

Annexes: CCAFS CRP

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3. Annexes

3.1 Partnership strategy

(i) Who and what type of partners

In expectation that the national level remains the key route to impact, CCAFS will invest most in working directly with national governments and NARES, facilitating science-policy platforms in target countries. Other key partners will be agencies implementing climate-related food security and agricultural development programs (e.g. national meteorological services, farmers' organizations, NGOs). CCAFS expects to work in this way with several hundred partners at sub-national, national and regional levels, coordinating wherever possible with other CRPs and CGIAR entities under Site Integration plans.

A set of 41 Strategic Partners, largely at global and regional levels, will contribute to the governance of CCAFS, as outlined in the management and governance section of this proposal, while also co-investing in shared impact pathways, working together at discovery, proof-of-concept and scaling levels (see examples of partnerships and modes of working in Annex Table 1). All 15 CGIAR Centres are Strategic Partners, as climate change is regarded as crucial to their mandates. The roles, responsibilities and indicative budgets of the 31 non-CGIAR Strategic Partners are specified in Annex Table 2. CCAFS and partners have agreed to joint fundraising to raise these initially agreed investment levels.

CCAFS also views alliances and networks as key to achieving outcome targets and SLOs. Among these, GACSA is a key partnership to link research into emerging large investments, while membership and facilitation of science-policy platforms around the UNFCCC processes, such as AGNES (African Group of Negotiators Expert Support) provides important opportunities to improve agricultural outcomes from climate change policies and programs.

The full range of CCAFS partners includes:

- a. **Research partners:** There are 12 strategic research partners (CATIE, CIRAD, CSIRO, Future Earth, GRA, ICAR, IRI, NUI Galway, Universities of Leeds, Oxford, Vermont, Wageningen) with the addition of ICAR since the pre-proposal to strengthen national ownership and cross-CRP collaboration in SA. Future Earth represents the Global Change research community. Other key research partners at global level include CIRAD, IIASA and University of Reading. Key partners for research in the regions include CORAF, ASARECA, ACPC, CATIE, ICAR and APAARI.
- b. **Public sector, inter-governmental and policy partners:** Governments and government agencies in all focal countries are the primary CCAFS partners for translating research into outcomes at scale. Through its impact pathways, capacity development strategy and strong investments in partnership at all stages of the research cycle, CCAFS will build on successful experiences in Phase I in working with national governments across countries such as Cambodia, Colombia, Honduras, Kenya, Mali, Nicaragua, Nigeria, Uganda and Vietnam. Inter-governmental and policy partners at global level will also be critical. Strategic Partners in this group are FAO, IFAD, IICA, NEPAD, SEARCA and World Bank. All of these are committed to shared actions with CCAFS on bringing climate-smart agriculture to scale.
- c. **Non-governmental development partners:** Non-governmental development partners include international organizations, NGOs and farmers' organizations that deliver food security and agriculture programs at multiple levels. CCAFS will work directly with key programs and organizations at the national level, for example with the producer organization CECOCAFEN in Nicaragua and the NGO Cercle de Sauvegarde des Ressources Naturelles in Benin, to deliver outcomes. Strategic Partners in this group are CARE, CTA, GIZ, IIRR, PAFO, WISAT and World Vision – all of which have substantial co-commitments with CCAFS in Phase II.

- d. **Private sector partners:** During the extension phase, private sector partnerships have been pivotal to several large-scale outcomes (e.g. work with National Insurance Company of India, IKSL, Root Capital, Green Mountain). CCAFS anticipates greater research emphasis during Phase II on investment and implementation, as recently formulated CSA plans are rolled out. Therefore the partnership strategy for Phase II increases engagement with the private sector. At the global level, the strategy will focus on multi-company initiatives, to maximize impact across the agri-food sector (e.g. WBCSD, a Strategic Partner). At regional and national levels, the focus will be on partnerships with individual companies with a track record of improving outcomes for smallholder farmers.

(ii) Roles of partners

The precise roles of Strategic Partners at discovery, proof of concept, and scaling-up phases along the impact pathways are detailed in Annex Table 2. Partners will be represented in the CCAFS ISC through a Future Earth steering committee member and a DG from a CGIAR Centre. Six CGIAR and non-CGIAR partners will be represented on the Program Management Committee. Strategic Partners will all be members of the Partnership Advisory Committee (PAC), which will meet once per year to assess CCAFS partnerships and strategies, reporting to into the ISC through ex officio representatives. At regional and national levels, Regional Program Leaders will be tasked with developing and maintaining partnership arrangements. Depending on the context, this includes various kinds of national or regional stakeholder groups that give input into the program.

(iii) Partnership modalities

As far as possible, CCAFS aims to include partners at all stages of the research cycle and impact pathway. This will entail similar modalities regardless of whether partners are research or development partners. Proven mechanisms from Phase I that will be continued into Phase II are:

- **Joint calls** for research with partners e.g. with regional NARS membership bodies such as CORAF and via open competitive calls under the IFAD-CCAFS Learning Alliance
- **Co-leadership of initiatives** e.g. co-leadership of WBCSD Action Area on improving businesses' ability to trace, measure and monitor CSA progress and co-leadership of Future Earth's Water-Energy-Food Nexus Knowledge-Action Network
- **Co-hosting staff** e.g. with CCAFS staff placements at CATIE, IRI, World Bank and University of Vermont
- **Joint research agendas and questions** e.g. with NARS such as INERA in Burkina Faso, CSIR in Ghana and BRAC in Bangladesh
- **Joint policy agendas** e.g. working with Global Gender and Climate Alliance to highlight gender issues in agriculture under climate change and with multiple agencies on implementation of international policies and laws on use of genetic resources
- **Shared methodology development and application** e.g. a gender toolkit with CARE and FAO, crop yield modeling with ICAR, and knowledge and methods to tailor historic and seasonal climate information to agricultural needs with IRI and West African agencies
- **Direct support to partners' needs** e.g. responding to calls from USAID's Feed the Future program for assistance on investment options, metrics for food security under climate change, and continuous field-based learning
- **Shared strategy, planning and review** e.g. via regional workshops conducted to populate planning and reporting protocols and design impact pathways in a standard way in all projects and regions, generating strong co-ownership of targets and activities among partners
- **Data sharing agreements** e.g. with the Global Research Alliance on Agricultural Greenhouse Gases
- **Shared studentships and degree courses** e.g. a set of PhD studentships with University of Leeds and NUI-Galway and an MSc CCAFS Masters course at NUI Galway

- **Monitoring and evaluation** of the quality of partnerships through annual indicators (e.g. proportion of CCAFS papers authored by NARES authors) and formal reviews at Flagship and CRP levels

(iv) Strategic partnership activities

- Ongoing engagement, dialogue and review:** The ISPC noted that CCAFS has built a comprehensive and relevant range of strategic partnerships for key functions (research, capacity building, knowledge management, action on practices, policy and institutional change, and management and governance), but that regular review will be essential to improving influence on policy processes. CCAFS partners have been selected during Phase I and the Extension Phase through iterative processes of stakeholder analysis, workshops at global, regional and national levels, and pilot work together. The most effective of these partnerships carry forward into Phase II. CCAFS will also work with GFAR during GCARD3 to engage with a wealth of development partners to ratify and refine the CRP's strategy for research and impact. CCAFS regularly reflects on partnerships through internal learning. For example, at the global level, CCAFS has reviewed its role in two key areas of partnership for policy influence, within ([Kalfagianni and Duyck 2015](#)) and ([Okner 2014](#)). In 2014, CCAFS also realigned the portfolio to replace legacy projects; this entailed a reformulation of partnerships to deliver impact pathways. CCAFS partners have been consulted and have directly contributed to the pre-proposal and full proposal.
- Regional initiatives:** CCAFS will continue close alignment with key regional initiatives on improving climate change responses in agriculture. During the Extension Phase CCAFS has worked in Africa with CAADP both to provide direct inputs to countries' CSA plans (under the NAIP framework) and to provide scientific backstopping to the Alliance for CSA in Africa. CCAFS also plans to continue its close partnership with the Africa Group of Negotiators, building on several years of scientific inputs that have helped African countries to improve the quality of their contributions to various fora and processes within the UNFCCC. CCAFS has established relationships and projects with regional bodies in the target regions (e.g. ECOWAS, COMESA, ASEAN CRN, SECAC) as well as with farmers' organizations (e.g. CECOAFEN, FEDEARROZ, FENALCE, EAFF, SACA, WFO) and will work further with these agencies to scale up action.

(v) Sustaining partnerships

The most important factors that CCAFS envisages to sustain and contribute to the success of partnerships are described as partnership modalities above. These include co-hosted staff, co-leadership of initiatives, joint research agendas and methodologies, and joint agendas for policies and outcomes.

One principle that underpins CCAFS partnership strategy ([Vermeulen & Campbell 2015](#)) is that common agendas need to entail participation in partners' initiatives and goals. Hence in building Phase II CCAFS has not only invited partners to co-define outcome targets and impact pathways (via a series of regional workshops; [Schuetz et al. 2014](#)) but has also volunteered to deliver of partners' agendas. Examples include CCAFS participation in the NEPAD-led Alliance for Climate Smart Agriculture in Africa, the ECOWAS Climate Smart Agriculture initiative, the IFAD Learning Alliance for Adaptation in Smallholder Agriculture, the Future Earth Water-Energy-Food Nexus KAN, and the WBCSD Low Carbon Partnership Initiative. CCAFS also cements and sustains partnerships with NARS through working together on multiple projects that link across Flagship Programs (FP), for example with the Indian Council of Agricultural Research, the National Agriculture and Forestry Research Institute in Laos, the Institut d'Economie Rural in Mali and the Nepal Agricultural Research Council.

Clear lines of communication and responsibility are also critical to sustaining partnerships. CCAFS maintains named lead contact persons in CCAFS and in the partner organization. Under Phase I the CCAFS Director has circulated quarterly partners' newsletters, which will continue into Phase II. Coordination and administrative support should not be underestimated as a tool for sustaining partnerships. CCAFS strives to provide transparent sub-contracts and

reporting procedures for partners that receive budget from the program, and memoranda of understanding or other assurances on a flexible basis when required by partners.

(vi) Partnering capacity

CCAFS' principles on CRP behaviours that promote impact ([Vermeulen & Campbell 2015](#)) include strong investment in the financial and staffing capacity for partnership. In Phase II CCAFS will make partnering capacity more explicit through a Learning Platform(LP) entitled Partnerships and Capacity for Scaling CSA. Five Regional Program Leaders and one Global Research Leader for Scaling CSA, all senior staff with substantial experience and specialized in partnership, will devote 50-100% of their time to this LP – a LP that will deliver key research products and link them closely with outcome opportunities. Moreover, CCAFS will offer this LP capacity to the wider CGIAR to provide a mechanism for all CRPs' climate change teams to participate in, or contribute research findings to, partnerships that maximize outcomes from research.

CCAFS will also use multiple mechanisms to maintain and enhance capacity for partnership. Firstly, the CRP will act on the advice of partners given at annual Partnership Advisory Committee meetings. At a more operational level, CCAFS will ensure participation of partners in all key strategy, planning and review events at regional level. The online planning and reporting system will include partnerships needs analysis and performance analysis as compulsory modules. Partnership administration will entail training in – and improvement of processes for – partner sub-contracting, process management and reporting. Finally, CCAFS will provide technical and financial support to networks, platforms and events that are shared with partners.

(vii) Appropriate resourcing of partnerships

As in Phase I, CCAFS will set a budget target of 25-30% to non-CGIAR partners (see budget narratives). As indicated above, CCAFS and Strategic Partners have committed to joint fund-raising around key topics.

Annex Table 1. Examples of CCAFS partnerships within four modes of innovation

Example 1	
Mode 1. Agricultural research partnerships (Research Consortia)	
Name	CGIAR Learning Platform on Climate-Smart Agriculture, Gender and Social Inclusion
Convener	Women in Science and Technology (WISAT)
Specific focus and objective	The focus on the Learning Platform is to ensure that gender and social inclusion is achieved, and that in fact, the gender gap in agriculture does not increase as a result of climate change. The main objectives are to integrate gender within the following four areas: (1) Implementing a program of integrative and strategic research to “build evidence” that is informed by gender research; (2) Ensuring that gender and women’s empowerment are dealt with in coordinated climate and agricultural policy; (3) Building mechanisms to engender finance; (4) Enhancing the capacity of local institutions and services to close the gender gap.
Science agenda	Research to inform, catalyze and target CSA solutions to women and other vulnerable groups, increase the control of disadvantaged groups over productive assets and resources, and increase their participation in climate-relevant decision-making. Gender analysis and methodologies to integrate gender concerns into CSA research and impact assessment.

Geographic focus/location	Primarily: Southeast Asia, South Asia, East Africa, West Africa and Latin America
Role of the CRP FP: Learning Platform on Climate Smart Agriculture, Gender and Social Inclusion	To serve as a conduit for engagement in global climate change processes that involve gender. Promote collaborative research and programs; sharing of methods, tools, and approaches; and exchange of experience on project design, proposal writing, and implementation. Actively participate in the new gender platform. CCAFS management and governance bodies are updated regularly on gender research through membership of the GSI Leader on the PMC; major seminars presenting gender research; periodic gender reviews and other activities. Support gender activities in CSVs; and in programs involving climate information services and weather-based insurance.
Key CGIAR partners and their roles	The cross-cutting learning platform on CSA, gender and social inclusion seeks to test six hypotheses on empowerment of women and youth; four hypotheses link with Flagship Programs while a further two are cross-cutting. Members of the Learning Platform have close links with other CRPs and so will be key nodes to ensure connections. Partners will report annually on gender activities and achievements, as well as on the gender indicators
Key 'external' partners and their roles	WISAT: Housing Gender and Social Inclusion Research Leader (Sophia Huyer). She will lead delivery of this cross-cutting Learning Platform in coordination with all Flagships, coordinating closely with the CGIAR gender network.
Contribution to impact pathway and theory of change	Seeks to inform, catalyze and target context-specific CSA solutions that target women and other social groups and facilitate scaled adoption of CSA practices. Working with multiple global and national / state policy partners for improved policies and programmes will catalyse the increase of targeted investments across scales and enable large-scale LED which increases women's control over productive assets and resources, as well as food and nutrition security. The assumption is that gender-responsive CSA practices, finance tools and mechanisms will help to overcome barriers to adoption and investment in CSA technologies by and for women, support increased access and control by women of resources for increased food and nutrition security, and promote scaling up of CSA. Addresses five gender hypotheses that improved policies and programs, context-specific knowledge on the GSI impacts of practices, technologies and information systems, evidence, incentives and technical capacity will contribute to gender-equitable control of productive assets and increased empowerment.

Example 2

Mode 2. Agricultural innovation delivery partnerships (Partnerships, platforms and alliances with the private sector, NGO and farmers groups creating value for farmers and companies)

Name	World Business Council on Sustainable Development initiative on Climate-Smart Agriculture
Convener	World Business Council on Sustainable Development
Specific focus and objective	WBCSD is leading a new sector value chain initiative focused on Climate-Smart Agriculture (CSA), with ambitious targets for private sector delivery of food security, adaptation and mitigation outcomes by 2030. WBCSD's Action Plan for CSA aims to both reduce agricultural greenhouse gas emissions by 50% while improving the supply of nutritious food by 50% by 2030.
Science agenda	Research on private sector measurement protocols that link across spatial and temporal scales (from local business units to performance on global targets; annual and multi-year)
Geographic	Global

focus/location	
<p>Role of the CRP</p> <p>FP: Learning Platform on Partnerships and Capacity for Scaling CSA (Global level)</p>	<p>CCAFS has partnered with WBCSD to provide scientific advice to develop the Action Plan. CCAFS is leading one of four priority action areas on the CSA initiative on behalf of WBCSD members. CCAFS co-chairs Action Area 3, 'Improving businesses' ability to trace, measure and monitor CSA progress' which identifies opportunities for targeted action, measures and monitors CSA progress at the company level, and reports on progress to the global ambitions.</p> <p>CCAFS will help deliver tracking and measurements for the 2030 targets. CCAFS aims to tailor metrics for CSA measurement from the development and research communities to private sector needs. CCAFS provides the wider WBCSD CSA program with strategic advice on private sector priorities, guidance on regional dialogues in key CSA geographies, and field trips that demonstrate CSA activities and results.</p>
Key CGIAR partners and their roles	<p>Consortium Office (Alain Vidal): high-level engagement</p> <p>CIAT (Mark Lundy): Liaison with synergistic project with Rainforest Alliance and Sustainable Food Lab</p>
Key 'external' partners and their roles	Olam, Monsanto, Kellogg, Pepsico, PWC: Co-Chairs and lead implementers of the Low Carbon Technology Partnership on Climate-Smart Agriculture
Contribution to impact pathway and theory of change	<p>Seeks to scale out strong ambitions, achievement of those ambitions and long-term good practice on climate-smart agriculture among leading global agri-businesses and financiers, particularly those doing business with smallholder farmers in developing countries. A key strategy for CCAFS to contribute directly to the target of 500 million more "climate-smart" farmers. The assumption is that lead firms on CSA will establish a competitive advantage in regulatory and market terms, leading to wider-scale take-up among lagging firms. Addresses hypotheses FP1 H2, FP2 H2 and FP3 H3 on the roles of investment, enabling environment and private programs (in addition to public policies) in bringing the benefits of CSA to scale among smallholder farmers.</p>
Example 3 Mode 3. National Agri-food systems innovation partnerships (Inter-linked farm to policy multi-stakeholder processes and partnerships action changes in food systems that create social and economic value)	
Name	Umbrella Program on Climate Change Adaptation and Mitigation for Southeast Asia (CChAM)
Convener	Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA)
Specific focus and objective	<p>Produce added value in terms of new knowledge, technologies, capacities, processes, and inputs to policies at the national and ASEAN levels through the Umbrella Program on Climate Change Adaptation and Mitigation for Southeast Asia (CChAM).</p> <p>Provide a platform for collaborative research and development, and knowledge management and capacity development on climate change adaptation and resiliency in Southeast Asia.</p> <p>Identify priority areas of convergence and collaboration at the regional and sub-regional levels to develop a synergy effort for climate resiliency in SEA.</p> <p>Support implementation of the ASEAN Vision for Food, Agriculture and Forestry (2016-</p>

	2025)
Science agenda	Priority scientific areas are: (1) assessing climate change impacts and risks for policy, plans and investments; (2) advancing low-carbon agriculture and rural development; (3) enhancing proactive adaptation to climate change, variability and extremes; and (4) enabling policies (including processes) and governance for climate-resilient agriculture and rural communities.
Geographic focus/location	Southeast Asia
Role of the CRP FP: Learning Platform on Partnerships and Capacity for Scaling CSA (Regional level)	Connect CGIAR science to regional science-policy dialogue led by regional partners Co-define priority areas for research and policy Respond directly to policy needs, for example technical inputs into Nationally Declared Contributions to the UNFCCC
Key CGIAR partners and their roles	IRRI: leading rice R4D in SEA, housing Southeast Asia Regional Program Leader; IFPRI: leading agricultural policy work across several Southeast Asian countries; ILRI: leading livestock research in SEA; ICRAF: leading agroforestry research in SEA; CIAT: leading work on prioritization tools and cost-benefit analyses
Key 'external' partners and their roles	ASEAN: co-learning partner; policy platform among Southeast Asian countries; GIZ: co-learning partner; funder of regional partners; Southeast Asia Universities Consortium (UC)-providing graduate studies in SEA
Contribution to impact pathway and theory of change	Seeks to achieve effective policy-science engagement at the regional level in Southeast Asia so that policy is informed by science and vice versa. The assumption is that effective engagement will enable scaling up of effective policies and investments to support equitable climate-resilient future agriculture, leading to long-term improvements for poverty reduction and environment. Addresses several hypotheses across FP1, FP2, FP3 and FP4 on the relationship between improved access to, plus demand for, knowledge and effective out-scaling of widespread positive impacts on livelihoods, environment, and food and nutritional security.
Example 4	
Mode 4. Global development innovation partnerships (Global architectures of MSP platforms create coherence between global and local agendas and implementation strategies and action that brings about systems adaptation)	
Name	Global Alliance on Climate-Smart Agriculture
Convener	Global Alliance on Climate-Smart Agriculture Facilitation Unit
Specific focus and objective	GACSA aims to improve food security and nutrition in the face of climate change by providing a forum for sharing knowledge and experience. GACSA will help governments, farmers, scientists, businesses, intergovernmental organizations, regional units and civil society adjust agricultural, forestry and fishery practices, food systems and social policies to contribute towards three climate-smart agriculture (CSA) outcomes: <ul style="list-style-type: none"> • Sustainable and equitable increases in agricultural income and productivity; • Increased food system and livelihood resilience; • Reduction of greenhouse gas emissions associated with agriculture.

