market information in order to adapt to climate change; more efficient and equitable water allocation and pricing policies, particularly those for decentralised water governance; and a better understanding about how women can contribute to improved decision-making in agriculture and intra-household food entitlements, with links between nutrition, rights and access to key resources, including financial and risk-sharing mechanisms, and food security.

Rapid economic growth and growing integration in regional and global economies in Southeast Asia characterize many of them as transforming countries, leading to profound social, economic and environmental change. This includes urbanization and labour migration, growing spatial disparities in income, and the evolving organization of food production systems and land-use patterns. Often, this involves the privatization of common pool resources such as rangeland, forests, and fisheries and/or commoditization of previously readily available resources such as water and seeds. Agricultural land distribution is becoming more skewed in some regions and cash crop cultivation (including potential biofuel crops) is growing rapidly. Some people are more able to benefit from these trends and social differentiation is increasing. Gender is one important dimension of this differential impact of economic change. Key entry points for research in South East Asia include: the need for strengthening food security in “marginal” agricultural systems that are (partially) based on forests, livestock and fishing; land dynamics (including increasing landlessness and concentration of land in some regions), migration and urbanization; and the role of (emerging) farmer

organizations concerning access to natural resources (including water for irrigation), information, credit and services, and changing value chains, concerning the provision of (environmental) services, and as (new) political actors in rural development.

Middle East and North Africa (MENA) countries are transforming and import 50% of the calories they consume — mainly cereals (wheat in particular) — with costly food consumption subsidies in some countries (e.g., Egypt). High reliance on imports means consumers and governments (given consumption subsidies) are very exposed to severe swings in commodity prices. Food production is limited by uneven and low rainfall, severe limits to arable land, and reductions in agricultural productivity growth. Cereal yields are currently at half the world average and the gap is growing. Coupled with high rates of population growth, meeting the food needs of the region will be a challenge. There is little to no potential for sustainable increase in water use in most Arab countries. Key entry points for research in MENA include: knowledge-based policy to respond to food insecurity through improved agricultural water management, with climate change and variability as an added stressor; understanding risks and tradeoffs between food security policies to achieve self-sufficiency in key staples (e.g., wheat) with advantages and disadvantages of more diverse production possibilities for the small-scale farm sector; and understanding the potential of ICTs in mainstreaming approaches and technologies for agricultural productivity and value chain options.

Latin America and the Caribbean (LAC) is a highly heterogeneous region, including urbanized countries with large-scale and very modern export-oriented agri-food systems, other countries still highly rural with a sizable small-scale farm sector, and small island states as in the Caribbean. Within many Latin American countries there are important territorial dynamics, where large scale systems co-exist with and sometimes threaten the small-scale farm sector. Significant land-use change continues, particularly in forest margins, invoking important tradeoffs and conflicts between poverty reduction goals, agricultural production opportunities, environmental services and indigenous land claims. Even with economic growth across the region there are significant concentrations of poor rural and urban people, with serious food insecurity. There are growing investments, but mainly with a sector-specific approach (i.e., few integrated investments). Key entry points for LAC include: forming a better understanding about the way tested options affect differently and can be used by three key sub-groups in the small-scale farm sector-- “*commercial/ modern systems*”, “*agro-ecological systems*”, “*subsistence systems*”; a continued focus on policy and territorial dynamics including ways in which rural development policy needs to take account of territorial differences to be successful and assess effects on food security in rural and urban areas; and transboundary resource management (water and fisheries, for example) that can generate tradeoffs between commercial interests and the provision of environmental services, as well as be a source of tensions or conflicts between countries.

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