



Strategic Program on Resilient Food Systems

View from the Field: Challenges in international agriculture

For decades international agriculture research and development (R&D) programs have delivered science, know-how, and practices. The fundamental goal has been to help millions of people in the developing world increase food production, reduce rural poverty, improve nutrition and health, and strengthen food security. And while agriculture R&D practitioners and policymakers typically see these issues as interrelated, food security alone is multidimensional, and the interplay of food availability, access, utilization, and stability/ vulnerability has not always been well understood and supported by policies focused on poverty reduction and sustainable livelihoods. This has hindered the creation of long-term solutions to strengthening food security.

The challenge of food vulnerability looms particularly large in one type of agro-ecology widely distributed in Latin America, Africa, and Asia: tropical mountain agricultural systems. Such areas are often associated with ethnic minority populations who are highly dependent on root and tuber crops (RTC) and who struggle with economic marginality, difficult terrain, extreme weather events, and limited access to markets. Other areas facing this development challenge are the disaster-prone lowlands in South and Southeast Asia and certain island populations in Southeast Asia, the Pacific, and the Caribbean where RTC make up a large part of food security and livelihood strategies in coastal communities. As a whole, these are some of the most intense poverty hotspots on Earth, with high levels of malnutrition and debilitating levels of migration. Moreover, data show that increasing economic prosperity has not filtered down to the rural poor and economic prosperity of society alone is not sufficient to accelerate reduction of hunger and malnutrition of vulnerable populations.

Applying a resilient food systems approach to strengthening smallholder food security

CIP's strategic program of Resilient Food Systems seeks to better understand the dynamics of food vulnerability and how to reduce it in order to strengthen food security. The program examines ways to operationalize the dynamic concept of food vulnerability as part of agricultural R&D so as to develop a framework for its analysis and design resilience interventions. In this program our work analyzes food vulnerability issues in different contexts in areas of the Andes and Asia that are both unique and common among the diverse sweetpotato and potato agro-ecologies and those who depend on them. CIP assesses and designs intervention research to reduce vulnerability in specific vulnerable areas where it has already gained experience in food security innovation.

Out of this work come R&D models oriented toward greater impact and sensitive to experiential feedback. In turn, the refinements of food security approaches, research interventions with partners and improved

operationalization will contribute to a research agenda that is more focused and sensitive to food security, one that CIP can integrate into its other programs. The Resilient Food Systems program also responds to the need for flexibility to take projects to scale, measure their impacts, and use their lessons to adjust and enrich research activities and priorities.

Stronger alliances and partnerships to enrich and sustain impact

Two recently completed projects highlight the effectiveness of the Resilient Food Systems program. In Asia, the 4-year FoodSTART project gave prominent attention to food vulnerability at different levels of the food security hierarchy: individual, household, community, provincial, and national. The framework has guided application of the General Assessment Methodology for characterizing the role of RTC in food security in the Asia region. It has also made major progress in translating research findings into usable products for large-scale development. CIP has moved from a science-driven paradigm that

generates research outputs and hands them over to partners, to a more targeted and balanced approach driven by demand and supply. This process model offers an excellent basis for addressing the new focus on food security and, especially, the dynamic aspects of vulnerability and resilience of food availability, access, and utilization.

The IssAndes project, completed in 2014, promoted the interaction between agriculture, nutrition, and health as a key factor in rural areas. The project worked to generate results according to the five dimensions of the food security problem: availability (native potato varieties with higher yield and quality); access (income improvements for the quality of production); use (native potatoes with higher micronutrients); stability (better responses to pests and diseases and climate change); and institutions (committed public spaces and support laws). The project explored the relationships between agricultural production characteristics and nutrition of young children of families in the Andes and contributed to develop composite vulnerability indexes, spatial correlations, and drivers of risk to food insecurity and nutrition in the Andes. Most of these research

areas have involved interdisciplinary collaboration; many have included innovation in participatory methods that fostered intellectual capital and made important contributions to innovation systems thinking. The project developed, supported, and monitored networks and partnerships drawn from diverse public and private sectors, particularly for value chain development.

Tapping the potential

By 2018, CIP's goal is to develop a set of systems- and social science-based frameworks, methods, and tools under the Resilient Food Systems strategic program. This program seeks to better understand and overcome the vulnerability to food insecurity issues unique to each and common across, diverse sweetpotato and potato agro-ecologies. Although the program first will be active in Latin America and Asia, system research sites could be added in Africa in the coming years. IssAndes and FoodStart combined applied research with research focusing on use of complex systems science in agricultural and natural resource contexts, climate-agriculture interactions, predictive modeling, participatory geographic

information systems, and in-situ conservation of crop genetic resources. This combined project experience will help to develop CIP's overall food security and gender-sensitive research agenda.

We anticipate that key proof of concepts will provide rich experiential data to improve the analysis and deeper understanding of food vulnerability in stressed environments where RTC are key system components. Resilient Food Systems will continue to identify hotspots of food vulnerability in RTC farming and food systems and analyze sources of uncertainty. Through learning sites the program will validate a research framework, design methods, and implement interventions with

partners to reduce food vulnerability and strengthen the resilience of these systems.

Using capacity building and partnership with diverse stakeholders, particularly those that contribute to decision-making, the methods developed by this program will contribute to enhance the design and implementation of R&D interventions addressing the existing and emerging challenges of RTC food systems.



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