	GACSA aims to expand CSA practices, technologies and programs to 500 million farmers by 2030.
Science agenda	GACSA is a key partnership to link research into emerging large investments. GACSA's Knowledge Action Group focuses on increasing research and development on technologies, practices, and policy approaches for CSA, while filling knowledge gaps that hinder decision-making and implementation. An emphasis is put on incorporating indigenous knowledge systems where possible, and connecting research to the findings of practitioners.
Geographic focus/location	Global
Role of the CRP FP: Learning Platform on Partnerships and Capacity Development for Scaling Up Climate-Smart Agriculture (Global level)	CCAFS marshals the science and expertise of CGIAR to play a role in national to global processes and implementation of CSA; co-leadership of the Knowledge Action Group; supporting GACSA, its members, and other major players in the CSA space with research-informed knowledge to bring CSA to scale effectively; outreach and awareness-raising events; framing targets linked to several SDG goals (1, 2, 12.3, 13, 14, 15), as well as co-developing activities to contribute to them.
Key CGIAR partners and their roles	Consortium Office (Alain Vidal): GACSA Strategic Committee Member IITA, ILRI, and CIMMYT contributed with CSA practice briefs for the Knowledge Action Group.
Key 'external' partners and their roles	113 members, including countries, civil society organisations and companies Includes several CCAFS strategic partners at the global level, which have specific roles in GACSA: IFAD: Collaboration under the umbrella of the GACSA Investment Action Group FAO: Co-facilitation of the GACSA Knowledge Action Group World Bank: co-launching a CSA portal
Contribution to impact pathway and theory of change	Active participation in a global partnership effort to raise awareness, coordinate efforts and share solutions on bringing climate-smart agriculture to large scale (500 million farmers by 2030). For CCAFS this Alliance provides a credible and wide-reaching platform for interacting with partners and next users farm through to global investor/policy-maker level, relevant to all Flagship Programs and the Learning Platform on CSA, Gender and Social Inclusion. The assumptions are that GACSA membership is broad-based and growing enough to catalyse systemic change across the world, and that the forum will have sufficient energy and longevity to deliver meaningful outcomes and impacts. Addresses hypotheses FP1 H2, FP2 H2 and FP3 H3 on the roles of investment, enabling environment, policies and programs in bringing the benefits of CSA to scale among smallholder farmers.
Example 5 Mode 1. Agricultural research partnerships (Research Consortia)	
Name	<i>ccafs-climate.org</i>
Convener	CCAFS
Specific focus and	Curates a considerable amount of future climate data and tools on one open-access

objective	portal used by many CRPs and Centres, as well as tens of thousands of non-CGIAR users Provides a key repository of future climate information
Science agenda	Helps to reduce duplication of effort in making the outputs from climate models used in the IPCC Working Groups available and accessible to a wide range of users Achieves some level of standardisation in tools and analyses as well as climate data across CRPs and Centres
Geographic focus/location	Global
Role of the CRP FP: 1	Hosts the portal on behalf of CGIAR and non-CGIAR strategic partners
Key CGIAR partners and their roles	CIAT hosts portal; CIAT, ILRI, IFPRI contribute data, documentation, curation
Key 'external' partners and their roles	Universities of Leeds and Reading, Future Earth, AgMIP, PIK and ISI-MIP – share in the portal and provide data, standardised methods, guidance and further publicity
Contribution to impact pathway and theory of change	Seeks to raise global research capacity by making the outputs from climate models used in the IPCC Working Groups available and accessible to a wide range of users (2200 organisations from 185 countries, of which 400 are non-research organisations in 60 countries; to date, more than 300 refereed publications acknowledge use of the portal). Addresses FP1 research hypothesis <i>FP1 H1</i> : CCAFS projections, scenarios methods, and priority setting tools will help decision makers target and implement policies and programs at various scales that improve food and nutrition security. Builds on FP1 assumption that scientific knowledge is a desired input into decision-making, and decision makers recognise the need for both scientific evidence and soft skills to use the former effectively.

Example 6

Mode 2. Agricultural innovation delivery partnerships (Partnerships, platforms and alliances with the private sector, NGO and farmers groups creating value for farmers and companies)

Name	East Africa Dairy Development Project
Convener	EADD, UNIQUE Forestry and Land Use
Specific focus and objective	The East Africa Dairy Development (EADD) Programme works to strengthen the region's dairy industry to make milk supply meet demand. EADD simultaneously aims to address the issue of greenhouse gas emissions related to livestock production. Objectives are thus to harness information for decision-making, expand access to markets, and increase productivity and efficiency. Current phase aims to increase participation by women farmers. A proposal for a Nationally Appropriate Mitigation Action (NAMA) will be submitted for climate finance to scale up practices.
Science agenda	EADD partners, UNIQUE and CCAFS scientists focus on the issue of improving livestock productivity in ways that also reduce greenhouse gas emissions. Key challenges are the lack of data on emissions for current and new practices, identifying best practices, securing

	finance for scaling up of best practices, increasing participation by women, and monitoring emissions. Action research with partners is being conducted to identify best practices and increase women's participation. Simple standards for monitoring emissions in smallholder systems are being developed, as well as the establishment of costs and benefits of mitigation practices.
Geographic focus/location	East Africa; Kenya, Tanzania
Role of the CRP FP: 3	CCAFS engagement encouraged EADD to adopt climate-smart agriculture as a programme objective, building in a low emissions development trajectory that also offers livelihood benefits to farmers. CCAFS provides technical support on mitigation option; links to climate finance and national policy; and measurement of emissions reductions.
Key CGIAR partners and their roles	ILRI: study feed practices and animal management to identify options for mitigation ICRAF: establish monitoring systems; supporting development of NAMA.
Key 'external' partners and their roles	UNIQUE Forestry and Land use: reviewed and select new climate-smart agriculture interventions in the new phase of the program and facilitate partnerships for climate finance; FAO: worked with CCAFS scientists to estimate emissions and productivity in dairy systems; Technoserve: helped farmers organize into dairy business associations to manage chilling services; African Breeders' Services: provided technical support.
Contribution to impact pathway and theory of change	Seeks to contribute scientific evidence to a large-scale multi-stakeholder program in order to maximize livelihood benefits of low emissions development to large numbers of smallholder livestock keepers Addresses both FP3 research hypotheses , <i>Hypothesis FP3 H1</i> : LED practices for agricultural landscapes and value chains significantly reduce GHG emissions while ensuring rural food security and improving livelihood options. <i>Hypothesis FP3 H2</i> : Improved evidence, incentives, technical capacity, social mobilization and other enabling conditions for LED will support governments, the private sector and donors to implement LED policies and programs at large scales (> 250K farmers or 1 mil ha/per program). Builds on FP3 assumptions that countries and the private sector want to invest in LED options in agriculture; agricultural development activities incorporate new practices; LED options become integral components of farmers' good production practices.
Example 7 Mode 3. National Agri-food systems innovation partnerships (Inter-linked farm to policy multi-stakeholder processes and partnerships action changes in food systems that create social and economic value)	
Name	Climate-smart villages in South Asia
Convener	CIMMYT
Specific focus and objective	Participatory research with NARS and farmers at "climate-smart villages" to test portfolios of climate-smart options and provide a learning platform for national policy-makers and CGIAR on best-bets for investment

Science agenda	Provision of scientific research sites and Learning Platform across all AFS CRPs to understand the performance of technologies and practices in terms of “climate-smartness” (food security, adaptation, mitigation) to use participatory research with farmers to generate greater evidence of CSA effectiveness in a real-life setting (including technological, social, institutional, financial, value-chain and policy innovations), eventually leading to prioritization of the best and practical adaptation options for particular geographic areas aiming to improve food security, livelihoods, nutrition and resilience, providing evidence and demonstration of best-bet CSA options that are deserving of investment for scaling out across a wide range of agro ecological zones with different farmer’s typologies, climate risks and vulnerabilities.
Geographic focus/location	Nepal, Bangladesh, India
Role of the CRP FP: 2	Lead scientific methods for testing portfolios of CSA options Facilitate processes for learning at CSVs by policy-makers and private sector Enable the CGIAR to provide comprehensive guidance on CSA options, and through ambitious partnerships ensure active evidence-based discussion on when (and when not) CSA is a viable option for climate finance and mainstream agricultural investment.
Key CGIAR partners and their roles	Close integration with AFS-CRPs to identify technologies and practices. CIMMYT (housing CCAFS Regional Program Leader), IWMI, IRRI and CIAT have strong roles in the South Asian context to lead the work and deliver cross-CRP collaboration and site integration.
Key ‘external’ partners and their roles	Nepal Agricultural Research Council, Bangladesh Agricultural Research Institute and Indian Council of Agricultural Research leading research in respective countries; input providers (private sector); sub-national and national governments; WISAT to lead gender and social inclusion research.
Contribution to impact pathway and theory of change	Seeks to inform the significant investment that is becoming available for scaling CSA, through a pipeline of tested CSA options that can be adapted to different site-specific conditions and maximise value for money. CSVs will generate evidence of CSA effectiveness at local scales (hypothesis 1) and inform appropriate incentives and scale-out strategies to generate greater CSA investment and outcomes (hypothesis 2). Addresses FP2 research hypotheses , particularly <i>FP2 H1</i> that Context-specific knowledge on the impacts of portfolios of practices, technologies and information systems on CSA-related outcomes as well as on their cost-effectiveness advantages compared to current practice, leads to adoption of CSA at the local level. This in turn informs appropriate incentives and scale-out strategies to generate greater CSA investment and outcomes (<i>FP2 H2</i>). Builds on FP2 assumption that CSA differs from “business-as-usual” approaches by emphasizing the capacity to implement flexible, context-specific solutions, supported by innovative policy and financing actions.
Example 8 Mode 4. Global development innovation partnerships (Global architectures of MSP platforms create coherence between global and local agendas and implementation strategies and action that brings about systems adaptation)	
Name	Global Framework on Climate Services (GFCS)

Convener	World Meteorological Organization (WMO)
Specific focus and objective	Formalization of the global commitment to develop effective climate services in vulnerable countries. GFCS aims to improve management of risks related to climate variability/change and adaptation through the incorporation of science-based climate information and forecasting into policy, planning and practice at global, regional and national scale.
Science agenda	Addressing critical gaps in knowledge, methodology, capacity and evidence to better deliver climate services.
Geographic focus/location	Global
Role of the CRP FP: 4	Member of GFCS Partner Advisory Committee
Key CGIAR partners and their roles	ILRI CCAFS Climate Services Scientist initiated engagement with GFCS, and led CCAFS component of GFCS Adaptation Program in Africa. East Africa GFCS work coordinated through ILRI East Africa Regional Program. ICRAFT provided expertise on needs assessment, and ICRISAT on ICT-based communication.
Key 'external' partners and their roles	World Food Programme (WFP): a key partner with CCAFS in guiding GFCS strategy for the agriculture and food security sector, jointly managed training of extension workers in East Africa in Participatory Integrated Climate Services for Agriculture (PICSA). WMO: convenes the GFCS and hosts GFCS Secretariat, partners with CCAFS regional work in East Africa; Executive Council Task Team; Extraordinary Session of the World Meteorological Congress; Intergovernmental Board on Climate Services; Centre for International Climate and Environmental Research in Oslo (CICERO): R&D on climate services; International Federation of the Red Cross (IFRC): implementing Climate Services Adaptation Programme in Africa; World Health Organization (WHO): joint Climate and Health Office;
Contribution to impact pathway and theory of change	<p>Seeks to embed FP4 research into a global process to close the gap between demand for climate-informed services and supply, providing a coherent framework for coordinated action that avoids duplication among the major players and thus holds the potential to reach scale more quickly and cost-effectively than through parallel efforts</p> <p>Addresses FP4 research hypotheses, particularly <i>Hypothesis FP4 H2</i>: Overcoming key gaps in available climate information, in knowledge and methods to effectively target and implement climate-informed services and interventions, and in the evidence of their benefits, leads to more effective use of climate information by farmers and by the institutions that serve them.</p> <p>Builds on FP4 ToC assumptions: (1) Improving access to relevant climate-related information can remove obstacles to implementing advisory, insurance and safety net services that effectively empower and protect rural communities. (2) The effectiveness and scale of weather-related insurance and safety nets targeting smallholder farmers are constrained by gaps in knowledge, methods, tools, capacity and evidence; and CCAFS and its partners have a comparative advantage to address these gaps. (3) Growing interest and increasing investment in climate services will continue, creating opportunity to expand reach to rural communities in the developing world. CCAFS research and engagement will influence targeting, design and coordination of investments; and spur further investment</p>

	through evidence. (4) Effective partnerships with relevant major organizations and initiatives working in climate services, agricultural insurance, and food security information and response will be maintained and expanded.
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Annex Table 2. Proposed topics for collaboration between non-CGIAR Strategic Partners and CCAFS. The funds shown are for the partners' own use, or may involve transfers of funds among partners.

Strategic partner	Areas of collaboration with CCAFS (2017-2022)	Key stages of impact pathway	Co-investment in 2017 (000 USD)		CCAFS Contact Point
			Strategic partner	CCAFS	
Research partners					
CATIE	<ul style="list-style-type: none">• Providing scientific-development platform for CCAFS in LAM with emphasis in Central America (Nicaragua and Trifinio)• Hosting CCAFS LAM CSV scientific coordinator in Central America• Increasing smallholder, producer organization, value chain and territorial platforms’ capacities to adapt to impacts of climate variability/change• Scaling-up and scaling-out good practices and lessons learned• Supporting Latin American countries in implementation of CSA through an inclusive and territorial approach by: i) identification of specific country goals; ii) identification of technical/financial needs/strategies to achieve goals; iii) implementation of fundraising strategies and engagement	Discovery Proof-of-concept Scaling out	200	200	LP6 Scaling CSA LAM
CIRAD	<ul style="list-style-type: none">• Collaborate with CCAFS on 4 pour mille initiative, including global activities and country activities in at least WA and SEA (FP3)• Supporting climate-smart villages in Colombia and SEA (with both regions having seconded scientists) (CoA 2.1, LP2)• CIRAD scientists at CATIE linked with CATIE in joint work with CCAFS in Central America• Joint activities on modelling linked to AgMIP• Key partner with CIFOR and FTA/CCAFS in the Brazil cattle and deforestation project (CoA 3.3)	Discovery Scaling out Proof-of-concept	562	500	Director
CSIRO	<ul style="list-style-type: none">• Downscaling climate change impacts, including incorporating variability (LP1)• Cross-scale modelling of livelihoods in relation to climate smartness across scales (CoA 1.1)• Transformational processes, adaptation pathways and guidelines (CoA 1.2)• Farm-scale mitigation (CoA 3.2)• Farm-scale adaptation (CoA 2.1)• Innovation systems (LP6)	Discovery Proof-of-concept Scaling	400	400	FP1
Future	<ul style="list-style-type: none">• Representing partners on the CCAFS	Proof-of-	TBD	120	Director

Earth	<p>Independent Steering Committee</p> <ul style="list-style-type: none"> • Hosting the Knowledge Action Network on Food-Energy-Water, to which CCAFS will contribute • Joint products/ events in relation to global processes; Co-convene a working group on SDG metrics development 	<p>concept</p> <p>Scaling out</p>			
Global Research Alliance on Agricultural Greenhouse Gases	<ul style="list-style-type: none"> • Data sharing on GHG emissions from smallholder farming (FP3) • Technical guidelines for field measurement and contributions (LP4) • Capacity building on quantifying GHG emissions • Joint documentation on MRV for reducing emissions from livestock; and policy briefs • Joint meetings to coordinate research agendas 	<p>Discovery</p> <p>Proof-of-concept</p>	TBD	210	FP3
ICAR	<ul style="list-style-type: none"> • Creating evidence for climate-smart villages and scaling out (CoA 2.1, LP2) • Developing improved triggers for crop insurance • Joint work on modelling agricultural systems 	<p>Discovery</p> <p>Proof-of-concept</p>	TBD	150	LP6 Scaling CSA SA
IRI (Columbia University)	<ul style="list-style-type: none"> • Hosting the FP2 leader • Knowledge and methods to tailor historic and seasonal to sub-seasonal climate information to agricultural needs (CoA 4.1) • Embedding climate information into services (CoA 4.2) • Brokering partnership with global climate services community (CoA 4.2/4.4) • Guidance on index insurance implementation good practice and partnership opportunities (CoA 4.3, LP4) • Good practice guidance on interpreting and using climate change scenarios for impact studies 	<p>Discovery</p> <p>Proof-of-concept</p>	900	2750	FP4
NUI Galway	<ul style="list-style-type: none"> • Agricultural research on climate-proofed biofortified crops for maternal and child nutrition • Labour-saving CSA practices & gender-sensitive CSA innovations for women smallholders (LP5) • Strengthening CCAFS research collaborations with A4NH and DCL • Training and capacity building oriented international Masters degree (MSc CCAFS) • PhD and postdoctoral researcher training and research on CCAFS aligned topics • Partnership on development of SFI Research Center for Carbon-Neutral Agri-Innovation 	<p>Discovery</p> <p>Proof-of-concept</p>	186	80	FP2
Univ of Leeds	<ul style="list-style-type: none"> • Co-leadership and scientific backstopping under CoA 2.2 	Discovery	250	100	FP2

Univ of Oxford	<ul style="list-style-type: none"> • Hosting a scenarios team on climate change and food and nutrition security foresight (CoA 1.2) • Food and nutrition security perspectives for climate change 	Discovery Scaling out	400	400	FP1
Univ of Vermont	<ul style="list-style-type: none"> • Hosting the FP3 leader • Food security and mitigation of GHG emissions in coffee, soybean, rice, maize and other systems • Reducing the impacts of agriculture on land use conversion • Participatory planning for CSA in coffee landscapes 	Discovery Proof-of-concept Scaling out	790	3200	FP3
Wageningen University	<ul style="list-style-type: none"> • Leadership on business models and finance for scaling CSA (CoA 2.4) • Leadership on reducing emissions from food loss and waste (CoA 3.3) • Co-leadership on food and nutrition security futures; Food systems perspectives for climate change and nutrition (MAGNET model and H2020 SUSFANS) (CoA 1.2) • Key partner in the East African Regional Program • Major project work on: managing nitrogen to reduce emissions (CoA 3.2); Enhancing incentives to reduce emissions in dairy value chains (CoA 3.3) 	Discovery Proof-of-concept Scaling out	550 TBC	6610	Director
Development partners					
SEARCA	<ul style="list-style-type: none"> • Produce added value in terms of knowledge, technologies, capacities, processes and inputs to policies at national/ASEAN levels through Umbrella Program on Climate Change Adaptation and Mitigation for Southeast Asia (CChAM) • Provide a platform for collaborative research and development, and knowledge management and capacity development on climate change adaptation and resilience in Southeast Asia • Priority areas for collaboration at the regional and sub-regional levels include: (1) assessing climate change impacts and risks for policy, plans and investments; (2) advancing low-carbon agriculture and rural development; (3) enhancing proactive adaptation to climate change, variability and extremes; and (4) enabling policies and governance for climate-resilient agriculture and rural communities • Support implementing the ASEAN Vision for Food, Agriculture and Forestry (2016-2025) 	Proof-of-concept Scaling out	1090 (SEARCA 400 + counterpart funds from SEARCA partners 690)	500	LP6 Scaling CSA SE Asia
CARE	<ul style="list-style-type: none"> • Climate and agricultural finance that matters for poor women and men and youth to enable climate-resilient pathways out of poverty (helping 	Proof-of-concept	300 (e.g. CARE has bilateral	345	LP6 Scaling CSA

	<p>CCAFS mainstream GSI) (LP5)</p> <ul style="list-style-type: none"> • Impactful practice in strengthening gender equality and social inclusion in 'climate-smart' communities, agriculture and rural enterprises • Facilitating 'climate-smart agriculture' that bring benefits to poor and marginalized communities (CoA 2.1/2.2) • Scaling-out climate information services and participatory scenario planning through community-driven adaptation and risk management initiatives (CoA 4.2) • Bringing gender equality and social inclusion lens to UNFCCC negotiations and other global processes through joint papers and events (LP6) 	Scaling out	project for Laos linked to their CCAFS project – 1 million over 4 years)		Global
CTA	<ul style="list-style-type: none"> • Joint communication and dissemination on key strategic products, both global and regional • Joint global or regional events to promote products and engage in policy processes • Collaboration on scaling up projects in EA, SA and Southern Africa 	Scaling out	300	700	LP6 Scaling CSA Global
FAO	<ul style="list-style-type: none"> • Co-facilitation of the GACSA Knowledge Action Group • Joint global outreach and collaboration on policy engagement around CSA (LP6) • Contributions to the CSA compendium (FP2), including meta-analysis to address constraints by practice, technology & portfolio • Joint work on gender and social inclusion, e.g. Gender and Inclusion Toolkit and CCAFS contribution to IFAD-WB-FAO gender agriculture sourcebook and uptake of CCAFS methods (LP5) • Shared data and methods, for example on household modelling (FP1) and application of the Ex-Act tool for assessing mitigation (FP3) • Policy-science workshops (FP3) and other shared capacity development initiatives, events and products • Complementarity between FP4 and FAO on social protection and other measures to increase resilience to climate shocks 	<p>Discovery</p> <p>Proof-of-concept</p> <p>Scaling out</p>	300	300	LP6 Scaling CSA Global
GIZ	<ul style="list-style-type: none"> • Building links between research and development initiatives involving adaptation and mitigation, involving FP1 FP2 and FP4 work with GIZ agriculture division; and FP3 work with GIZ environment and climate division • Best practice principles for innovation platforms • Work on specific projects as mutually agreed 	<p>Proof-of-concept</p> <p>Scaling out</p>	150 (incl Technical Expert)	300	LP6

