

Preface

A CGIAR Challenge Program (CP) is a time-bound, independently-governed programme of high-impact research that targets the CGIAR goals in relation to complex issues of overwhelming global and/or regional significance, and requires partnerships among a wide range of institutions in order to deliver its products.

Exploratory discussions in 2007 between representatives from all 15 CGIAR Centers and leading researchers from the global environmental change research community, under the auspices of the Earth System Science Partnership (ESSP), agreed to jointly prepare a proposal for a Challenge Program on issues relating to agriculture, food security and climate change. Following a detailed scoping exercise, which culminated in a successful pre-proposal for a CP, this document was prepared by a Leadership Group comprising four CGIAR and four ESSP representatives (Annex 1).

This final version of the Program is based on the version agreed by the Chair of the Alliance Executive and the Chair of the ESSP Scientific Committee and incorporates early comments by the CGIAR Science Council and Executive Council. It was approved by the CGIAR Executive Council (May 2008) subject to CGIAR Science Council agreement of revisions (agreed September 2008).

The Alliance of the CGIAR Centers and ESSP are very grateful to the many people who have made contributions to its development, including those in the various planning and drafting workshops, and those who have contributed electronically.

Summary

The Challenge Program on Climate Change, Agriculture and Food Security (CCAFS) unites the complementary strengths of the CGIAR system and the Earth System Science Partnership (ESSP), and their respective partners, to address the most pressing and complex challenge to food security in the 21st century. It is a response to accumulating evidence that the food security and livelihoods of hundreds of millions of people who depend on small-scale agriculture are under significant threat from climate change.

The goal of CCAFS is to overcome the additional threats posed by a changing climate on attaining food security, enhancing livelihoods and improving environmental management. CCAFS will address this goal by generating the knowledge base and toolsets to enable and assist farmers, policymakers, researchers and donors to successfully manage agricultural and food systems so as to

strengthen food security, enhance rural livelihoods, and improve environmental sustainability in the context of the challenges arising from current climate variability and progressive climate change.

CCAFS's objectives are: (1) to close critical gaps in knowledge of how to enhance – and manage the tradeoffs between – food security, livelihood and environmental goals in the face of a changing climate; (2) to develop and evaluate options for adapting to a changing climate to inform agricultural development, food security policy and donor investment strategies; and (3) to assist farmers, policymakers, researchers and donors to continually monitor, assess and adjust their actions in response to a changing climate.

The research is structured within six Themes. The first three – 'Diagnosing vulnerability and analysing opportunities', 'Unlocking the potential of macro-level policies' and 'Enhancing engagement and communication for decision-making' – provide an analytical and diagnostic framework for CCAFS that is grounded in the macro-policy environment, and ensures effective engagement of rural communities and institutional and policy stakeholders. The second three – 'Adaptation pathways based on managing current climate risk', 'Adaptation pathways under progressive climate change' and 'Poverty alleviation through climate change mitigation' – will develop and evaluate instruments, technologies, practices and partnerships needed to decrease the vulnerability of food systems and enable them to prosper under a variable and changing climate. These Themes will also identify and prioritise institutional and policy options for overcoming obstacles to implementing these strategies. The research will produce international public goods (IPG) that will help protect and enhance progress toward achieving sustainable food security and poverty reduction in developing countries in the face of new and intensified challenges imposed by a changing climate.

The strategic alliance between the CGIAR and the ESSP, and their respective partners, will bring together the world's best researchers in agricultural science and Earth system science. CCAFS will build on and amplify both the CGIAR and the ESSP core research agendas, adding value to each and elevating their relevancy to policymakers and stakeholders. The collaboration will allow a truly integrated multi-disciplinary, resilience-based approach to the climate change–food security problem.

Research will be implemented jointly through CGIAR and ESSP partners, other relevant advanced research institutes (ARIs), relevant regional institutions and organisations, and appropriate national institutions (e.g. national agricultural research and extension services, meteorological services and universities). Theme Leaders will be responsible for designing and initiating research activities within their Themes, and for ensuring that work is integrated across questions and among Themes. Much of the research is inherently place-based and will be carried out in focus regions that have populations and agriculture vulnerable to

climate change, sufficient institutional capacity and offer a high chance of generating transferable results. The outputs will be IPG with utility well beyond the research locations. The three regions selected for initial research are the Indo-Gangetic Plains, Eastern Africa and Western Africa; others may be added as funding allows. Research within focus regions will target spatial levels ranging from field to sub-regions. Where possible and appropriate, it will build on ongoing CGIAR and national research infrastructure and research sites.