IFAD	<ul style="list-style-type: none"> • Learning Alliance between CCAFS and IFAD to deliver innovative IPGs relevant to development programming, contribute to policy dialogue at global and national levels and develop capacity among national research institutions • Joint global outreach including events and policy reports • CGIAR contributions to IFAD-ASAP analyses and country program designs (CoA 1.1) • Collaboration under the umbrella of the GACSA Investment Action Group • Joint work on gender and social inclusion, e.g. CCAFS contribution to IFAD-WB-FAO gender agriculture sourcebook (LP5) 	Proof-of-concept Scaling out	432	500	LP6 Scaling CSA Global
IICA	<ul style="list-style-type: none"> • Strengthening national and regional capacity to address challenges related to climate change and variability in the agricultural sector of LAM. Enabling regional platforms for exchanges of knowledge and lessons learned from local to national experiences on implementing CSA • Supporting countries in agricultural sector planning processes through tailored research and policy outputs to address agroclimatic risks • Scaling-up and scaling-out good practices and lessons learned based on IICA and CCAFS expertise and experience in the region • Supporting LAMn countries in implementation of CSA approach through: i) the identification of country goals; ii) the identification of technical/financial needs/ strategies to achieve those goals and; iii) implementation of fundraising strategies 	Scaling out	150	200	LP6 Scaling CSA LAM
IIRR	<ul style="list-style-type: none"> • Enhancing CCAFS skills in participatory action research (CoA 2.1 and LP2) • Improving capacity development on key CSA technologies (CoA 2.1) • Implementing CSV in SEA (CoA 2.1) • Community based adaptation, establishment of proof of concept sites, and CSA scaling up • Knowledge management for local governments and community level campaigns for CSA promotion 	Proof-of-concept Scaling out	300	150	FP2
NEPAD	<ul style="list-style-type: none"> • Scaling up CSA via the Alliance for CSA in Africa • Joint site-level learning on CSA under LP2 • Continental standards and benchmark for assessing CSA practice and adoption • Policy engagement on CSA in Africa linked to LP6 	Proof-of-concept Scaling out	200	682	LP6 Scaling CSA WA and EA

Pan-African Farmers Organization (representing African regional farmers organizations)	<ul style="list-style-type: none"> • Policy engagement and capacity development for national levels, UNFCCC, Africa Ministerial Conference on the Environment process, the Alliance for CSA in Africa, linked to LP6 • Scaling climate smart solutions in Africa • Increase the capacity of smallholder farmers to cope and adapt to climate variability and change, through developing content for agricultural extension/advisory services • Index-based insurance linked to LP4 • Low emissions practices • Integration of climate change into agricultural policies • Joint global outreach 	Proof-of-concept Scaling out	TBC	300	LP6 Scaling CSA WA and EA
WISAT	<ul style="list-style-type: none"> • Hosting the Gender and Social Inclusion Leader • Bringing CCAFS perspectives into national assessments on gender and science & technology – cross-national indicator framework on women’s representation in sectors relevant to S&T for development, complemented by policy analysis • Contribute research and analysis on gender and technology in relation to agriculture, women’s livelihoods, and agri value chains • Collaborate on inputs on gender, technology in global climate policy; research on African women and technology innovation 	Discovery Proof-of-concept Scaling out	75	900	LP5 GSI
World Bank	<ul style="list-style-type: none"> • Hosting two CCAFS staff members so that research to practice links are made, and clear pathways between needed research products and operational divisions are fostered (FP1/FP2) • Joint global outreach, including high-level events • Co-delivery of CSA country profiles • Collaboration on CSA metrics (LP1) • Joint work on gender and social inclusion, e.g. CCAFS contribution to CSA 101 website, gender and CSA training and work with TTLs on integrating GSI into projects (LP5) 	Discovery Proof-of-concept Scaling out	TBD	400	LP6 Scaling CSA Global
World Business Council on Sustainable Development	<ul style="list-style-type: none"> • WBCSD leading the Low Carbon Technology Partnership Initiative (LCTPi) on Climate-Smart Agriculture, with ambitious targets for private sector delivery of food security, adaptation and mitigation outcomes by 2030 • CCAFS leading one of four priority action areas on the CSA LCTPi (CSA metrics) on behalf of WBCSD members. CCAFS providing the wider WBCSD CSA program with strategic advice on private sector priorities, guidance on regional 	Proof-of-concept Scaling out	367	130	LP6 Scaling CSA Global

	dialogues in key CSA geographies, and field trips that demonstrate CSA activities and results				
World Vision	<ul style="list-style-type: none"> • Joint development and evaluation of farmer climate information and early warning systems in priority countries (CoA 4.2) • Development of good practice and decision support for information and early warning services by World Vision for rural communities • Development of training approaches and materials to build capacity of World Vision staff to support rural climate services and climate risk management 	Proof-of-concept Scaling out	TBD	TBD	FP4

3.2 Capacity development strategy

(i) CapDev role in impact pathway

Capacity development is pivotal to the impact pathways of CCAFS as a whole and the individual FPs, providing the mechanisms whereby increasing abilities to demand, undertake and utilize research lead to sustainable improvements in capacity to manage climate change. Thus the CCAFS capacity enhancement strategy addresses the full ToC cycle, from discovery through to scaling, monitoring and evaluation, as the sub-section below show. CCAFS will work at individual, organizational and institutional levels of capacity development, and with both researchers and research users, including organizations and networks. In Phase I and the Extension Phase CCAFS has undertaken capacity needs assessments at broad-ranging national levels (e.g. CSA country profiles) and at more specific levels of particular technological and institutional innovations (e.g. index insurance and GHG inventories). CCAFS is committed to improving its monitoring and evaluation of capacity development outcomes and impacts during Phase II, for example through rigorous ex-post impact assessments.

(ii) Strategic CapDev actions

CCAFS capacity development actions address all nine elements of the CGIAR CapDev framework, but focus in particular on four elements: (2) Learning materials and approaches; (5) Gender-sensitive approaches; (6) Institutional strengthening; and (8) Organizational development. Wherever possible, the four FPs will link capacity development actions for greater effectiveness and efficiency, and work with other CRPs.

Learning materials and approaches

CCAFS will invest in innovative content development and knowledge sharing mechanisms to increase the uptake of research outputs at all levels. All materials, trainings and outreach will be grounded in theory and designed in direct consultation with partners and intended end-users. To maximize uptake and sustainability, the intention of CCAFS is that all learning materials and associated decision tools and information resources should be under the direct control and ownership of partners and users as early in the research cycle as possible. For example, the National Environmental Information System, co-led by all FPs, will be under national ownership in Cote d'Ivoire from the start, with the assistance of the UN agency CTCN, providing environmental data of relevance to national policy-makers. The

online South Asia Drought Monitoring System (FP4 linked to WLE) will serve as an interface between climate service providers and users, with local co-ownership.

CCAFS will maximize scalable learning materials and capacity development at the level of extensionists and farmers through the appropriate use of communications technologies and approaches. In particular, work will continue with partners to develop, test and scale up agro-advisories that enhance farmers' decision-making capacity under uncertain climatic conditions. In Rwanda, for example, intermediaries will be trained to communicate climate information services at large scale, reaching thousands of farmers through seasonal planning workshops, rural radio and a cellphone-based SMS platform (FP4). In Uganda, emphasis will be placed on putting climate change decision tools – and the capacity to use them – in the hands of private and public sector extension agencies (FP2). New flexible training materials will be developed in local languages (FP2 and FP3), through partnerships.

CCAFS will also take advantage of opportunities to increase the uptake and learning value of existing tools and protocols. For example, work with AgMIP is intended to accelerate the use of integrated food security assessments in Africa and SA, as government agencies actively use the online protocols as a result of shared capacity development efforts between AgMIP and CCAFS (FP1). Likewise, CCAFS will work with users to improve the nitrous oxide protocol in the Cool Farm Tool, raising capacity among users of the foremost field-level emissions assessment tool in the private sector (FP3). The already widely used ICT-based Crop Manager will be enhanced, with relevant trainings, for all major food crops in SA and SEA (FP4).

Gender-sensitive approaches

CCAFS places particular emphasis on capacity development that is gender-sensitive. In some cases this involves capacity development activities that appreciate the different needs and capacities of men and women, while in other cases the emphasis is on providing specific opportunities for women, in recognition of the enormous participation and agency of women in global agriculture, yet weaker access to key resources and services. Phase I of CCAFS provided insights into the differing needs of women and men with regard to multiple climate-smart options, such as climate information services and adapted crop varieties. A gender toolkit developed with partners has been taken up widely. Phase II will continue to build this knowledge, and apply it directly in capacity development activities, working closely with key partners WISAT, Prolinnova and FAO.

Gender sensitivity will be built into the design of capacity development actions. For example, the content and format of farming advice provided through agro-advisory services will be adjusted to accommodate preferences of women farmers and of women within farm households (FP2 and FP4). Research will test the degree to which these services can be gender transformative by improving control of resources and participation in decision-making (FP4). Current evidence will be synthesized and new knowledge and evidence will be generated to inform investment, design and implementation of these services. CCAFS will invest in deliberate and measurable inclusion of local capacity development initiatives led by women, such as the Triple A agroforestry project in Western Kenya, in which the local partners are either gender-sensitive or women-only self-help groups (FP2). Trade-offs between competing outcomes, such as emissions reductions and gender equity, will be researched and addressed (FP3).

In building capacity of future research leaders, CCAFS will focus on women scientists. For example, global programs such as CLIFF-LAMNET and improvement of the MOT tool will prioritize training of women scientists and policy makers, to enhance their opportunities for contributing directly to national reporting and decision-making on agricultural greenhouse gas emissions (FP3). Post-doctoral positions for gender specialists from developing countries in selected sectors will support more gender-sensitive research. CCAFS will work with partners to measure continuous improvement in gender-sensitivity at individual, organizational and institutional levels of capacity development, including at the level of national policy. This will include research on approaches to capacity development, for example within the Climate Change and Social Learning initiative (FP1) and the National Assessments on Gender and STI, which

track the representation of women in key national sectors including agricultural and environmental sciences and decision making, the economy, and the agricultural labour force (WISAT).

Institutional strengthening

CCAFS will make strong investments in capacity development interventions at the institutional level, with a focus on the intersection between emerging climate change policies and processes on one hand, and pre-established policy frameworks and non-governmental mechanisms on the other. In all regions, CCAFS will provide integrative cross-CGIAR LPs on climate change. Building on existing national science-policy platforms led by CCAFS and partners, these will bring together relevant decision-makers to learn from CGIAR climate-related science in a consistent way, to inform key policies and programs such as National Adaptation Plans (NAPs), Nationally Appropriate Mitigation Actions (NAMAs) and submissions to the UNFCCC including INDCs. CCAFS facilitation of these multi-stakeholder platforms will provide direct institutional strengthening with regards to adaptation and mitigation capacity, including access to climate finance via for example the Green Climate Fund in individual countries, and at regional and higher levels via collaboration with partners such as NEPAD and ASEAN. Where necessary, sector-wide LPs will be complemented by more specific multi-stakeholder working groups, for example on insurance (FP4) and paddy rice management (FP3).

Policy-makers will be directly involved in all stages of research relevant to policy design and implementation. For example in SA, CCAFS scientists will join with policy-makers to undertake case studies of Local Adaptation Plans of Action (LAPAs) to generate guidelines for practices, governance, business cases, incentives and institutional arrangements that will scale up climate-smart agriculture (FP2). Testing of a set of alternative institutional arrangements will be built into scaling up of the CSV model in India (FP1). In Colombia and other countries, researchers will work side by side with policy-makers to generate policy-relevant information on emissions reduction options, in the process building long-term institutional capacity to develop low emissions agricultural development pathways and to negotiate effectively in the global arena (FP3).

Some institutional agendas require capacity development across multiple levels of governance. For genetic resources under climate change, for instance, processes to develop access and benefits sharing agreements will demand robust linkages between national public agencies and local communities (FP2). Other projects will use horizontally networked institutions among farmers and farming communities as a mechanism for capacity development. For example, in Kenya, best practices identified in local Community Action Plans will be implemented through farmer-to-farmer extension and training (FP2). The local institutional analysis carried out by CCAFS during its Phase I baseline enables identification of local self-help groups, and other formal or informal organizations, as effective partners for development of institutional capacity among farmers and their immediate boundary organizations. Crowd-sourcing will be tested in LAM for its effectiveness in enhancing adaptive capacity among farmers (FP2).

Organizational development

CCAFS recognizes the need to work closely both with research partners, especially NARS, and with boundary partners to address the new set of opportunities and challenges under climate change. These include new technical skill sets (e.g. models, future scenarios, greenhouse gas measurement) as well as a strong working knowledge of the many new mechanisms for linking from research to development outcomes (e.g. policy vehicles like the UNFCCC, finance mechanisms like the Green Climate Fund, disaster and risk management, private sector emissions targets).

A set of highly focused capacity development actions will enhance the abilities of NARS in specific research approaches that will enable sustained inputs to national policy and to international science. For example, a focus in SA and SEA will be training of NARS and extension services in remote sensing information with applications in crop insurance (FP4). Direct collaboration with meteorological services will secure organizational capacity to provide farmer-friendly climate information services and to reconstruct historical climate records across Africa (FP4). Under the SAMPLES project and

related work, considerable effort will be put into building knowledge and skills of national agricultural researchers around greenhouse gas analysis and more specifically mitigation options (FP3). These capacity development efforts will go beyond technical skills to include legal protocols, reporting systems, cost-efficiency and sources of finance.

At a broader level of organizational development, CCAFS and its strategic partners will work with NARS and national-level boundary partners to manage internal and external processes in ways that increase research impact. Building on experience in the Extension Phase, CCAFS will work directly with NARS in several countries on fundraising for national-level research on climate change solutions in agriculture, for example from the Green Climate Fund. CCAFS will maintain annual targets for authorship of CCAFS-funded papers by NARS scientists. Capacity of NARS and boundary partners to influence policy will be enhanced by facilitating their inclusion and leadership in national and regional policy LPs. For example, SAG-DICTA (Secretariat of Agriculture and Livestock in the Directorate of Agricultural Science and Technology) in Honduras is strengthening its capacity on agroclimatic services and leading a LP to support policy actions. At higher levels, CCAFS will finance and facilitate NARS scientists to participate in processes such as The African Group of Negotiators Expert Support (AGNES) to maximize the evidence base and research impact in key forums that have a direct impact on allocation of resources to adaptation and mitigation in agriculture.

(iii) Indicators that track progress and contribution to CapDev Sub-IDOs

At the level of the whole program, each FP will target one of its five outcomes as a specific CapDev outcome. The selected outcome is “Policy-making capacity of government agencies enhanced”. This outcome was selected because of the outcome-orientation of CCAFS, the focus on policy as a route to scaling CSA and the crucial role of boundary partners. Thus at the level of the program, we place emphasis in capacity development on institutional strengthening. All project participants will be required to report on outcomes, so that the indicator “Number of policy decisions taken (in part) based on engagement and information dissemination by CRPs” can be tracked. Verification will be through external reviewers and ex-post impact assessments, against counterfactuals. In addition, to this program-level outcome/indicator, a number of other indicators will be tracked (Annex Table 3) through CCAFS data management strategy (e.g. in relation to learning materials and publications), through the GSI LP (the CapDev indicators focused on gender) and through specific stakeholder surveys.

Annex Table 3. CCAFS indicators to track progress and contribution to CapDev sub-IDO

a) Learning materials and approaches

CapDev Outputs (CRP/FP level)	CapDev Outcomes (CRP/FP level)	CapDev Outcomes (Boundary partner level)
<p>Output 1: Learning materials designed according to context and audience. Indicators: Proportion of learning materials developed for external audiences reviewed with relevant partners</p> <p>Output 2: Learning materials pilot tested with target audience. Indicator: Proportion of learning materials developed for external audiences piloted with representative audiences</p>	<p>Outcome 1: Learning materials accessible to targeted users. Indicator: Proportion of intended users who rate learning materials as accessible in participant feedback surveys</p> <p>Outcome 2: Users implement the learnings and take decisions based on materials. Indicator: Increase in number of outputs and decisions made by users that demonstrate application of learnings and materials</p>	<p>Outcome 1: Partner research and development organizations use learning materials and approaches. Indicator: Number of partner organizations that use materials and approaches</p> <p>Outcome 2: Training/workshops based on learning materials and approaches leads to changes in practice. Indicator: Incidence of new regulations, practices implemented following training or workshops</p>

b) Gender-sensitive approaches

CapDev Outputs (CRP/FP level)	CapDev Outcomes (CRP/FP level)	CapDev Outcomes (Boundary partner level)
<p>Output 1: Engagement with key partners for gender-sensitive approaches, including learning agendas. Indicators: Number of learning agendas evaluated and implemented</p> <p>Output 2: Provision of options for capacity development in gender approaches & toolkits. Indicators: Number of gender toolkit (& similar) activities with partners</p>	<p>Outcome 1: Enhanced capacity and willingness of CRP staff and partners to understand and embrace gender-sensitive approaches in the design and implementation of projects, programs, and policies. Indicators: Proportion of projects that include gender-sensitive approaches</p>	<p>Outcome 1: Conducive agricultural policy environment for gender-sensitive and gender-transformative measures. Indicator: Number of new policies that support gender-sensitive and gender-transformative measures (disaggregated by country)</p>

c) Institutional strengthening

CapDev Outputs (CRP/FP level)	CapDev Outcomes (CRP/FP level)	CapDev Outcomes (Boundary partner level)
Output 1: CRPs/FPs support institutional strengthening activities of boundary partners with a focus on policy makers from government agencies. Indicators: Number of policy platforms supported	Outcome 1: Strategic plans for institutional strengthening of policy capacity implemented. Indicator: Number of strategic plan recommendations implemented (disaggregated by agency or policy process)	Outcome 1: Policy-making capacity of government agencies enhanced. Indicators: Number of policy decisions taken (in part) based on engagement and information dissemination by CRPs

d) Organizational development

CapDev Outputs (CRP/FP level)	CapDev Outcomes (CRP/FP level)	CapDev Outcomes (Boundary partner level)
Output 1: Engagement with NARS and research partners throughout the research cycle Indicator: Proportion of meetings (of Regional Program Leaders) at all stages of CRP cycle that include research partners and NARS (planning, implementation, progress review, evaluation) Output 2: Strengthen NARS and research partner skills related to research cycle Indicators: Number of participants from NARS and research partner organizations	Outcome 1: Stronger skills of individuals and organizations in policy engagement for uptake Indicator: Increase in proportion of policy engagement activities (e.g. events, online platforms, networks, policy briefs, public speaking appearances) led by NARS partners Outcome 2: More effective R4D is produced by NARS Indicator: Increase in number of peer-reviewed publications co-authored by NARS	Outcome 1: Institutional support at national level for effective R4D Indicator: Increase in funding provided for (a) research and (b) engagement between research and research users Outcome 2: Productive university-industry collaboration Indicator: Increase in number of private sector adoptions of CRP innovations led by NARS

(iv) Budget and resource allocation

The capacity development budget is calculated as 18% of total budget, some allocated through the partnership budget and some coming from CGIAR staff costs and operational expenses.

3.3 Gender annex

Gender Analysis in CRP Priority Setting and Research

Gender research has substantially influenced the direction of CCAFS in all four areas identified by [Lipper et al \(2014\)](#) (see Section 1.0.4), as well as in FPs. Gender research in Phase I included: modelling yield gaps to identify and prioritize adaptation measures that benefit women farmers (2014); baseline surveys in all CCAFS sites that include a gender

component (2013); systematic review of gender issues in climate risk management and gender-disaggregated field-based analysis of local use of climate information (2012); and training, models, tools and approaches to collect gender and social differentiated information on climate analogues, climate information, institutions, mitigation, and adaptation and risk (2011).

FP1: Priorities and Policies for CSA. The Linking Knowledge to Action theme (2011-2014) influenced the integration of gender into the CCAFS MELIA and MARLO frameworks. This contributed in 2014 to RBM that substantively integrated gender into all Flagship research. The social learning approach also prompted expansion of the gender approach to include social “differentiation” ([Kristjanson et al. 2014](#); [Jost et al. 2015a](#)). GSI was highlighted as a key strategy through which CCAFS research (including the Gender and Inclusion Toolbox) would help next users both inside and outside of the CRP to champion changes in CSA adoption approaches, policies and institutions ([Jost et al. 2014](#)). Work by Meinzen-Dick et al. (2012) and [Beuchelt and Badstue \(2013\)](#) highlighted the centrality of gender and women’s empowerment for nutrition and food security and the fact that women play different roles in attaining food security. As a result the FP focuses on the role of climate-smart institutions to increase women’s ability to control and make decisions around the use of resources to improve child health, enhance food and nutrition security, and increase education, all of which contribute to poverty reduction. In relation to climate policy, research has highlighted the low representation of gender in national and global policy and the importance of gender equality to achieve food and nutrition security and climate objectives ([Gumucio and Tafur, 2015](#); [Huyer 2016](#)).

FP2: Climate-Smart Technologies and Practices. Gender research in this FP has highlighted the lack of data and evidence on how CSA practices will impact women and men, and analysed gender benefits in CA. Findings include that [men and women have different priorities for CSA](#), and that an enabling environment (policy, incentives, etc.) for gender and CSA considers strategic gender needs in addition to practical gender needs ([Acosta et al. 2015](#); [Gumucio and Tafur, 2015](#)). The Gender Household Survey ([CCAFS et al. 2013](#)) provides differentiated data at baseline and subsequent stages which has been crucial to understand the gender aspects of climate vulnerability. Analysis of the survey has helped to inform the agendas of all FPs, but most specifically FP2 and FP4 (particularly in relation to accessing CSA information). Main findings are that across sites in Africa and Asia, women tend to be less aware of CSA practices and that they receive less information than men about climate change and agriculture ([Twyman et al. 2014](#); [Jost et al. 2015](#); Mittal, forthcoming). This research has also influenced an understanding that research and action need to be taken to the individual rather than the household/farm level to understand intra-household dynamics and decision making processes ([Twyman et al. 2015](#)), and the implications for CSA adoption of out-migration to urban areas. Greater understanding of women’s non-traditional activities is needed, along with changes occurring in gender roles as a result of environmental and social factors ([Twyman, 2015](#); Gonda, forthcoming).

FP3: Low Emissions Development. FP3 has set research priorities and identified high impact research for specific mitigation options in the regions. A gender and LED strategy developed in 2013 ([Edmunds et al. 2013](#)) identified three priority topics: (1) increasing awareness of norms of power, control and influence between men and women in decisions about LED practices; (2) improving innovation systems to value women’s needs and knowledge to support new management practices, and providing women with information; and (3) assessing the impacts of LED practices on women to provide early warning about potential inequities, identify where change is needed and contribute to the design of more successful interventions. Action research in three countries with Prolinnova has informed recognition of the need for community-level action in scaling up and using innovation approaches that create spaces for exchange of views to support changes in gender relations. In Honduras women worked with men to select agroforestry species ([Hottle, 2015](#)). Focusing on priority sectors and regions for mitigation, research in 2015-2016 synthesized existing

knowledge, analysed opportunities for improving gender outcomes, and developed gender workplans with project leaders for fertilizer use, rice and livestock (Farnworth 2015, forthcoming a, b, c, d).

FP4: Climate Services and Safety Nets. Patterns of unequal access to climate information and advisory services exist according to who can or cannot make use of these services to manage climate risks and strengthen resilience. Phase I provided insights into the differing needs of women and men for climate information and related services. FP4 research has found that the farmers who tend to be most vulnerable to climate change stresses are resource-poor, female and lower caste, marginalized by community sociocultural norms, and invisible to many outsiders ([Tall et al. 2014](#)). However, FP4 research also demonstrates that women farmers value climate and agricultural information when they have access to it, and that it is an important factor in the adoption of CSA by women ([Kristjanson et al. 2015](#); [Twyman et al. 2014](#)). Gender-specific and -tailored climate services are required that take into account women's agricultural tasks. The nature of communication channels required to reach the most vulnerable groups will differ according to sociocultural and gender differences ([Kristjanson et al. 2015](#); [Tall et al. 2014](#)). FP4 research on index insurance indicates that trends in adoption also reflect gender differences in access to resources (Kumar forthcoming).

Operationalizing gender in the CRP research agenda

Research to date in CCAFS has demonstrated that integrating GSI into the program is critical for it to achieve its objectives. Program management recognized in 2014 that even greater emphasis on gender was needed and a new cross-cutting theme on gender was established, with the hiring in 2015 of a Global Research Leader on Gender and Social Inclusion. The draft recommendations from the CCAFS External Review also point to the need for increasing the focus on gender. It is in this light that the GSI strategy has been prepared. In Phase II, GSI research and results will be integrated through: Flagship research; gender-disaggregated data sets; indicators on technology uptake, gender-focused CapDev indicators (see Annex Table 3b) and indicators for six of the 12 CCAFS sub-IDOs; % of budget allocated to strategic and integrated gender research; and staff diversity indicators. As a result of ongoing reviews and syntheses in 2015-2016 of Phase I research, a series of gender gaps in research and assessment have been identified for integrating GSI more systematically into the CRP, along with promising areas for further analysis.

Flagship research. All FPs are using the results of gender research, analysis and tools to identify research priorities for Phase II. **FP1** will utilize and build on research that informs, catalyses and targets CSA for women and other vulnerable groups ([Jost et al. 2015a,b](#)). Recognizing that a lack of sex-disaggregated data has resulted in underestimation of women's contributions to livelihoods, health and nutrition ([Huyer 2014](#)), sex-disaggregated data collected during Phase I will be used for ex ante evaluation and priority setting to understand the implications of CSA interventions on men, women, youth, and marginalized groups. FP1 will explore and test the best methods for formulating policies and programs that encourage equitable access to and control of productive assets. This will involve examining how GSI research findings are taken up by decision-makers. The aim is to better integrate gender into climate change policy and investment decisions.

In Phase II **FP2** will identify trade-offs of food security, adaptation and mitigation of CSA and whether they differ for men and women, young and old. It will address intra-household dynamics and decision-making processes to identify incentives for women's adoption of and benefits from CSA (including finance instruments). Addressing questions related to CSA and gender will help identify those practices and technologies that have positive impacts on the control of productive assets and resources within communities. Work initiated in 2016 will continue to develop a conceptual framework and GSI metrics for designing context-specific and gender-sensitive interventions. These include gender in CSA indicators at national and project levels; and inclusion of gender in the CSA best practices compendium.

It also includes integrating gender into scaling up frameworks, for example in CSVs. A major challenge for CSA is to identify the context-specific technologies and supporting measures that may be needed; and the trade-offs and co-

benefits that different combinations of options will deliver, for different stakeholders including women ([Beuchelt and Badstue, 2013](#); [Bryan et al. 2015](#); [Locatelli et al. 2015](#); [Thornton and Herrero 2015](#)). CCAFS proposes to address fundamental questions via participatory research at climate-smart villages (CSVs) and district scale with farmers and development agencies, including the private sector. This research will be linked to higher-level analyses (e.g. models of scaling processes and trade-offs) to generate IPGs on alternatives for agricultural development.

Phase I work informs **FP3** priorities and plans for Phase II in several ways: those mitigation options with the highest potential impacts involve activities dominated by men, especially in decision-making, so targeting women for adoption in the short-run will cause trade-offs in meeting SLOs. As a result FP3 has focused on increasing women's technical expertise, for example in the CLIFF and LAMNET PhD programs, and engagement in policy. Other opportunities include targeting value chain niches where women are more active, such as dairy; and analysis of gender safeguards, a requirement for climate finance. Participatory analysis of incentives for alternate wetting and drying in rice will take place in Southeast Asia. Current research on gender priorities and training in livestock in Kenya is influenced by an understanding that overcoming barriers for women in the sector is important for achieving NAMA goals. Dairy-related research with a gender dimension will take place in several countries. Two postdoc positions on gender and livestock are in place.

FP4 research in Phase I demonstrated that climate services can be implemented in a way that either reinforces existing gender and social inequities, or fosters equity by effectively targeting women and other social groups. As a result, institutional services that target rural communities are a major part of the FP4 agenda. In Phase II, research will build on these findings to strengthen understanding of how climate services and agricultural insurance can meet the differing needs of women and men and integrate this understanding into scaling up. Current evidence will be synthesized and new evidence will be generated to inform investment, design and implementation of services that reach both women and men.

Current gaps and areas for future research. In Phase I, insufficient attention was paid to coordinating research and results across the program. Steps need to be taken to *collect, synthesize and assess research to date* and to establish a basis for priorities going forward. Plans are underway for synthetic activities in 3 FPs in 2016 (FP1: climate and food systems policy; FP2: CSA measurement and scaling up frameworks; FP4: climate services). In 2017 a synthesis of FP3 research will refine a GSI agenda for LED.

Another gap is **gender impact assessment of CSA technologies**. An assessment in 2013 indicated that 29% of Flagship products produced were explicitly targeted to women farmers, while 0% Flagship products were assessed for likely gender-disaggregated impact. In 2014, these percentages increased to 38% and 25% respectively. CCAFS will continue to measure this through the Phase II FP2 indicator "Number of site-specific targeted CSA technologies/practices tested, with all options examined for their gender implications". A gender impact assessment framework and method for this is being developed.

While steps have been taken, the challenge for CCAFS is to move beyond **diagnostic research to gender-transformative research**, or transformation of gender roles and relations between women and men ([Cole et al. 2014](#)). Action research is needed to analyse the most promising options for promoting the inclusion of women and youth in CSA. Development of tools and methodologies for CSA policy and programming, integration of GSI into scaling up strategies, and methods for working with policy makers, finance institutions and local institutions are also needed.

Power relations and socio-cultural norms affect the ability of different social groups to access and control productive resources and to participate in decision making. Phase II research will help to better understand **intra-household dynamics and decision making**, as well as options, models and methods for promoting equitable decision making among household members. An FP3 gender and livestock post-doc position will contribute research on household methodologies.

Gender monitoring indicators. CCAFS has included gender components in six of its 12 sub-IDOs. Included in these are two gender and youth sub-IDOs (Section 1.0.4). Sex-disaggregated data on beneficiary populations and participants are

collected in all projects, and are integrated into all monitoring and endline data. The capacity development strategy also includes four gender-focussed indicators that will be tracked (Annex Table 3b). Gender is integrated into the MELIA, MARLO and RBM frameworks. Independent evaluations (including one undertaken in 2015) also integrate sex-disaggregated data and assessment of gender analysis in their review. The percentage of program funds going to gender-focused activities is targeted at 20% for Phase II (up from 15% in 2015). Attention to serious gender research will be monitored through RBM, and poor performance will be penalized by budget adjustments. There will also be capacity development efforts to raise understanding about gender research. Gender research budgets will follow the guidance contained in Definitions of Gender Research for CRP Budgets (June 2015), prepared by the CGIAR Gender and Agriculture Research Network. Staff diversity indicators in the GSI Strategy will monitor % women on the Program Management Committee, as Research Leaders and as Regional Program Leaders. The ultimate goal is that all bodies achieve a target of 50% women.

Enabling environment for women scientists

CCAFS supports women's active participation in research, capacity building, policy engagement activities and events at local to international levels. It will increase access of women scientists to research and training opportunities. It has a policy of recruitment and leadership development of women scientists. Three of seven members of the PMC will be women in Phase II, while three of six FPLs/Global Research Leaders and two of five RPLs are women.

3.4. Youth strategy

Youth: Critical concern for climate change and agriculture

The global population is expected to increase to 9 billion by 2050, with youth (aged 15–24) accounting for about 14 percent ([FAO 2014](#)). In Africa alone, the Youth Division of the Africa Union Commission recently stated that about 65% of the total population of Africa is under the age of 35 years, with 10 million youth entering the labor market annually ([AGRA 2015](#)). Decisions today on agriculture and climate change will have a strong intergenerational impact on the global south, disproportionately affecting those under 25 ([Farming First 2015](#)). Long-term adaptation and mitigation strategies must therefore engage the youth today and the generations to come. “Authentic engagement of women and youth” is needed to accelerate the benefits of CSA ([Chesterman and Neely 2015](#)).

Youth represent a disproportionate share of the world's poor ([World Bank 2006](#)). Their limited access to assets makes them more vulnerable to poverty, and a lack of participation in decision-making can pose a risk to society by disenfranchised, frustrated youth ([World Bank 2006](#)). In many rural areas, youth often have little or no say over resource allocations because of their limited access to land ([Atakos 2013](#)), inheritance customs which divide up land into smaller parcels as it is passed on to the next generation, and lack of participation in community and household decision making. They are also unduly affected by economic uncertainty, political upheaval conflict, and climate change – often leading to migration to urban areas within the same country or beyond borders in search of a better life or a means to support their families left behind ([Paudel 2015](#); [World Bank 2006](#)). In many parts of the world, youth involved in the agriculture sector not only face challenges in access to and control over land, capital and financial services, and agricultural inputs. All of these need to be addressed in a framework of enabling policies to support youth to adapt to and mitigate the impacts of climate change.

Youth have faced challenges participating in national and global climate change processes although the situation has improved over time. Youth participation at global climate change meetings was first acknowledged in 1999 at COP5 in Bonn; a decade later in 2009, the YOUNGO constituency was formed, allowing formal engagement in the negotiating

process. Key text under the UNFCCC recognizes the importance of youth, with the Convention emphasizing the importance of education and participation (Article 6) ([Farming First 2015](#)). Yet at global and national levels, there is still much more to do to support youth in important climate decision-making processes and programs. For example, youth (and gender) need to be at the centre of the implementation of the recently submitted INDCs ([Richards et al. 2015](#)).

The need for youth-responsive research

“Youth responsive” research on climate mitigation, adaptation, information and services, and policy is important to ensure the youth of today and the generations of tomorrow will be able to cope with the changes in agriculture brought on by climate change and contribute to the policies needed for mitigation and adaptation. Youth responsive social analysis examines “the youth dimension of social systems relevant to project success in order to inform youth-responsive project design, implementation, monitoring and evaluation” ([World Bank 2006](#)). CCAFS youth-responsive climate change research considers social (including youth) and gender dimensions at different levels from household to national and beyond, in order to: (i) improve the access and control by youth to productive assets, including natural resources; and (ii) improve the capacity of youth to participate in decision-making at different levels. Research must therefore be designed and implemented in a way that young women and men can participate and benefit from the process and findings and build the resilience of their households and communities. Youth-responsive research includes a gender perspective to ensure the needs, interests, priorities, challenges, knowledge and experience of young women and men are considered.

CCAFS research in Phase I found that an effective way to work with young women and men at different levels – from household to national and beyond – is through the use of a range of: (i) social learning approaches and platforms (e.g. youth community theatre, art, participatory video, coaching and peer group discussions, ICT, social media, and gaming) and (ii) organizations (e.g. youth organizations, schools, farmer associations, women’s groups) for engaging them in climate mitigation and adaptation action, advocacy and policy. These approaches, platforms, and organization can be used to strengthen youth’s knowledge, skills and insights needed to engage in climate-smart farming; support them to develop rural enterprises and connect to markets; and share their knowledge and skills with others in communities. Organizational models exist for working with youth in agriculture and climate change; these include FAO’s [Junior Farmer Field and Life Schools \(JFFLS\)](#), CCAFS’s CSVs and associated farmers and youth groups.

Phase I in brief

In Phase I, CCAFS worked across different levels to support youth in adaptation and mitigation actions – particularly in climate-smart practices, climate services, and social learning processes at the sub-national and community levels -- as well as supporting youth engagement at a more global policy level. In support of youth participation in the UNFCCC process, CCAFS recently strengthened youth issues in the Guide to UNFCCC Negotiations on Agriculture: Toolkit for Communications and Outreach ([Farming First 2015](#)). CCAFS has promoted opportunities for youth in entrepreneurship and value chains as well as strengthening the capacity of youth in promoting agribusiness and farm enterprises for economic transformation. For example, the East Africa regional program has been working with partners to develop business models that link youth with markets for their agricultural products. CCAFS worked with Young Professionals for Agricultural Development (YPARD) to develop a series of round tables for West African youth to strengthen their capacity in promoting agribusiness, farm enterprises and economic transformation ([Koningstein 2015](#)).

In Kenya, CSVs provide an opportunity for developing capacity and include a component of youth engagement ([Ojango et al. 2015](#)). In the Philippines, young men and women have been transmitting CSA information to their parents and communities through learning about and participating in the CCAFS supported “infomediaries” model ([Manalo et al. 2015](#)). As part of the Infomediary program, CCAFS also supported a nationwide poster and short filmmaking contest to bring young people to the center of climate change and agriculture discourse through the use of their artistic

impressions ([Celis 2015](#)). Further, a media workshop in the Philippines was held for seventy-six student journalists to learn about climate change-related reporting ([Cruz 2016](#)). CCAFS has carried out innovative work in Nicaragua building the capacity of rural youth on the use of participatory video to express their concerns on climate change, food security and social issues ([Koningstein and Azadegan 2015](#)). In the Los Cerrillos-Cauca CSV in Colombia, rural youth are involved in local adaptation planning using their training on GIS tools, agricultural practices and communication skills to support adults in the decision making process ([Ortega 2015](#)).

Youth strategy – Phase II

Contribution to IDOs

Youth are an important element of achieving the CGIAR SLO targets. They are the next generation and are both vulnerable to the current and future impacts of climate change, but also offer ways forward as important agents of change in their households, schools, business ventures, communities, countries and regions. Climate change impacts (e.g. natural resources depletion and decrease in assets and agricultural productivity) will affect the ability of young women and men to secure livelihoods and incomes. Investing in adaptation and mitigation initiatives and climate-smart policies and plans that are youth-responsive and engage their interest will significantly increase the chances of youth building and benefiting from climate resilience knowledge, skills, and opportunities. A greater focus on how to involve youth in agricultural value chains, from agricultural research and extension to agricultural input supply to transportation and marketing through to processing and value addition can help overcome some of the constraints to participation in on-farm activity (e.g., lack of land ownership). For both the sub-IDOs that CCAFS will target under the *Equity and Inclusion Achieved* IDO, project participants will track youth indicators (“organizations adapting their plans and directing investment to increase youth access, and control over, productive assets and resources” and “organizations adapting their plans or directing investment to increase youth participation in decision-making”).

Youth Strategy

The youth strategy is linked to the CCAFS Gender and Social Inclusion Strategy and will be implemented across all regions and FPs. It will build on and broaden CCAFS’ ongoing initiatives and experience working with youth to reach greater impact. While youth will be interwoven into gender and social inclusion (GSI) activities across CCAFS work, particularly in scaling up CSA, at the same time, CCAFS will also target youth separate from gender-related activities through the inclusion of youth-focused strategic research across FPs and Regions. Specifically, this will build on CCAFS’ Phase I experience with youth in LAM, WA, EA, SA and SEA and will include the following activities: 1.) Disaggregation and analysis of data in the design, implementation, and reporting of activities (e.g. by sex, age); 2.) Strategic research on youth engagement in policy and how this can be improved at global and national policy levels (e.g. through civil society organizations, social media, youth networks, negotiation processes) and in programming at sub-national level (e.g. within adaptation and mitigation research programs); 3.) Examining the role of youth along the CSA value chains in CCAFS and priority value chains in AFS-CRPs, including agricultural research, extension services, agriculture input supply, transportation and processing, to develop attractive opportunities for youth beyond the farm; 4.) Research on the use of ICT technologies and engagement processes to meet the CSA and climate information needs of youth to strengthen youth entrepreneurship, agricultural production for household and market, and climate resilience; and 5.) Capacity strengthening including through participatory learning approaches with youth (e.g. use of participatory video and theatre and ICTs).

Youth in CCAFS FPs and Clusters of Activity

In Phase II, **FP1** will compare approaches to youth engagement from national to global policy levels as well as locally and engage with local and subnational groups to include youth in decision making. It will support the integration of agriculture and climate change into education policy and curricula, and emphasise targeting youth in agricultural extension. FP1 will test specific methods of engaging youth including using social media, mobile telephony, radio, television, and citizen science initiatives. This will help inform the creation and refinement of food and nutrition secure futures under climate change in CoA 1.2, where gaming and other forms of innovative engagement will aim to empower youth to take centre stage in their development. Outputs will include gender and youth-focused policy guidance for CSA and novel youth engagement approaches (2019-2020). Under CoA 1.3, outputs will include innovative ICT-based tools and gaming to support accountability mechanisms in institutions at multiple scales and to engage youth in decision-making.