The activities and outputs of CCAFS are orientated towards three high-level outcomes to achieve impact:

1. Climate variability and climate change issues mainstreamed into national, regional and international agricultural development strategies and institutional agendas.
2. Innovative information products and communication processes developed and maintained at local, national and regional levels.
3. Effective, climate-informed decisions made relating to: (a) setting priorities to identify and fund research and development agendas and adaptation policies and investments at international and regional levels; (b) promoting and implementing adaptation options that render rural communities better able to monitor and adapt to climate variability and change, with full knowledge of the tradeoffs that arise between multiple objectives of increasing food security and sustaining livelihoods and the environment; (c) establishing and maintaining a supporting institutional, policy and infrastructural environment so that adaptation options are effective.

CCAFS has a 10-year timeline:

- Phase 1 (years 1–5): detailed scoping; establishing research teams; building stakeholder communities; reviewing existing preliminary studies; developing initial methodologies; establishing baselines through analyses of current impacts and vulnerabilities; undertaking *ex-ante* assessments of anticipated changes due to CCAFS activities; commissioning initial research on adaptation and mitigation pathways; initial dialogue with the policy community and non-research communities; and delivering a detailed work plan for Phase 2.
- Phase 2 (years 6–10): undertaking detailed analyses of adaptation and mitigation pathways; identifying areas of potential benefits from climate change; capacity building for undertaking trade-off analyses and identifying win-win situations; undertaking *ex-post* analyses of performance of CCAFS activities; launching research into additional and/or emerging issues; ensuring capacity is in place to continue research after the end of the Program; and enriching the dialogue with the policy community and non-research communities.

An independent Steering Committee, comprising a Chair and about 8-10 members, will oversee and make decisions

on science direction and resource allocation. Non-voting CGIAR Alliance and ESSP representatives will maintain links to their respective agendas. The CCAFS Director, the six Theme Leaders and a representative from the institution which hosts the Director and the Secretariat of CCAFS form the CCAFS Management Team. A Stakeholder Advisory Platform will provide advice from stakeholders and maintain their buy-in. This will be open to all interested parties, and funds will be provided to ensure representation from key agencies and stakeholder groups.

CCAFS anticipates a ramped funding level from about US\$10 million in the first year to US\$25 million per year for year 5. Phase 2 funding will be laid out in the detailed work plan to be delivered at the mid-term review.

The CCAFS start-up phase has now been initiated and members of the CCAFS Steering Committee appointed (Annex 2). A search for Director and host institution for the Secretariat has recently been completed. An international Launch Conference is anticipated in early 2010.