Under CoA 2.4, **FP2** will contribute to the gender and youth IDOs by identifying trade-offs of food security, adaptation, and mitigation for a range of CSA practices and technologies and whether they differ for men and women, young and old (e.g. workload, benefits). Some specific efforts in LAM and SA will address youth particularly by introducing novel ICT tools to better manage climate related risks as ICTs are recognized as an instrument to increase participation of youth in agriculture. Attention will be given in research and capacity development to gender and youth sensitive considerations and barriers to CSA adoption, and creating an enabling institutional environment for increased investment and scaling up of CSA. Research will generate effective indicators for gender-related benefits of CSA and apply them in CSVs to understand sex- and youth-disaggregated adoption profiles for a range of CSA options, and allow cross-regional comparison and customizing of approaches of the primary barriers holding back adoption. FP2 will also include a key research question focused on existing and innovative finance instruments that will provide incentives to farmers to access, adopt and promote CSA practices, and their efficacy in reaching and positively impacting those most marginalized; this will include a focus on youth.

FP3 will work with networks of trial sites in CSVs in each FP3 country in relation to adaptation and mitigation of GHGs including activities by women and youth farmers' groups. FP3 research will engage youth organizations and FP3 will also partner with youth organizations along with other partners. CoAs 3.2 and 3.3 will address the roles of women and youth farmers in implementing LED, contributing to increased capacity of women and young people to participate in decision-making. Outputs will include networks of trial sites in CSVs, including activities by women and youth farmers (2018) and strengthened capacity of young female scientists in GHG quantification (2019-2022).

FP4 will strengthen understanding of how climate service can meet the differing needs and engage the creativity of youth; incorporate those insights into efforts to scale up climate services; investigate student influence on communities; and test the degree to which these services can be youth-responsive by improving control of resources and participation in decision-making. This will include understanding the factors that enable or constrain youth access to climate-related information and advisories. FP4 will address the climate service needs of youth under CoA 4.2 and their financial/agricultural insurance needs under CoA 4.3 to manage climate risk and adapt to climate change.

All FPs will explore strategies and options for ensuring that youth participate in financial markets and commercial agricultural value chains, including priority value chains in AFS-CRPs (rice, fish and aquaculture, livestock, dryland systems, and others). Research will generate evidence on youth-related motivations, opportunities, challenges and benefits of specific technologies and practices; monitor and evaluate the impacts of LED on livelihoods; explore strategies to engage youth; and exploit their creative influence on farming communities, bundling, communication challenges at scale, public-private partnerships, and sustainable business models.

Organization and management

CCAFS will use existing mechanisms for addressing gender across FPs and Regions to design, implement, and report on youth activities (e.g. GSI team, gender focal points at centres, gender and CC network). Youth is integrated into the MELIA, MARLO and RBM frameworks. Research will be shared through CCAFS products (e.g. working papers, information and policy briefs, CCAFS website and blog, CGIAR networks and websites, contributions to international publications and fora, and inputs to global policy processes). The budget will track expenditures on youth separate from gender.

Partnerships

CCAFS will collaborate with organizations working with, or focused on, youth in agriculture and climate change including FAO, IFAD, CARE, Young Professionals for Agricultural Development (Y-PARD), [the CSA Youth Network](#), and sub-national organizations, networks and initiatives (e.g. Ecohabitats in Colombia). CCAFS will also collaborate with national, regional, and global government, research and policy bodies to improve youth engagement in policy and programming processes.

3.5 Results based management and MELIA

(a) Incorporating RBM into CCAFS Management Structures

RBM is key to CCAFS' program management and programmatic accountability towards outcomes and impacts, as it places emphasis on systematic, iterative learning and modification ([UNDP 2011](#)). RBM follows the logical causal chain that project activities produce tangible research outputs. The strategic use of these outputs can help transform them into appropriate outcomes (i.e. changes in practice and behavior of key next users, preceded by changes in knowledge, attitude, and skills). By tying the RBM approach to impact pathways as elucidated in theories of change (ToC) at CRP, FP, Region and project levels, CCAFS focuses on people, given that these are the ones who ultimately will change their behavior and thus contribute to developmental impact. This is reflected in CCAFS's "three thirds" management principle: one-third of programmatic effort goes into engaging with partners to decide what needs to be done and how, one-third into doing cutting-edge research, and one-third into strengthening capacity of next users to use the results of the research to achieve outcomes ([Fullana i Palmer et al. 2011](#)).

Working in a constantly changing environment requires a strategic approach with built-in reflection, monitoring and evaluation, as well as flexibility for corrective actions when needed (adaptive management). This means working with ToC and making assumptions on how we anticipate change to happen on the one hand, and accepting that change does not always happen as predicted on the other (Schuetz et al. in press).

All of the ICRPs have agreed on the fundamental conditions of a single, integrated online ICT platform to be in place from 2017 onwards. The process of designing this platform began in February 2016. The advantages of cross-CRP collaboration on a single ICT platform include reduced transaction and management costs, standardization of nomenclature and frameworks, and with time the integration and aggregation of data across participant CRPs. This is expected to benefit both the CRPs involved, and CGIAR as a whole (with and through the CGIAR System Office) in terms of providing automated data and information for the annual Plan of Work and Budget, reporting and with time, on progress towards the SRF SLOs. The system will be interoperable, enabling data to be accessible and usable by other CRPs and the System Office.

The online ICT platform (MARLO, Managing Agricultural Research for Learning and Outcomes) covers the CRP program and project management cycles, including planning, monitoring, reporting, and synthesis. The platform is structured around the ToC at programmatic, FP, Region and project levels enabling the inclusion and review of key results and assumptions on a periodic basis. The platform being developed is based on the existing CCAFS planning and reporting platform which is being modified to meet the requirements of each CRP while adhering to common principles.

For performance management, a set of annual indicators will be tracked for each program participant. These will form the basis of two-way learning between management and participants, and will be used by the Program Management Committee to incentivize good performance. The Program Management Committee, under the direction of the ISC, will commission external evaluations on issues or research topics that the ISC believes need attention. These and other ex post impact assessments will also form a core element of learning. An additional learning tool will be the risk catalogue, which will identify risks and means of mitigating these. This will be updated at least annually and be on the agenda of all ISC meetings. Given the shift to greater cross-CRP collaboration, the functioning of the LPs will be closely monitored (and be the subject of external evaluation – see below).

(b) CCAFS Monitoring, Evaluation, Learning and Impact Assessment (MELIA) strategy

CCAFS' approach to RBM is encapsulated in its Monitoring, Evaluation, Learning and Impact Assessment (MELIA) strategy. This is centred on adaptive management, outcome delivery, impact assessment, internal and external evaluations and performance management. CCAFS employs RBM to operationalize research for development (R4D) aimed at contributing to the SDGs and is therefore focused on impact pathways based on theories of change. The pathways are defined from research and its outputs and results towards outcomes and impacts. Outcomes are defined as changes in practices of the next-users of research outputs, such as policy makers, development organizations, and farmers. The goal of the CCAFS MELIA is to provide an approach to, and guidance for, monitoring assumptions along the impact pathway (IP), and collection and documentation of evidence towards outcome contributions and impacts achieved. It encourages adaptive management through self-reflection and iterative learning, as well as experimentation and change so that monitoring, evaluation, learning and impact assessment become integral components of the CRP. The objective is to answer the following questions: what has changed, for whom, how significant are the changes, in what ways did the program contribute to these changes, are they likely to be sustainable, and at what cost. CCAFS puts emphasis on performance management, whereby the performance of participants is regularly assessed, and incentives are applied to improve performance.

During the extension phase CCAFS initiated the transition to a RBM framework with a focus on outcome delivery and monitoring progress of outcome contribution, as described in CGIAR's SRF. CCAFS's RBM framework for Phase II builds on lessons learnt from a trialing of RBM in 2014-15 for one FP. CCAFS scientists, managers, and research and development partners have helped shape this new way of doing business and have been empowered as key stakeholders in the process. The RBM framework has been considerably simplified over time, to make for more efficient program management. The shift in focus towards the delivery of outcomes that are influenced by multiple factors often beyond the direct control of CCAFS means that performance evaluation has to go well beyond the delivery of research outputs. A performance management system was used throughout Phase I and has guided funding allocations. This experience will guide Phase II, and the current [indicative CCAFS operational MELIA Plan](#) will be updated.

(c) Four pillars of the MELIA Strategy

The CCAFS MELIA strategy has four key characteristics:

A focus on users, utilization and accountability to ensure efficiency and effectiveness: The strategy needs to be user- and utilization-focused to ensure that it responds to users' needs in terms of the demand for specific information for

specific purposes. CCAFS has a responsibility to account for the use of resources and management decisions made, as well as an obligation to demonstrate that work has been done in compliance with agreed-upon rules and standards, and to report fairly and accurately on performance results vis-a-vis mandated roles and plans.

An emphasis on adding value and creating space for learning through strategic and systematic MELIA activities, which need to be linked to learning and integrated into each FP and Region. As for CCAFS's Climate Change and Social Learning initiative ([Carlile et al. 2013](#)), the aim is for "transformational learning", or triple-loop learning, so that CCAFS teams and partners can learn from their work and make necessary adjustments in an outcome-focused environment.

A modular approach to ensure robustness and fitness for purpose, that combines the setting of meaningful performance expectations and targets for key results, measurement and analysis of the contribution being made to observed outcomes and impact, modifying project or program design when necessary, and reporting on performance compared with expectations.

Impact Pathways (IPs) and Theories of Change (ToC) at different levels within CCAFS (CRP, Regional Programs, FPs and projects) lie at the heart of the MELIA strategy. The Impact Pathway and ToC for CCAFS as a whole and for the four FPs are described in Section 1.0.3 and the respective FP sections of the proposal. The trajectory of CCAFS's contributions to change will be periodically revisited and subsequently adjusted throughout the implementation of the CRP work plan. Through systematically built-in reflexive spaces and mechanisms, research questions, hypotheses, assumptions and evidence of strengths of these, may be refined or changed, and solutions and innovations adjusted accordingly during annual planning and reporting. Where significant changes are called for, these will be discussed by the ISC. The same will be done at the Flagship level, with the provision of a baseline reference and measuring progress and results through revision and reflection on the initial ex-ante impact assessment laid out in the FP IPs and ToCs.

The MELIA framework contains strategic guidance and practical information and tools, to allow both quantitative and qualitative approaches. A "[MELIA Support Pack](#)" provides access to, and information on, a suite of tools, approaches and references for MELIA. It is anticipated to be a dynamic and collaborative deliverable as it integrates and connects CCAFS with other ongoing efforts in this field.

(d) Monitoring and Reporting

The following steps and approaches will be used for monitoring and reporting **on research activities** and **outcome delivery** in CCAFS Phase II:

- All project activities will continue to be **mapped into the CGIAR SRF** in relation to the appropriate sub-IDOs, IDOs and SLOs. At the same time, appropriate sets of indicators will be defined or identified (Annex Table 4). Use will be made of **existing indicator sets**, where this is possible (such as SDGs and CGIAR gender and CapDev indicators). If no suitable indicators exist, these will be **developed as appropriate**, possibly **in collaboration with other CRPs and other groups working on similar issues**, so that they can be monitored collectively. Standardization across projects, Regions and FPs (and even CRPs) will be undertaken as far as is practical to facilitate aggregation without sacrificing specificity. CCAFS actively contributes to a sub-working group on indicators and their possible standardization.
- **Targets will continue to be set**, in part drawing on extensive multi-level baseline surveys conducted in all CCAFS target regions between 2011 and 2014 (see ccafs.cgiar.org/baselines [Förch et al. 2014](#)) and on literature, thematic and regional experience and consultation. CCAFS will build on existing partnerships and processes (such as UNFCCC) and new ones (such as active engagement with SDG working groups for identifying indicators and monitoring).
- **Progress towards these targets** is evaluated through **periodic monitoring and built-in impact assessments** (see below) involving appropriate indicators, complemented by narratives that capture sufficient context and detail to allow independent evaluation.

- **Annual reporting** takes place in a **program management online platform (MARLO)** ([Förch et al. 2015](#)), which guides users through a series of questions to monitor the evolution of the ToCs and sub-IDO contributions, document any changes made, and provide adequate justification for them. Reported progress and contribution to outcome targets are linked with key deliverables and outputs, so that reported progress and contributions can be backed up with appropriate evidence. Over the past few years, “Outcome Case Studies” and “Project Highlights” have proven to be excellent communication products for the CCAFS core team and will continue to be a key part of annual reporting ([Schuetz et al. 2015](#)).
- **Project performance monitoring** presented through the annual reporting is then evaluated for quality via an iterative feedback and performance assessment process involving CCAFS staff (e.g. FPLs, RPLs, Gender and Social Inclusion Coordinator), and external subject-matter experts. Within MARLO, deliverables can be consolidated and synthesized for reporting back to donors and others.
- Once annual reporting is complete, **risk monitoring** will be done as part of the **annual reflection of CCAFS’s ToC**, when key assumptions and risks will be reviewed and refined, possibly leading to adjustments in the CRP and Flagship IPs.
- Within MARLO, **financial planning** will be carried out annually, and **financial reporting** will be harmonized with requirements at CGIAR system level.

(e) Impact Assessment

Impact assessment is a key method of evaluating the progress, quality and performance of a program and its components. Within CGIAR, impacts are defined as the consequences of the CRPs on the status and state of selected development variables concerning the SLOs, which are themselves related to the SDGs. Impacts are the overall and long-term effects that are attributable in part to a CRP. Interventions that contribute to complex, indirect causal chains, with multiple partnerships, and with data limitations that are inherent in contemporary development programming (and by extension, in CGIAR work), require a broad range of methods to evaluate effectively ([Stern et al. 2012](#)). CCAFS will thus adopt a mixed methods approach to impact assessment that considers ex-post impact assessment along with efforts to trace impacts in the more conventional sense, but also building on CCAFS’s experience with ex-ante impact assessment along the evolution of its ToC as a complementary, more innovative and participatory approach to assessing impacts. Currently there is a lack of tools for effectively assessing such impacts ([Stern et al. 2012](#)); development and testing of new designs and methods is a key research activity towards which CCAFS Flagships and other CRPs will contribute.

Ex-post impact assessment (EPIA) in CCAFS will build on the theory-based approach discussed above. Evidence of positive outcomes consistent with anticipated (or revised) IPs will be linked to quantified changes (e.g. in livelihood status) compared with baseline assessments in CCAFS locations (building on surveys carried out in Phase 1, see <https://ccaafs.cgiar.org/resources/baseline-surveys>) and where possible with CGIAR Centres in CRPs through Site Integration and with the Standing Panel on Impact Assessment (SPIA). Because CCAFS interventions will have influence at many different scales, and because they will operate as contributory causes in complex environments, it is unlikely that it will be possible to compare treatment and control groups in any strict sense. Counterfactuals (what would have occurred in the absence of CCAFS) cannot be directly observed and can only be estimated. A mixed methods approach employing a variety of quantitative and qualitative methods will often be needed to understand why and how changes have taken place, and what role CCAFS has played in those changes. Impacts which are not readily expressed in a quantitative sense ([Walker et al. 2008](#)) will need to be assessed through participatory approaches, where beneficiaries help to define the important impacts. Assessments will be conducted for a representative set of CRP portfolio activities so that overall impact can be appropriately extrapolated. Coordination of design and methods is important so that all CCAFS projects and activities are aligned in the way they contribute to impact assessment. For example, where impacts could be additive across projects, they need to be defined and measured in consistent ways; one example is the way in

which poverty reduction is calculated. Often, impacts are not additive and this presents challenges in design to be able to understand the relative importance of different outputs and outcomes in achieving impact.

EPIA will be complemented by impact assessment as related to the evolution of the ToC. Projects in CCAFS attempt to describe and specify, as far as possible, anticipated impacts and outcomes in the narrative ToC in terms of quantity, location, and beneficiaries. These contributions are then mapped to the SLOs. It will not be possible for any one CRP to rigorously assess all these outcomes. Different degrees of monitoring will be required and a process of prioritization will need to take place. Furthermore, outcomes may be related to improved decision making by various stakeholders, or improved access or capacity. Factors related to the improved effectiveness or efficiency of organizations or systems are not straightforward to measure, and changes in such outcomes may require creativity and resources in their measurement. CCAFS has some experience in this new field and will collaborate with other interested CRPs in developing the area. Part of this will involve developing effective systems and approaches to use results from such work as part of impact assessment.

CCAFS intends to improve its use of IA for hypotheses testing, and validation of TOC and research results by (a) creating a design for measurement against the 2011-2013 CCAFS baseline surveys in 2018 so that it explicitly tests the FP and LP hypotheses, supplementing where necessary with project baselines at higher governance and spatial levels, (b) changing the requirement for ePIAs so that the impacts assessed are explicitly linked to the outcomes reported annually, and that the IA specifically tests the theory of change at project and FP levels, and (c) ensuring that all ePIAs address hypotheses on gender, youth and social inclusion.

(f) Evaluations

Evaluations can play a crucial role in providing credible and useful information for accountability and learning purposes. These include the following:

Internal Evaluations: CCAFS will conduct regular internal evaluations of its FPs, selected components, and regional sets of activities. Evaluations will draw on established IPs and regular monitoring information, with additional data collection and analyses of overall processes (process evaluation), outcomes (outcome evaluation), and the longer-term impacts. A typical internal evaluation will develop a record of work, including partnerships, stakeholder engagement, explicit and implicit IPs, main outputs, and project- and system-level outcomes. A range of methods is available for such evaluations and are included in the MELIA support pack: Outcome Mapping, Participatory Impact Pathway Analysis, theory-based approaches, Most Significant Change, Social Network Analysis, Discourse Analysis tools, Bibliometric analysis, Before/after-with/without quantitative analyses of impacts, Contribution Analysis, Triple loop learning approaches, Institutional and Innovation Histories, for example.

The main challenge is to trace the links between the collective set of activities, partnerships, outputs and project level outcomes to larger impacts and to understand whether, why and how the program has contributed to change. It is neither practical nor desirable to attempt to attribute major outcomes exclusively or even directly to CCAFS interventions. CCAFS will work closely with other CRPs, partnering in particular through the Site Integration work and its monitoring. The process of change is understood as a complex, iterative and multi-agent process. The evaluation task is to assess whether and how parts of CCAFS work have contributed by tracing back to the research and other interventions to show evidence (indicators) that the theoretical IP(s) was realized. CCAFS has put in place a system that encourages qualitative descriptions of the outcome target contribution, feedback loops, and identification of the weaknesses and/or missed opportunities that can be addressed in future work. Once outcomes are documented, their impacts can be estimated in terms of impacts such as reduced GHG emissions and livelihoods improvements. Such internal evaluations will be done by interdisciplinary teams of CCAFS scientists and staff, supplemented by external consultants as appropriate.

Independent External Evaluations: CGIAR has established an Independent Evaluation Arrangement (IEA), with the policy for Independent External Evaluation and a set of standards intended to guide CRPs. This includes a cycle of CRP-Commissioned External Evaluations (CCEEs), as a systematic and objective assessment of the program and as building blocks to the external evaluations conducted by the IEA. IEA evaluations will have a strong focus on accountability and value for money, explicitly considering the comparative advantage of CGIAR and CGIAR reforms in efficiently contributing to the SLOs. They will examine the clarity, relevance and priority of the objectives of CRP work; original and continued validity of the intended IPs; adequacy and integration of ethical and equity considerations; efficiency and effectiveness of institutional, governance, oversight and managerial arrangements; quality and efficiency of the research; mutual accountability and responsibility in line with forecasts and budget; progress and potential for achieving outcomes and ultimate development impacts; potential for sustainability and multiplier effects of investments.

CCAFS assessments will constitute a primary source of evidence for IEA evaluation, including outcome and impact assessments, annual monitoring reports, and internal evaluations. CCAFS will seek to leverage resources with other CRPs' performance within a mutual geographic focus in line with the Site Integration plans and/or cross-cutting thematic areas (see Annex 3.6). A process has been initiated in close collaboration with IEA and MEL COP to identify synergies in carrying out baselines and evaluations across the portfolio of CRPs.

(g) Performance Management

Above the level of the research project, partner, Region and Flagship performance will be monitored through the collection of data related to key performance areas. These will include (a) scientific quality of research outputs; (b) degree to which gender and social inclusion issues are mainstreamed in research activities; (c) degree to which partnerships and capacity development are embraced; (d) appropriateness and depth of engagement across CRPs; (e) appropriateness and quality of communication activities; and (f) ability to garner resources that can help deliver outcomes. The Program Management Committee will use results to help redirect budget allocations to achieve objectives with the greatest efficiency. The results of performance management will be discussed with the ISC to ensure as much objectivity as possible. Results will be used for two-way learning between management and research participants.