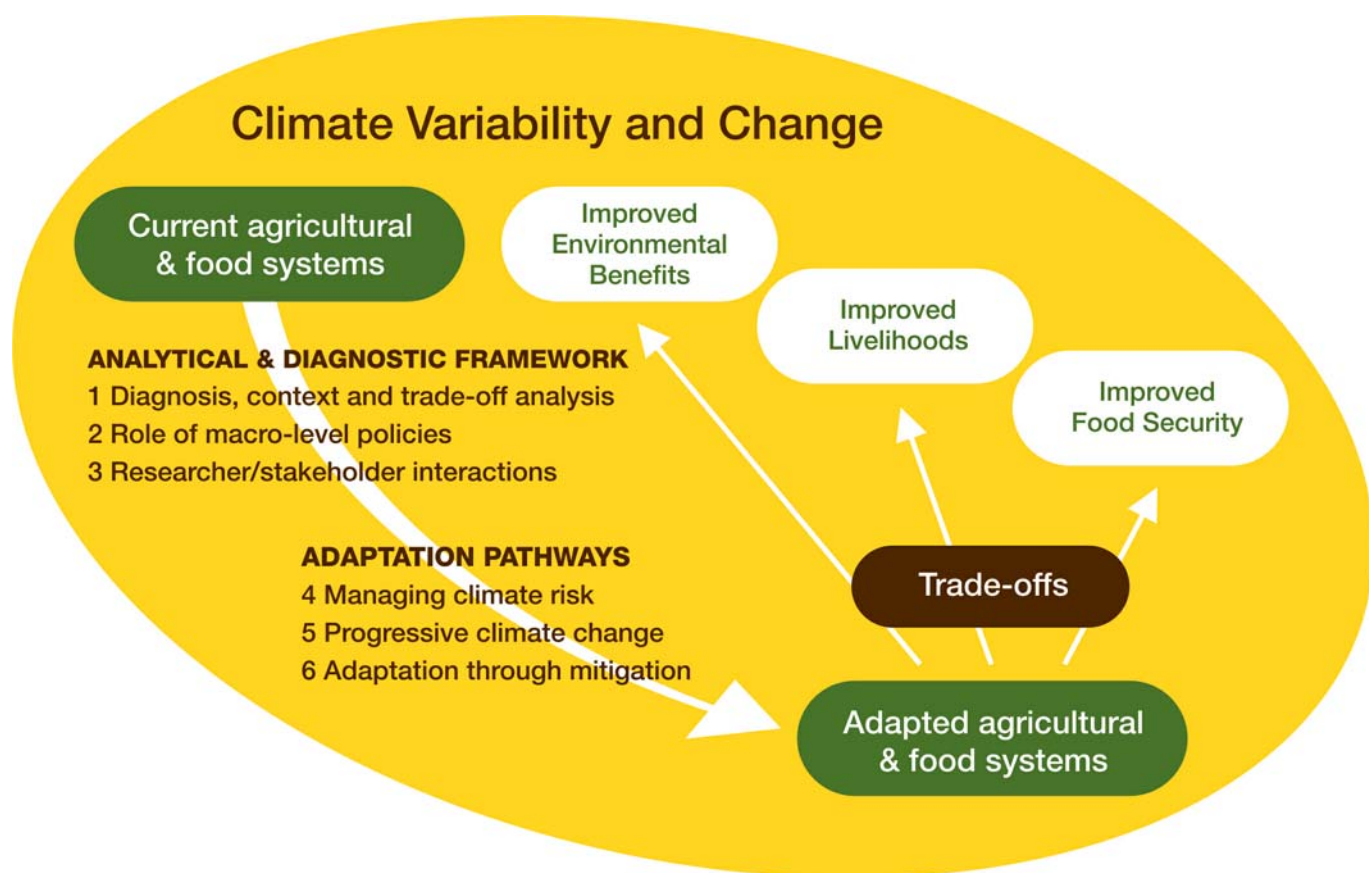


Figure 1. Schematic presentation of the CCAFS research framework and the Science Themes.

CCAFS Science Themes summaries

- Theme 1: Design and implement analytical framework for diagnosing vulnerability of agriculture and food security to climate variability and climate change, and analysing the opportunities for adaptation and mitigation together with their tradeoffs.
- Theme 2: Identify the opportunities and constraints inherent in macro-level policies; and investigate unlocking their potential for adaptation and mitigation through innovation in the design and execution of policy interventions.
- Theme 3: Develop and institutionalise processes for researcherstakeholder interaction that address decision-making needs for responding to climate change; and promote a more effective use of research for enhancing livelihoods and food security, and achieving environmental goals.
- Theme 4: Develop and advance innovations in climate risk management, e.g.: use and impacts of seasonal climate prediction; livelihood diversification; financial risk transfer products and services; managing risk through food distribution, storage, trade and crisis response.
- Theme 5: Develop and advance innovations for adaptation in, e.g.: identifying germplasm needs for climate-related stresses; integrated NRM practices; diversification of production systems; enhanced biodiversity at landscape level; improved institutional settings.
- Theme 6: Evaluate the potential of different practices, technologies and policies which both mitigate the impacts of agriculture on climate and contribute to poverty alleviation through enhanced food security and/or livelihoods.

Criteria for collaborative CGIAR-ESSP research *(Agreed at the CGIAR-ESSP workshop, Oxford, February 2007)*

- Jointly recognised as a priority research programme by both science communities and relevant to stakeholders (researchers, farmers, resource managers, donors, policy makers, etc...).
- Addresses key knowledge gaps related to food security, sustainability and development.
- Requires active, large-scale institutional collaboration between the two science communities combining social and natural systems, at multiple scales of time/space.
- Maximises the chance for success in delivering solutions to climate change adaptation and mitigation for agriculture and food security that are based on innovative science outputs.