(h) Budget allocation to MELIA

CCAFS recognizes that generating evidence to support key assumptions supporting a ToC are an important part of the core research agenda, and that much of the work required to strengthen and validate the ToC during early stages of research needs to be done by researchers themselves. The implementation of CCAFS's MELIA strategy relies on a broad spectrum of team members and partners. Responsibility will be split between the Coordinating Unit, Regions, FPs, projects, and Centres. Implementation will require staff with appropriate experience and skills, involving possibly up to 15% of their time. CCAFS will build as much as possible on CGIAR Centres' and partners' existing indicator monitoring systems that are already in place, and will develop partnerships for this purpose. Where this is unavoidable, CCAFS will undertake measurement itself. Implementation of the MELIA strategy will be guided and backstopped by a highly experienced consultant with up to 120 days of input per year, to be used when needed.

A rolling five-year plan of CCEEs is being developed for CCAFS starting in 2017. With the assistance of the IEA, joint CCEEs will be sought to leverage the resources of multiple CRPs and to assess performance within a geographic focus and/or thematic area. A preliminary, indicative list of CCEEs is shown in Annex Table 5. Development of the integrated online MARLOplatform across the ICRPs is expected to amount to some USD 250,000 in 2017, and its maintenance some USD 100,000 per year thereafter, 75% of these amounts being contributed by the other ICRPs that committed to the joint system. Funds for impact assessment will be set aside from 2018 and beyond, at USD 250-300,000 per annum.

Annex Table 4. List of proposed IDO indicators and approach to monitoring

The table shows a list of the IDOs that CCAFS contributes to. The indicators proposed are based primarily on global monitoring systems such as the SDGs, and will be further refined through time. The MEL COP will design a coordinated and cohesive approach across CRPs to develop joint indicators and plan an approach to show contribution to the IDOs in relevant countries.

IDO	Proposed IDO indicators	Proposed monitoring approach
IDO Increase resilience of the poor to climate change and other shocks	# of people with increased awareness and knowledge of sustainable practices	Where possible, we rely on existing indicators and monitoring frameworks, such as the SDGs and FAOStat. The monitoring approach to be developed across CRPs will establish how best to show contribution.
	# of people who claim to have increased capacity to cope with risks	
	# of people with improved hazard information	
	# of people familiar with national, subnational or landscape-level visions, strategies or plans that address sustainability	Existing monitoring frameworks we are drawing from (color-coded) include:
	# of people in area covered by a sustainable management plan	
	# of people interacting with information sharing mechanisms	SDG Indicator report by SDNS Thematic Group (SDSN 2015)
	# of people participating in rural development organizations, including informal groups	
	# of people participating in local planning exercises	2. Monitoring instrument for resilience report by Hills et al. (2015)
	# of people with positive perceptions of government accountability and transparency	
	# of people able to participate in the workforce	3. FAO State of Food and Agriculture (FAO, 2015)/ FAO STAT database
	# of people accessing financial services	
	# of people accessing market services	4. UNDP Human Development Report and statistics (UNDP 2015)
	# of people with increased farm asset base	
	# of people with new on-farm/off-farm income streams	5. Global Environment Monitoring Unit (Nelson 2008)
	# of people with increased number of farm enterprises (non-financial)	
	# of people with increased efficiency of water use/product unit	6. CapDev COP Indicators (CapDev CoP 2015). Available monitoring frameworks will be analyzed to determine frequency and level of data collection.
	# of people with increased efficiency of land/product unit	
	# of people with increased efficiency of nutrient/product unit	

	# of people with increased efficiency of labour/product unit	
	# of people with access to higher value water regulation services	
	# of people with access to higher value climate regulation services	
	# of people with access to higher value pollination services	
	# of people with access to higher value pest and predator control services	
	# of people with access to higher value soil formation services	
	# of people with access to higher value nutrient cycling services	
	% of eligible population covered by national social protection programs (SDG Goal 1)	
	# Homeless people due to natural disaster (average annual per mio. people) (UNDP)	
IDO Enhanced smallholder market access	Estimated travel time to nearest city	
	Agriculture value added (% per GDP) (FAO)	
	Access to all-weather road (% access within [x] km distance to road) (SDG Goal 9)	
	Mobile broadband subscriptions per 100 inhabitants, by urban/rural (SDG Goal 9)	
	Public and private R4D expenditure on agriculture and rural development (% of GNI) (SDG)	
IDO Increased incomes and employment	Employment in agriculture (% of total employment) (UNDP)	
	Proportion of population below USD 1.25 (PPP) per day (SDG Goal 1)	
	% of households with incomes below 50% of median income ("relative poverty") (SDG Goal 10)	
	Household income, including in-kind services (PPP, current USD) (SDG)	
	Employment to population ratio (EPR) by gender and age group (15–64) (SDG)	
	Youth employment rate, by formal and informal sector (SDG)	

	Goal) [ILO]	
	Youth not in school or employment (% ages 15-24) (UNDP)	
	Vulnerable employment (UNDP)	
	Private net flows for sustainable development at market rates as share of high-income country GNI, by sector (SDG, Goal 17)	
	Gini Coefficient (SDG)	
	Share of the population using reliable electricity, by urban/rural (SDG, Goal 7)	
	Share of population covered by social assistance (disaggregated by rural by income quintile) (FAO)	
IDO Improved diets for poor and vulnerable people	Average dietary supply adequacy (%) (FAO STAT)	
	Depth of food deficit (kCal/person/day) (UNDP)	
	Child malnutrition stunting (UNDP)	
	% of population with shortfalls of: iron, zinc, iodine, vitamin A, folate, vitamin B12, [and vitamin D] (SDG, Goal 2)	
	Prevalence of persons (aged 18+ years) consuming less than five total servings (400 grams) of fruit and vegetables per day (SDG)	
	Cereal yield growth rate (% p.a.) (SDG)	
	Crop yield gap (actual yield as % of potential or water limited potential yield) (SDG, Goal 2)	
	Livestock yield gap (actual yield as % of attainable yield) (SDG)	
IDO Natural capital enhanced and protected, especially from climate change	Disaster Risk Reduction Indicator (SDG, Goal 1)	
	Ratio of land consumption rate to population growth rate, at comparable scale (SDG, Goal 11)	
	% population living on degraded land (UNDP)	
	Annual change in degraded or desertified arable land (% or ha) (SDG, Goal 15)	
	Annual change in forest area and land under cultivation (modified MDG Indicator) (SDG, Goal 15)	

	Net GHG emissions in the Agriculture, Forest and other Land Use (AFOLU) sector (tCO2e) (SDG, Goal 13, #79)	
	Fertilizer use intensity (kg/ha) (FAO)	
IDO Adaptation and mitigati on achieved	Climate Change Action Index (SDG, Goal 13)	
	Losses from natural disasters, by climate and non-climate-related events (in USD and lives lost) [SDG, Goal 1]	
	Official climate financing from developed countries that is incremental to ODA (in USD) (SDG, Goal 13)	
	Farmers with nationally appropriate crop insurance (%) (SDG, Goal 2)	
	Domestic revenues allocated to sustainable development as percent of GNI, by sector Financing for development, domestic resource mobilization (SDG, Goal 17)	
	% of official development assistance (ODA), net private grants, and official climate finance channeled through priority pooled multilateral financing mechanisms (SDG Goal 17)	
	Perceptions of government: action to preserve the environment (% satisfied) (UNDP)	
IDO Equity & inclusion achieved	% of women, men, indigenous peoples, and local communities with secure rights to land, property, and natural resources, measured by (i) percentage with documented or recognized evidence of tenure, and (ii) percentage who perceive their rights are recognized and protected. (SDG Goal 1)	
	Gender gap in wages, by sector of economic activity (SDG Goal 5)	
	Employment to population ratio (EPR) by gender and age group (15–64) (SDG Goal 8)	
	Gender Inequality Index (UNDP)	
	Funding made available for design/review of gender sensitive approaches in partner projects /programs/policies (disaggregated by type of organization). (#5 Gender sensitivity)	
	# of new policies that support gender transformative measures (disaggregated by country) (#6 Institutional Strengthening)	
IDO National partners and	# of agricultural extension workers per 1000 farmers [or share of farmers covered by agricultural extension programs and services]	

beneficiaries enabled	(SDG Goal 2)	
	Personnel in R4D (per million inhabitants) (SDG Goal 9)	
	% of people and businesses that paid a bribe to a public official, or were asked for a bribe by a public official, during the last 12 months (SDG)	
	Perceptions of government - trust in national government (% yes) (UNDP)	
	# of partner organizations who use materials and approaches (CapDev Learning materials and approaches)	
	# of new regulations, practices implemented following training (CapDev Organizational development)	
	# of policy decisions taken (in part) based on engagement and information dissemination by CRPs. (CapDev Institutional strengthening)	

Annex Table 5. Tentative list of CCEEs and other reviews & evaluations, 2017-2022

Below is a highly tentative list of evaluations and reviews for CCAFS over the period 2017-2022.

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Review or Evaluation	Dates	Evaluation Focus	Main Evaluation Topic/ Issue	Geographic Focus	Budget	Participating Centres/ Partners
Review	2017	Strategic approach	Synthesis of lessons learnt from CSVs as testing and LPs	LAM, WA, EA, SEA, SA	USD 60,000	CIAT, ICRISAT, ILRI, ICRAF, CIMMYT, IRRI
Evaluation	2018	FP	FP4, Climate Services and Safety Nets	WA, EA, SA, LAM	USD 120,000	ICRISAT, ICRAF, CIMMYT, IWMI, CIAT
Review	2018	FP	FP4: Review of FP portfolio, geographic balance, emerging opportunities to scale	LAM, WA, EA, SEA, SA	USD 30,000	ICRISAT, ICRAF, CIMMYT, IWMI, CIAT
Review	2018	Strategic approach	Review of CCAFS data and tools: uptake and impact	Global	USD 60,000	CIAT, ILRI
Review	2019	Strategic approach	Integrative work of ICRPs: integrating tools and mechanisms	Global	USD 10,000	A4NH, WLE, PIM

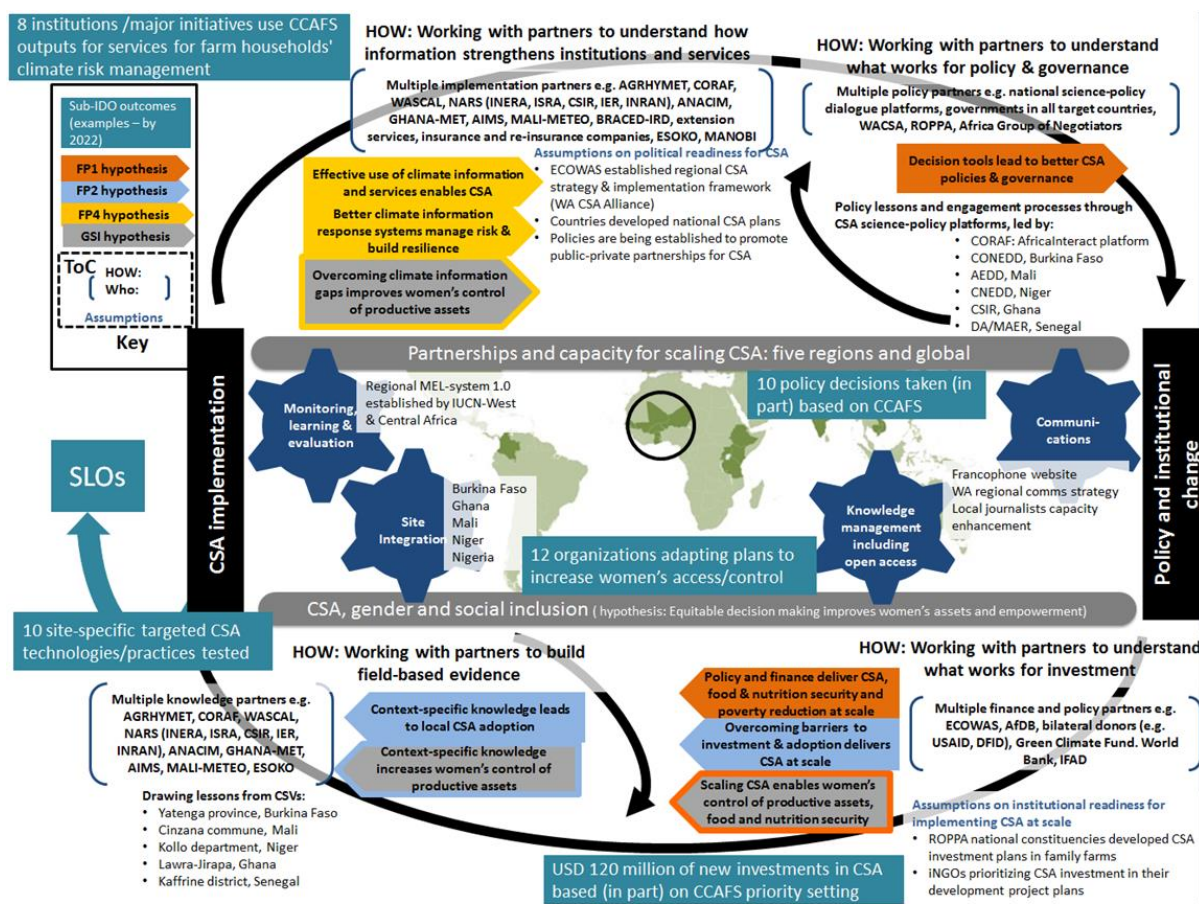
Review	2019	Strategic approach	Review of the regional strategy and target countries – should the focus change?	All regions	USD 60,000	Coordinating unit
Evaluation	2019	Strategic approach	Functioning and effectiveness of LPs	All regions	USD 100,000	CIAT, ILRI, IRI, Vermont, WISAT
Evaluation	2020	FP	FP2: evaluation of CSA effectiveness for improving the food security of the climate vulnerable	WA, EA	USD 120,000	CIAT, ICRISAT, ILRI, ICRAF, IITA
Review	2020	Strategic approach	Review of CCAFS's partnerships within and outside the CGIAR, and associated capacity development: can they be made more effective for outcome delivery?	LAM, WA, EA, SEA, SA	USD 40,000	All Centres
Review	2021	Cross-cutting research	Review of the G&SI research portfolio and the regional gender impact pathways	LAM, WA, EA, SEA, SA	USD 50,000	All Centres
Evaluation	2021	FP	Evaluation of FP1 and the effectiveness of CSA policy & investment on enhancing food security and adaptive capacity of vulnerable men and women	LAM, WA, EA, SEA, SA	USD 120,000	ILRI
Review	2022	Strategic approach	End of program evaluation of integrative work of ICRPs: integrating tools and mechanisms	global	USD 40,000	A4NH, WLE, PIM
Evaluation	2022	FP	Evaluation of FP3 and the effectiveness of integrating LED into agricultural development to reduce GHG emissions	LAM, EA, SEA, SA	USD 120,000	ILRI, IRRI, CIMMYT, CIAT

3.6 Linkages with other CRPs and site integration

Sub-sections a-d elaborate on four of the five mechanisms to ensure cross-CRP linkage – (a) Impact pathways; (b) LPs; (c) Climate Change Contact Points; (d) Project Activity Planning. The fifth mechanism – internal learning – is elaborated in Annex 3.6. Site integration is dealt with in two sub-sections, as an element of LPs (see 3.6b) and under Plans for Site Integration (see 3.6e).

a) Impact Pathways

Impact pathways, and associated theories of change, have been established at multiple levels, in projects, for particular CSVs, in target countries and for regional programs. They can help diverse stakeholders agree on objectives, tactics and roles. An example of one of these is shown in Annex Figure 1 – for the region WA. In some cases these have been supplemented by scenarios exercises, to help frame future scenarios and develop common visions. Within WA, for example, there are also national impact pathways. For instance, in Burkina Faso, a number of CRPs have been trialing working together based on common scenarios and impact pathways.



Annex Figure 1. Theory of Change for West African Regional Program. Some examples of elements of the national impact pathways are included, but only a few as the national impact pathways have many specific elements.

b) Learning Platforms: Roles and Links with Site Integration

LPs will be a fundamental mechanism to build collaboration across all CRPs. Annex Table 6 summarizes the roles of each LP, while Template 1 shows the cross-CRP linkages. Each FPL will have the responsibility to ensure the success of one LP (LP1 to LP4), with the GSI Research Leader responsible for LP5 and the Global Research Leader on Scaling CSA for LP6. Regional Program Leaders will have a major role in LP2 on facilitating Climate-Smart Villages (CSVs), and in LP6 on fostering links to national and to regional impact pathways.

CCAFS target countries are where CCAFS has the resources to support CSVs and national policy processes related to climate. Many CGIAR Site Integration countries are also target countries for CCAFS (see * in Annex Table 6), but there are additional countries – not earmarked for Site Integration – where there is coordinated work involving several Centres and CRPs (Annex Table 7). While CCAFS does not work in all Site Integration countries it will provide some services to other CRPs in those countries through LPs, as shown in Annex Table 6.

Climate change has become a key topic in agricultural development, as illustrated by CCAFS analysis of country commitments (INDCs) to the UNFCCC ([Richards et al. 2015](#)). Through CRPs (and Centres) working together, the CGIAR can position itself as a major “go to place” for developing country agriculture and climate change. This is one of the overall goals of LP6. But other LPs can also play a role. For example, because CCAFS works with all Centres, its climate change gender network will link to Centre gender expertise, and through these to all CRPs. CCAFS can play a powerful role in fostering gender research and bringing this to the attention of the global community, as demonstrated by CCAFS in the Paris April 2015 meeting on gender and climate change, in the lead up to COP21 (Huyer et al. 2015).

To position itself as a key global player in climate change, the CGIAR must also develop cross-CRP climate-orientated platforms at farm and national level. LP2 (CSVs) focuses on farm and local levels. LP 6 hosts national climate change science-policy platforms in 12 of the countries. Cross-CRP work is most advanced in Burkina Faso, Vietnam, Nicaragua and India (e.g. in Burkina a common impact pathway and scenario process has been implemented with FTA and WLE).

Annex Table 6. CCAFS LPs: roles and participation in Site Integration countries

LP		CCAFS target regions													Not targets						
	Regions	LAM	WA			EA				SA		SEA	CAFr	SAfr							
	Site Integration countries * = CCAFS target countries	Nicaragua *	Burkina Faso *	Ghana *	Mali*	Niger*	Nigeria	Rwanda *	Ethiopia *	Kenya *	Tanzania *	Uganda *	Bangladesh *	India *	Nepal*	Vietnam *	Cameroon	DRC	Malawi	Mozambique	Zambia
	Roles																				
LP1. Ex-ante evaluation and decision support for climate-smart options	<ul style="list-style-type: none">• Priority setting for CSA – downscaled climate data, regional climate outlook, prioritization frameworks• Support breeding programs with relevant climate outlook	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
LP2. Participatory evaluation of CSA technologies and practices in CSVs	<ul style="list-style-type: none">• Tools for integrated assessment of CSA option	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	<ul style="list-style-type: none">• Support implementation and approaches for CSVs	X	X	X	X	X				X	X	X	X	X	X	X					
LP3 Identifying priorities and options for low-emissions development	<ul style="list-style-type: none">• Guidelines for GHG estimates• Global analyses and tools to identify priority mitigation options relevant to particular countries, and their scalability	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	<ul style="list-style-type: none">• Regional and national analyses of selected mitigation options								X	X	X	X	X	X		X					

[illegible]

LP		CCAFS target regions												Not targets							
	Regions	LAM	WA			EA				SA	SEA	CAFr	SAfr								
	Site Integration countries * = CCAFS target countries	Nicaragua *	Burkina Faso *	Ghana *	Mali *	Niger *	Nigeria	Rwanda *	Ethiopia *	Kenya *	Tanzania *	Uganda *	Bangladesh *	India *	Nepal *	Vietnam *	Cameroon	DRC	Malawi	Mozambique	Zambia
	Roles																				
	<ul style="list-style-type: none">Provide common impact pathways for all CGIAR climate change research to engage strategically at the national and regional level with governments and key development partners	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				

Annex Table 7. CCAFS target countries other than Site Integration Countries (where work with other CRPs also takes place)

LP	CCAFS Target Regions														
	LAM							WA	SEA						
	Brazil	Colombia	Rica	Costa Salvador	El Guatemala	Honduras	Mexico	Senegal	Laos	a Cambodi	s Philippine	Indonesia	Myanmar		
#2 Support implementation and approaches for CSVs (multiple CRPs)		X		X	X	X		X	X	X					
#3 Regional and national analyses of selected mitigation options	X	X	X				X		X	X		X			
#5 Support gender activities in CSVs; and in programs involving climate information services and weather-based insurance		X			X	X		X	X	X					
#6 Provide common impact pathways for all CGIAR climate change research to engage strategically at the national and regional level with governments and key development partners		X		X	X	X		X	X	X	X		X		

c) Climate Change Contact Points

One of the terms of reference for Contact Points in each Centre is “Facilitating two-way flow of information between CCAFS and other CRPs in the Centre, including identifying opportunities to build synergies”. Through this system, CCAFS has connections to all CRPs, sometimes through multiple Contact Points based in different Centres (Annex Table 8).

Annex Table 8. CCAFS Climate Change Contact Points and their specific roles with other CRPs

Centre	Climate Change Contact Point	Roles involving cross-CRP links	AFS-CRPs							ICRPs		
			DCL	FISH	FTA	LIVESTOCK	MAIZE	Rice	RTB	WHEAT	A4NH	PIM
AfricaRice	S Zwart, Senior Researcher	In close contact with AfricaRice team involved in RICE						X				
Bioversity	J van Etten, Component leader, Information Services and Seed Supplies	Works with other CRPs, especially in crowdsourcing projects	X				X		X			X
CIAT	P Laderach, Senior Climate Change Specialist	CIAT is involved in most CRPs, and Contact Point works closely with other CIAT CRP focal points and also directly with some project leaders	X		X	X		X	X		X	X
CIFOR	C Martius,	Leads Climate Change work at CIFOR and			X							

Centre	Climate Change Contact Point	Roles involving cross-CRP links	AFS-CRPs							ICRPs		
			DCL	FISH	FTA	LIVESTOCK	MAIZE	Rice	RTB	WHEAT	A4NH	PIM
	Principal Scientist	much involved in FTA										
CIMMYT	C Stirling, Senior Scientist	Connects to work in MAIZE and WHEAT					X		X			
CIP	To be recruited	Will connect directly with RTB						X				
ICARDA	V Nangia, Agricultural Hydrologist	Leads Cluster of Activity 4.3: “Integrated soil-water-nutrient management” in DCL	X									
ICRAF	H Neufeldt, Head Climate Change Unit	ICRAF Research Leaders meet regularly and discuss engagement across CRPs (mechanism to link CRPs)	X		X							X
ICRISAT	AM Whitbread, Research Program Director	Co-leads WLE FP2 – Land and Water Solutions for Sustainable Intensification (LWS); Connected to numerous DCL researchers	X									X
IFPRI	A De Pinto, Senior Research Fellow	Connects with PIM for work related to increasing climate change resilience, agricultural risk management, and adoption of new technologies; Connects with A4NH and IMPACT team for a proper inclusion of nutrition in the model								X	X	
IITA	L Jassogne, Systems Agronomist	Connects with FTA on tree-based systems (coffee and cocoa) in WA and EA; and with FTA sustainable intensification efforts in Central Africa; Connects with RTB systems work on RTB crops in coffee and cocoa systems; Connects with integrated soil fertility management work in MAIZE.			X		X	X				
ILRI	P Erickson, Program Leader, Livestock Systems and Environment	Leads the Environment FP of the LIVESTOCK so highly connected to that CRP; through food systems work also connected to Healthy Food Systems FP of A4NH				X				X		
IRRI	R Wassmann, Climate Change Coordinator	Coordinates climate change work at IRRI and thus facilitates the CCAFS-RICE relationship					X					

Centre	Climate Change Contact Point	Roles involving cross-CRP links	AFS-CRPs							ICRPs		
			DCL	FISH	FTA	LIVESTOCK	MAIZE	Rice	RTB	WHEAT	AANH	PIM
IWMI	V Smakhtin, Theme Leader	On management committee of WLE and ensures strong links with CCAFS and has developed several joint projects; Connects to IWMI’s involvement in FISH.		X								X
WorldFish	B Ratner, Research Director	Plays coordinating role between FISH and ICRPs		X						X	X	X

d) Project activity planning

The connections between CCAFS projects and other CRPs have already been identified for the projects being implemented in 2017. Examples of such interactions for each FP are shown in Template 2a, together with proposed interactions should additional funding become available.

e) Plans for Site Integration

CCAFS core team has made contact with all the Lead Centres for Site Integration countries which CCAFS targets, in order to tailor the CCAFS LPs to needs (Template 2b). CCAFS has also made a proposal to GCARD for hosting a climate change session that draws on Site Integration planning in multiple countries, as well as other climate change specific processes in those countries.

Template 1: Overview of Inter-CRP Collaboration: “Provide and Receive”

	CRP: Climate Change Agriculture and Food Security			
	FP1 Priorities and Policies for CSA	FP2 Climate-Smart Technologies and Practices	FP3 Low Emissions Development	FP4 Climate Services and Safety Nets
AFS-CRPs & ICRPs	<p>CRP Provides: Priority setting for CSA: downscaled climate projections, regional climate outlook, prioritisation frameworks.</p> <p>Receives: Articulated demands for specific types of climate projections and priority setting.</p>	<p>CRP provides: Metrics, methods and participatory platforms (e.g. CSVs) to evaluate emerging technologies and practices; evidence and business cases for promoting scaling out.</p> <p>Receives: Technologies and practices in early development for evaluating benefits through a CSA lens (e.g. from sustainable intensification FPs).</p>	<p>CRP Provides: Guidance on: sustainable intensification that reduces emissions; GHG estimates and LED priorities.</p> <p>Receives: Data on crop, livestock, fish production, extent of practices; knowledge of development trends (e.g. from sustainable intensification FPs).</p>	<p>CRP Provides: Historic and seasonal climate information and related tools tailored to agriculture. Guidance on appropriate use of climate information for agricultural decision-making.</p> <p>Receives: Joint investment in particular climate information products or guidance activities.</p>
	<p>CRP Provides: Position CGIAR as leading global research organization for developing country food systems and climate change; Manage global, continent-wide (e.g. NEPAD-led Alliance for CSA in Africa), regional and national partnerships for climate change policy impact and CSA scaling up. Learning Platform for CSA and gender. A jointly developed ICT platform for MELIA (ICRPs).</p> <p>Receives: CRP-specific case studies, successes and lessons that can be fed into national to global policy processes. CRP-specific case studies that demonstrate the CSA-gender linkages.</p>			
AFS-CRPs	<p>CRP Provides: Support to breeding programs with relevant climate information.</p> <p>Receives: Breeding and crop & livestock suitability data for priority setting; articulated demand for specific climate-related analyses (e.g. from breeding FPs).</p>	<p>CRP Provides: Support implementation and approaches for CSVs, including support to gender activities; methodological contributions on crowdsourcing.</p> <p>Receives: Drought, heat and salinity adapted germplasm for testing in CSVs; technologies and practices that enhance adaptation and/or reduce GHGs (e.g. from breeding FPs).</p>	<p>CRP Provides: Guidelines for GHG estimates; analyses and tools to identify priority mitigation options; global targets and MEL for nitrogen efficiency; global activity on food loss and waste in relation to climate change.</p> <p>Receives: data on food loss and waste (e.g. from value chain FPs); extent of practices; knowledge of CRP-related development trends; Information on breeds and varieties with lower emissions</p>	<p>CRP Provides: Global analyses of opportunities for climate services and associated safety nets; Insurance Learning Platform.</p> <p>Receives: Contributions to synthesis of knowledge and evidence; joint investments in weather-based insurance pilots and scaling</p>

	CRP: Climate Change Agriculture and Food Security			
	FP1 Priorities and Policies for CSA	FP2 Climate-Smart Technologies and Practices	FP3 Low Emissions Development	FP4 Climate Services and Safety Nets
ICRP A4NH	<p><i>CRP Provides:</i> Policy case studies, food and nutrition futures, environmental impacts of sustainable diets, climate data for joint scenarios activities.</p> <p><i>Receives:</i> Policy case studies for syntheses (e.g. from A4NH FP SPEAR).</p>			
ICRP PIM	<p><i>CRP Provides:</i> Policy case studies linked to CSA; climate data for joint global modelling activities.</p> <p><i>Receives:</i> Policy case studies for synthesis; future global socio-economic scenarios; analysis of endogenous trade policies as a reaction to increased weather volatility.</p>	<p><i>CRP Provides:</i> Climate impact predictions and CSA application domains, including information on CSA costs/benefits for inclusion in models; co-invest in collaborative studies (e.g., gender and adoption of CSA).</p> <p><i>Receives:</i> methods for analysing value chain problems and testing innovations; diagnostic results on gender roles in agriculture and empowerment opportunities; methods and tools for analysing adoption.</p>	<p><i>CRP Provides:</i> Improved land use and mitigation scenarios models.</p> <p><i>Receives:</i> Food security policy scenarios</p>	<p><i>CRP Provides:</i> Joint design and support for Weather-related Insurance Learning Platform; experience, tools methods, for weather-related insurance.</p> <p><i>Receives:</i> Joint design and leadership of Weather-related Insurance Learning Platform; experience, methods, evidence for weather-related insurance.</p>
ICRP WLE		<p><i>CRP Provides:</i> Support implementation and approaches for CSVs.</p> <p><i>Receives:</i> Water and soil technologies and practices that enhance adaptation and/or reduce GHGs for testing in CSVs (WLE FPs: RDL, LWS & VCR).</p>	<p><i>CRP Provides:</i> Tools and scenarios for identifying soil carbon mitigation options; framework for metrics, monitoring and GHG accounting.</p> <p><i>Receives:</i> Guidance on increasing soil carbon with permanence; improved understanding of biogeochemistry (WLE FP: RDL).</p>	<p><i>CRP Provides:</i> Tools, methods for flood-based index-insurance.</p> <p><i>Receives:</i> Experience and evidence on the application of flood-based index insurance, synergies with other flood risk management interventions (WLE FP: VCR).</p>

	CRP: Climate Change Agriculture and Food Security			
	FP1 Priorities and Policies for CSA	FP2 Climate-Smart Technologies and Practices	FP3 Low Emissions Development	FP4 Climate Services and Safety Nets
Genebank Platform	<p><i>CRP Provides:</i> Information on climate related stressors that are priorities for genetic resource evaluation; connections to climate change policy of relevance to Genebank Platform.</p> <p><i>Receives:</i> Articulated demands for specific types of climate information and priority setting.</p>			
Genetic Gains Platform	<p><i>CRP Provides:</i> Information on climate related stressors that are priorities for breeding programs.</p> <p><i>Receives:</i> Data and predictions on genetic gain potential for priority abiotic traits in major crops.</p>			
Big Data platform	<p><i>CRP Provides:</i> Spatial datasets on climate and climate impacts.</p> <p><i>Receives:</i> Data, guidance on OA/OD standards, in particular for national to global modelling efforts.</p>	<p><i>CRP Provides:</i> Big data approaches for delivering climate-smart extension systems.</p> <p><i>Receives:</i> Data, guidance on OA/OD standards for CSA related information.</p>	<p><i>CRP Provides:</i> Spatial data on emissions.</p> <p><i>Receives:</i> Spatial data on AEZ's, agricultural activities.</p>	<p><i>CRP Provides:</i> Opportunities and ideas for big data analyses related to provision of climate services.</p> <p><i>Receives:</i> Data, guidance on OA/OD standards for climate services related information.</p>

Template 2a: Partnerships with other CRPs (activities, mode, geographies and outcomes sought).

Submitting CRP: Climate Change Agriculture and Food Security

Partner CRP	ACTIVITY [COUNTRY(IES) IN WHICH THIS TAKES PLACE]	CCAFS ROLE	COLLABORATING CRP ROLE	COLLABORATION MODE	OUTPUT; ADDED VALUE; TARGET COUNTRIES
DCL	<ul style="list-style-type: none"> - Incorporation of climate-smart varieties of millet, sorghum, cowpea, groundnuts and associated climate-smart technologies and practices, into CSVs in Burkina Faso, Ghana, Mali, Niger and India. - Scaling up of climate-smart technologies and practices through CSV approach in rain-fed systems of West Africa (WA) and South Asia (SA). 	<ul style="list-style-type: none"> - Incorporating DCL products into a broader climate-smart perspective (e.g. downscaling and climate outlook, climate information services, insurance, local adaptation planning, low emissions development, synergies and trade-offs). - Downscaling and climate outlook for input into DCL breeding program. - National to global engagement to inform climate-related policies and investment strategies. - Generation of evidence and development of portfolios of CSA interventions to integrate into scaling up plans (WA, SA). - Business cases developed and validated 	Development of improved varieties and associated climate-smart practices.	<ul style="list-style-type: none"> -Complementary (ongoing in Burkina Faso, Ghana, Niger, Mali). - Through Site Integration in Burkina Faso, Mali, India. - Jointly planning, implementing, and scaling-up CSV portfolios in WA and SA. 	<ul style="list-style-type: none"> - Location-specific varieties with package of practices that are recognised as CSA and are incorporated into global, regional and national policies and investment packages, with a focus on WA (in particular Burkina Faso, Mali, Niger) and SA (India). - Prioritized portfolios of CSA interventions in dryland agriculture systems, and business and institutional models for scaling-out CSA.
FISH	<ul style="list-style-type: none"> - Incorporation of climate-smart varieties of fish, and associated climate-smart technologies and practices (FISH F3), into CSVs in Bangladesh, Cambodia. - Scaling up of climate-smart, varieties, technologies and practices in South Asia (SA) and South East Asia (SEA) 	<ul style="list-style-type: none"> - Incorporating FISH products into a broader climate-smart perspective (see above). - Downscaling and climate outlook for input into FISH breeding program. - National to global engagement on CSV approach in aquatic systems. - Generation of evidence and development of portfolios of CSA interventions to integrate into the scaling up plans in SA and SEA. 	Development of improved varieties and associated climate-smart practices in aquaculture (FISH F3) and small-scale fisheries (FISH F2).	<ul style="list-style-type: none"> -Complementary (ongoing in Bangladesh and Cambodia). - Through Site Integration in Bangladesh. - Joint planning, implementing, and scaling-up CSV portfolios in aquatic systems (ongoing in Bangladesh, Cambodia) 	<ul style="list-style-type: none"> - Location-specific varieties with package of practices that are recognised as CSA and are incorporated in global, regional and national policies and investment packages, with a focus on SA and SEA (in particular Bangladesh and Cambodia) - Prioritised portfolios of climate-smart interventions in integrated fish farming system in Bangladesh and Cambodia and institutional approach of scaling out the climate-smart interventions

	Advancing climate-smart agriculture in the Pacific, with a major but not exclusive focus on fisheries (FISH F2)	<ul style="list-style-type: none"> - Evaluation of climate-smart crop and livestock interventions at household level that complement fishery-related activities - Utilising downscaled regional scenarios for national planning in target countries 	Provision of fisheries and systems expertise and specific targeted interventions (FISH F2)	Joint (ongoing) and with ILRI (planned)	Regional analysis of crop-livestock-fish practices that improve food and nutrition security and their costs and benefits.
FTA	<ul style="list-style-type: none"> - Advancing CSA with a tree, agro-forestry or forestry lens in Latin America (LAM: Brazil, Colombia, Costa Rica, Nicaragua); West Africa (WA: Burkina Faso, Ghana, Mali, Niger); East Africa (EA: Kenya, Tanzania), South East Asia (SEA: Indonesia, Vietnam). - Contribute to a co-investment platform shared by FTA (FTA CoA 2.3) and RTB on tree-crop commodities that integrates climate mitigation and adaptation with sustainable intensification of cocoa, coffee, rubber and oil palm. 	<ul style="list-style-type: none"> - Incorporating FTA products and approaches into a broader climate-smart perspective (see above), including work on agriculturally-responsible investment and REDD+. - National to global engagement in CSA and climate policy processes (see above) - Generation of evidence and development of portfolios of CSA interventions to integrate into the scaling up plans in LAM, WA, EA and SEA. 	Outputs provided by the FTA Flagship on “Forests and climate change: mitigation and adaptation opportunities”; Development of climate-smart agro-forestry or forestry options (e.g. for resilient agro-silvo-pastoral systems in West Africa through ICRAF; CSA practices in mixed tree/food crop systems in WA & LAM through IITA and ICRAF)	<ul style="list-style-type: none"> -Complementary (ongoing) Common impact pathway & scenario process implemented with FTA and WLE in Burkina Faso - Through Site Integration in Nicaragua, Burkina Faso, Ghana, Mali, Kenya, Vietnam - Joint projects (e.g. in Ghana) 	<ul style="list-style-type: none"> - Location-specific approaches and practices that are recognised as CSA and are incorporated into global, regional and national policies and investment packages, with a focus on LAM (in particular Nicaragua), WA (Burkina Faso, Ghana, Mali, Niger), EA (Kenya, Tanzania) and SEA (Vietnam). - Prioritized portfolios of CSA interventions in agroforestry or tree-based systems, and business and institutional models for scaling-out CSA.
	Responsible private and public investment to tackle agriculturally-driven deforestation in Brazil, Indonesia, and pending funding, Congo Basin.	- Identifying private sector and market governance options in supply chains related to the agricultural sector, such as cattle	- Focus on supply chains related to high-value trees and forest products (through FTA Flagship on Sustainable global value chains and investments)	Joint (in Brazil); to be explored if new resources can be obtained in Indonesia and Central Africa	<ul style="list-style-type: none"> - Impact assessment of regulations and sustainability initiatives on avoided deforestation, GHG emissions, and associated social effects - Options on instruments and guidelines for improving sustainable commodity supply from public, private and hybrid governance arrangements - Work on sustainable commodity chain governance will be co-located in select sites in Indonesia, the Brazilian Amazon and the Congo Basin.

LIVESTOCK	<ul style="list-style-type: none"> - Incorporation of climate-smart breeds of livestock, and associated climate-smart technologies and practices, into CSVs in Burkina Faso, Mali, Ethiopia, Kenya, Indonesia and Vietnam - Scaling up of climate-smart germplasm, technologies and practices through CSV approach in crop-livestock or pastoral systems in West Africa (WA), East Africa (EA) and South East Asia (SEA), including climate-informed early warning systems for livestock diseases (Vietnam) 	<ul style="list-style-type: none"> - Incorporating LIVESTOCK technologies and management practices into a broader climate-smart perspective (see above) - Downscaling and climate outlook for input into LIVESTOCK breeding programs - Effects of improved feed and emissions in ruminants. - National to global engagement (see above) - Generation of evidence and development of portfolios of CSA interventions to integrate into the scaling up plans in WA, EA and SEA (e.g. LivestockPlus: Supporting low emissions development planning). - Business cases developed and validated 	<ul style="list-style-type: none"> - Development of improved management practices and species/ breeds; Integrating CSA recommendations in technology guidance for upscaling - Contribution to the Rural Household Multiple Indicator Survey, collaborative work that spans 3-4 CRPs and is led by ILRI 	<ul style="list-style-type: none"> -Complementary (ongoing in Kenya, Ethiopia, Vietnam, Mali, Burkina). - Through Site Integration in Kenya, India, Burkina, Mali and Vietnam. - Jointly planning, implementing, and scaling-up CSV portfolios in WA, EA and SEA (inc. integrated livestock-water work in Mali and Burkina) 	<ul style="list-style-type: none"> - Location-specific breeds with package of practices that are recognised as CSA and are incorporated into global, regional and national policies and investment packages, with a focus on WA (Burkina Faso, Mali), EA (Kenya, Ethiopia) and SEA (Vietnam, Indonesia). - Prioritized portfolios of CSA interventions in crop-livestock and pastoral systems, and business and institutional models for scaling-out CSA. - Guidelines and evidence on contribution of improved livestock breeds and management practices to food security, adaptation and mitigation.
	Advance index-based livestock insurance (IBLI) in Kenya, Ethiopia	<ul style="list-style-type: none"> - Integrate IBLI into CSV interventions targeting pastoralists in Ethiopia - Synthesize methods insights, evidence from IBLI and other CGIAR insurance initiatives. 	<ul style="list-style-type: none"> - Provide methods, insights and evidence on Kenya and Ethiopia - Participate in synthesis of evidence. 	<ul style="list-style-type: none"> Joint (ongoing) in Ethiopia, Complementary in Kenya 	<ul style="list-style-type: none"> - Guidelines and evidence on the contribution of IBLI to CSA for pastoralists in Horn of Africa. - (with other CRPs) Global synthesis of opportunities and challenges for index-based insurance
MAIZE	<ul style="list-style-type: none"> - Incorporation of climate-smart varieties of maize, and associated climate-smart technologies and practices, into CSVs in Ghana, Tanzania , Kenya, India and Nepal - Scaling up of climate-smart varieties, technologies and practices, with a focus on West Africa (WA), East Africa (EA) and South Asia (SA) 	<ul style="list-style-type: none"> - Incorporating MAIZE products into a broader climate-smart perspective (see above) - Downscaling and climate outlook for input into MAIZE breeding program - Nitrogen efficiency and soil C effects on net GHG emissions - National to global engagement (see above) - Generation of evidence and development of portfolios of CSA interventions to integrate into scaling up plans (WA, EA, SA). - Business cases developed and 	<ul style="list-style-type: none"> - Development of improved varieties and associated climate-smart practices (e.g. integrated soil fertility management through IITA; outputs from the MAIZE FP4 on sustainable intensification) - Integrating CSA recommendations in technology guidance for upscaling 	<ul style="list-style-type: none"> -Complementary (ongoing in Ghana, Tanzania, Kenya, India, Nepal). - Through Site Integration in Ghana, Tanzania, Kenya, India and Nepal. - Jointly planning, implementing, and scaling-up CSV portfolios in 	<ul style="list-style-type: none"> - Location-specific varieties with package of practices that are recognised as CSA and are incorporated into global, regional and national policies and investment packages, with a focus on WA (Ghana), EA (Kenya, Tanzania), and SA (India, Nepal). - Prioritized portfolios of CSA interventions in rainfed maize-based systems, and business and institutional models for scaling-out CSA.

		validated		WA, EA and SA	
	- Advancing use of index-based insurance to enhance uptake of drought adapted maize varieties in EA (Kenya) and WA (Nigeria)	- Downscaled weather data for use in index-based insurance - Institutional approaches to index-based insurance	- Appropriate drought-adapted varieties available at scale - Outputs from MAIZE FP1 CoA 1.4	- Joint (on-going in Kenya; planned in Nigeria)	- Guidelines, methods and evidence on the use of insurance to foster uptake of improved maize germplasm and other CSA innovations. - (with other CRPs) Global synthesis of opportunities and challenges for index-based insurance
RICE	- Incorporation of climate-smart varieties of rice, and associated climate-smart technologies and practices, into CSVs in India, Nepal, Bangladesh, Laos, Cambodia, Vietnam (RICE FP3) and in inland valleys in West Africa (WA) (through AfricaRice) - Scaling up of climate-smart varieties, technologies and practices, with a primary focus on South Asia and South East Asia, with some work in LAM	- Incorporating RICE products into a broader climate-smart perspective (see above) - Downscaling and climate outlook for input into RICE breeding program (RICE FP4) - Upscaling and monitoring LED - National to global engagement (see above) - Big data analyses on rice crop-climate relations in Latin America, for South-South learning - Generation of evidence and development of portfolios of CSA interventions to integrate into the scaling up plans in SA, SEA and LAM (e.g. climate variable into rural advisory services) - Business cases developed and validated - Global activity on food loss and waste in relation to climate	- Development of improved management practices (RICE FP3) and varieties (RICE FP5); integrating CSA recommendations in technology guidance for upscaling - Food loss and waste data	- Joint (on-going in India, Bangladesh, Laos, Cambodia, Vietnam) - Through Site Integration in Bangladesh, India, Nepal and Vietnam. - Joint (planned in inland valleys, West Africa). - Jointly planning, implementing, and scaling-up CSV portfolios in SA and SEA.	- Location-specific varieties with package of practices that are recognised as CSA and are incorporated into global, regional and national policies and investment packages, with a focus on SA and SEA (India, Nepal, Bangladesh, Laos, Cambodia, Vietnam). - Prioritized portfolios of CSA interventions in rice-based systems, and business and institutional models for scaling-out CSA.
	Advancing index-based insurance: linked to stress-tolerant rice varieties in Nigeria; and through RICE project (Vietnam, Philippines, Cambodia)	- Lead strategy development for upscaling index-based insurance - Data and tools for insurance index development Crop monitoring and forecasting methodology (RICE countries) - Synthesize methods insights, evidence with other CGIAR insurance initiatives.	- Appropriate climate-smart varieties, development of seed systems at scale Provide methodology, insights and evidence; participate in synthesis of knowledge and evidence.	Joint (planned in Nigeria, planned in RICE countries)	- Guidelines, methods and evidence on the use of insurance to foster uptake of improved rice germplasm and other CSA innovations. - (with other CRPs) Global synthesis of opportunities and challenges for index-based insurance

RTB	<ul style="list-style-type: none"> - Incorporation of climate-smart varieties from RTB, and associated climate-smart technologies and practices, into CSVs in Tanzania (sweet potato, Irish potato and cassava), Uganda (banana, cassava and sweet potato), Vietnam (cassava & sweet potato), Nicaragua (banana). - Scaling up of climate-smart varieties, technologies and practices with a focus on Latin America (LAM), East Africa (EA) and South East Asia (SEA) - Contribute to a co-investment platform shared by FTA and RTB on tree-crop commodities that integrates climate mitigation and adaptation with sustainable intensification of cocoa, coffee, rubber and oil palm. 	<ul style="list-style-type: none"> - Incorporating RTB products into a broader climate-smart perspective (see above) - Downscaling and climate outlook for input into RTB breeding program; and into RTB pest and disease modelling - Household modeling for diversification and improved resilience of RTB-cocoa based systems - National to global engagement (see above) - Generation of evidence and development of portfolios of CSA interventions to integrate into the scaling up plans in LAM, EA and SA. - Business cases developed and validated - Global activity on food loss and waste in relation to climate change 	<ul style="list-style-type: none"> - Utilize foresight, metrics and models to improve selection and definition of traits (RTB FP1, FP2) - Development of improved varieties and associated climate-smart practices (e.g. RTB crops in coffee and cocoa systems through IITA) (RTB FP2, FP3, FP5) - Incorporate effects of climate change in insect crop life cycle modelling, and disease models (e.g. Blightcast) (RTB FP2, FP3) - Food loss and waste data (RTB F4) 	<ul style="list-style-type: none"> - Joint (on-going in Nicaragua, Tanzania, Uganda, Vietnam) - Through Site Integration in Nicaragua, Tanzania and Vietnam. - Jointly planning, implementing, and scaling-up CSV portfolios in LAM, WA, EA and SEA (e.g. joint projects in Ghana between IITA and ICRAF). 	<ul style="list-style-type: none"> - Location-specific varieties with package of practices that are recognised as CSA and are incorporated into global, regional and national policies and investment packages, with a focus on LAM (Nicaragua), EA (Tanzania) and SEA (Vietnam). - Prioritized portfolios of CSA interventions in systems where RTB products should be prioritised as climate-smart and business and institutional models for scaling-out CSA.
WHEAT	<ul style="list-style-type: none"> - Incorporation of climate-smart varieties of wheat, and associated climate-smart technologies and practices, into CSVs in India and Nepal - Scaling up of climate-smart varieties, technologies and practices, with a focus on South Asia. 	<ul style="list-style-type: none"> - Incorporating WHEAT products into a broader climate-smart perspective (see above) - Downscaling and climate outlook for input into WHEAT breeding program - Nitrogen efficiency and soil C effects on net GHG emissions - National to global engagement - Generation of evidence and development of portfolios of CSA interventions to integrate into the scaling up plans in SA (e.g. climate variable into rural advisory services). - Business cases developed and validated - Global activity on food loss and waste in relation to climate 	<ul style="list-style-type: none"> - Development of management practices and improved varieties and associated climate-smart practices (e.g. outputs from the WHEAT FP4 on sustainable intensification) - Integrating CSA recommendations in technology guidance for upscaling - Food loss and waste data 	<ul style="list-style-type: none"> - Joint (on-going in India, Nepal). - Through Site Integration in India and Nepal - Jointly planning, implementing, and scaling-up CSV portfolios in SA. 	<ul style="list-style-type: none"> - Location-specific varieties with package of practices that are recognised as CSA and are incorporated into global, regional and national policies and investment packages, with a focus on SA (India, Nepal). - Prioritized portfolios of CSA interventions in rice-wheat systems, and business and institutional models for scaling-out CSA.

		change			
A4NH	Development and application of quantified food and nutrition security futures under an uncertain climate	<ul style="list-style-type: none"> - National to global engagement (see above) - Scenarios processes, documentation, capacity development 	Case studies on commodity value chains and agrifood systems, nutrition and gender (especially through the Food Systems for Healthier Diets Flagship)	Joint (planned)	Scenarios informing policy development and implementation towards food and nutrition security in Bangladesh, Ethiopia, Nigeria, Vietnam.
	Syntheses of case studies across target countries documenting policy and enabling conditions that can lead to positive adaptive capacity and food and nutrition security outcomes, including metrics to deal with CSA and nutrition	<ul style="list-style-type: none"> - National, regional engagement - CSA metrics work includes attention to nutrition metrics (ICRAF) 	Food and nutrition security policy processes, methods, policy engagement platforms, monitoring and metrics (SPEAR Flagship)	Joint (planned)	Syntheses of policy case studies for guidance and learning in Bangladesh, Ethiopia, Ghana, Nepal, Nigeria, Senegal, Tanzania
PIM	Refinement of Gender and Social Inclusion, Climate Change and food and nutrition security elements in the IMPACT model and application in future scenario and foresight activities	<ul style="list-style-type: none"> - National to global engagement (see above) - Information on climate and short- and long-term variability, data on metrics 	IMPACT development, documentation, application, training	Joint (ongoing)	Policy-relevant information on upscaling and enabling appropriate CSA interventions in Bangladesh, Ethiopia, Ghana, India, Nigeria, Vietnam
	Joint development of Learning Platform on Weather-related Agricultural Insurance	<ul style="list-style-type: none"> - Synthesized information, tools, methods, evidence to inform design and targeting. - Connections to key external insurance initiatives within CCAFS network. 	Evaluation methods and expertise. Synthesized information and evidence in the context of other safety net interventions.	Joint (planned)	<ul style="list-style-type: none"> - Learning Platform to share knowledge, foster coordination across CRPs. - Synthesized knowledge and evidence about design, targeting and impact of insurance with emphasis on its role in overcoming risk-related barriers to adoption of CSA and AFS CRP innovations.
	Policy and institutional approach of scaling out CSA/CSV in India, Bangladesh and Nepal	Assessment of current agriculture and climate change policies and institutions at national, sub-national and local levels	Policy analysis expertise; Connections to key initiatives and partnerships within PIM network.	Joint (on-going)	CSA/CSV scaling up pathways and implementation plans/schemes in India, Nepal and Bangladesh
WLE	Incorporation of climate-smart technologies into CSVs in Laos	<ul style="list-style-type: none"> - Incorporating WLE technologies into a broader climate-smart perspective (see above) - National to global engagement (see above) 	Development of climate-smart technologies (e.g. underground flooding, soil carbon sequestration);	Joint (on-going)	Prioritized portfolios of CSA interventions in agricultural systems in different agro-ecologies

			integrating CSA recommendations in technology guidance for upscaling		
	Incorporation of soil carbon sequestration in NDCs (Nationally Determined Contributions)	<ul style="list-style-type: none"> - Incorporating WLE technologies into a broader climate-smart perspective - National to global engagement (see above) - Integration of soil C in tools and scenarios - Developing readiness and program planning for climate finance - Tools, metrics and scenarios for identifying mitigation options that include soil carbon - Monitoring and GHG accounting issues. 	Climate-smart technologies for building soil carbon, recommendations for implementation pathways	Joint (ongoing) in Kenya; (if new resources are obtained) in Vietnam, Nepal, Uganda, Ghana, Senegal, Tanzania, Colombia	Readiness for climate financing coupled with location-specific portfolios of climate relevant practices to increase soil carbon sequestration (inclusion of soil carbon in NDCs)
	Managing flood waters in India	<ul style="list-style-type: none"> - Pilot testing with stakeholders underground storage of flood water for irrigation/drought management - Policy and institutional mechanisms for scaling out 	Development of technologies to deal with flooding (WLE Flagship on Managing Variability, Risk and Competing Uses for Increased Resilience (VCR))	Joint (on-going)	Evidence and guidelines for management of flood water for drought mitigation and irrigation
	Advancing index-based flood insurance in India and Bangladesh	<ul style="list-style-type: none"> - Downscaled weather data for use in index-based flood insurance - Flood index product development - Institutional approaches to flood insurance 	Appropriate hydrological monitoring (WLE VCR)	Joint planning and implementation	<ul style="list-style-type: none"> - Index-based flood insurance that incentivizes the adoption of CSA - (with other CRPs) Global synthesis of opportunities and challenges for index-based insurance

Template 2b: Plans for Site Integration in CGIAR target countries

Target country (site Co-ordinator)	Define steps taken so far (March 2016) to establish national level engagement with other CRPs towards Site Integration (text from focal points, in some cases shortened)	Define plan and schedule through which your CRP will provide relevant elements for Site Integration in this country (text from CCAFS Regional Program Leaders [RPL])
LATIN AMERICA		
<p>Nicaragua</p> <p>(Maya Rajasekharan, CIAT)</p>	<p>A steering committee was established with representatives from CIAT, Bioversity, CATIE, ICRAF and CCAFS. As the first priority, a national consultation was held in Managua, Nicaragua from 17-18 November, 2015. Participants included six CGIAR Centres (Bioversity, CIAT, CIMMYT, CIP, ICRAF, and IFPRI), as well as CATIE and CIRAD and 20+ national partners. Centres represented work of nine CRPs (from Phase 1) which are active in the region (A4NH, CCAFS, FTA, Humidtropics, L&F, Maize, PIM, RTB, and WLE). Opportunities for further CRP integration were identified, including shared goals, activities, partnerships that would benefit the work being carried out by each program and a proposed theory of change and impact pathway to carry them out. CIAT covered expenses related to the venue and food, while each participant assumed the cost of travel. https://library.cgiar.org/bitstream/handle/10947/4180/Informe-Reunion-Integracion-2015-English.pdf?sequence=1.</p> <p>With guidance from Consortium Office, the steering committee will draft the Site Integration plan building on the national consultation and past/current experiences of Centres. A clear understanding of what is being proposed in Phase 2 CRP proposals are important before we carry out any further stakeholder consultation. Potential sites of integrative work were identified based on previous and ongoing CGIAR efforts (such as CCAFS CSVs and FTA sentinel sites) and on priorities of the government (such as the dry corridor). Some integrative work has been already done in Tuma La Dalia CSV between CCAFS and FTA regarding baseline surveys and implementation of agroforestry measures. Developing information and knowledge management systems are essential to sustain dialogue and communication. Unlike other countries, we don't anticipate Nicaragua being a physical hub leading to a single CGIAR office.</p> <p>To meet donor/CGIAR aspirations on Site Integration, dedicated funding to support coordination and collective efforts are required.</p>	<ul style="list-style-type: none"> • RPL is part of Steering Committee in charge of developing the Site Integration plan, and participated in Site Integration workshop. • In Phase I CCAFS developed CSVs that involved projects from 3 Centres (2 CRPs). The selection of CSVs was in consultation with CGIAR and non-CGIAR partners. CCAFS also developed regional networks and science-policy platforms where multiple Centres participate. • Since 2013, the RPL focuses on ensuring integration of CSA actions from site to regional level, making sure to integrate activities of different FPs, Centres, CRPs and partners involved with CCAFS so as to respond to regional, national and local needs. Involvement in Site Integration plan in Nicaragua is one of the mechanisms to achieve such articulation. • CCAFS contributed to organization of national consultation workshop and has been involved in the elaboration of the Site Integration plan. • CSVs will continue to serve as a hub to integrate CRP collaboration with local actors to support national stakeholders (Climate-site specific management project in Malacatoya, Sebaco, Matagalpa and San Luis; Participatory planning and investment in CSA project in Estelí, Madriz and Nueva Segovia; Tuma La Dalia CSV pre-identified as potential site for collaboration with FTA, WLE, PIM, AFS). • Synergies and areas of overlap to explore have been identified during the consultation exercise with A4NH, FTA, WLE, PIM, AFS-CRPs. • CCAFS will continue contributing to the finalization of the Site Integration plan. In addition, CCAFS will contribute towards jointly raising bilateral funds with the centres/CRPs for strategic thematic areas and work in specific sites, such as the CSV. CCAFS will develop a funding strategy which will be shared with Site Integration coordinator and partners. CCAFS through the Learning Platforms will provide inputs on how these can support the Site Integration plan.

Target country (site Co-ordinator)	Define steps taken so far (March 2016) to establish national level engagement with other CRPs towards Site Integration (text from focal points, in some cases shortened)	Define plan and schedule through which your CRP will provide relevant elements for Site Integration in this country (text from CCAFS Regional Program Leaders [RPL])
WEST AFRICA		
Burkina Faso (Mathurin Zida, CIFOR)	<p>In June 2013, a meeting of WLE, FTA and CCAFS agreed to explore areas of synergy (both issue and place-based) in Burkina. In August 2013, CIFOR organized a first internal meeting between ICRAF and CIFOR in Ouagadougou to review the expected outcomes of the joint initiative. A committee was set up and tasked to establish a database of CGIAR projects in terms of targets, locations, partners.</p> <p>A 2nd meeting (Dec 2013) with participation of a broader set of partners (FTA, CCAFS, WLE, Drylands, national and other international research institutions, including universities, state and non-state development partners, international NGOs) convened to review the quality of previous partnerships with CGIAR and to work out a new partnership framework. A 3rd meeting (Feb 2014) with the same set of partners defined a vision and action plan for the partnership framework. It was also agreed to develop a common theory of change aligned to the strategy for accelerated growth and sustainable development of Burkina Faso (SCADD), particularly the national programme for the rural sector (PNSR). The CGIAR-led initiative for building a database of all CGIAR projects and those of non-CGIAR actors has been merged with a similar initiative led by the SP/CPSA (Permanent Secretariat for Coordination of Agricultural Sectoral Policies).</p> <p>The CRPs' joint initiative has also partnered with the CCAFS Scenarios group and the SP/CPSA in a specific process aimed at examining the PNSR in the context of multiple socio-economic and climatic scenarios, to improve its robustness and feasibility in the face of possible diverse futures. This scenario-guided policy revision workshop (July 2015), offered a unique opportunity to CGIAR experts (FTA, CCAFS, Dryland, WLE) and national policy experts to identify research through which CRPs could contribute to the expected outcomes of the upcoming revised PNSR. The CRPs' joint initiative in Burkina Faso has followed a participatory approach involving CGIAR, national actors, and other international actors intervening in Burkina Faso, to frame partnerships, map research interventions and define development and research priorities to be considered.</p>	<ul style="list-style-type: none"> • Since 2013, RPL has worked closely with FTA, WLE and DS to initiate and organise three consultation meetings with national partners, including those engaged with CCAFS since 2010. • In Phase I CCAFS developed CSVs that involved projects from 4 Centres (3 CRPs). CCAFS also organised scenario downscaling workshops and developed a national CSA science-policy platform where multiple Centres and CRPs participated. • RPLs are responsible for ensuring integration of CSA actions from site to regional level, and for integrating activities of different FPs, Centres, CRPs and partners involved with CCAFS. One of their TOR is to ensure that CCAFS activities are integrated in Site Integration Plans. • Up to now, CCAFS has actively participated in the 4 national consultation meetings in Burkina Faso. • CCAFS scenario process and science-policy dialogue platform have been identified for joint-CRP work and used to support the formulation of the phase 2 PNSR. • The CCAFS CSVs have been considered as research sites for WLE, DCL and FTA. Sites' baseline data and information have been shared with CRPs and Centres. • A research agenda for the CGIAR (CRPs & Centres) to respond to the priority needs for Burkina Faso rural sector development has been developed and will serve to guide future research interventions. • The scenario process will continue to backstop and guide the formulation of the PNSR phase 2. • CCAFS will also contribute towards jointly raising bilateral funds with the centres/CRPs for the thematic area. By August 2016, CCAFS will prepare a funding strategy, to be shared with the Site Integration coordinator/partners for discussion. • Each Learning Platform will prepare a brief annual workplan in December of the previous year for discussion with the Site Integration coordinators, other CRPs and partners.

Target country (site Co-ordinator)	Define steps taken so far (March 2016) to establish national level engagement with other CRPs towards Site Integration (text from focal points, in some cases shortened)	Define plan and schedule through which your CRP will provide relevant elements for Site Integration in this country (text from CCAFS Regional Program Leaders [RPL])
Ghana (Olufunke Cofie, IWMI)	<p>Centres that are active in Ghana have been collaborating for a long time by sharing resources and working on different projects together. Since January 2016, nine Centres (AfricaRice, Bioversity, CIAT, CIP, IFPRI, IITA, ILRI, IWMI and WorldFish) and eight CRPs (A4NH, CCAFS, DCLAS, Maize, Rice, WLE, RTB, PIM) have been involved in Ghana Site Integration. The Steering Committee (SC) was constituted by official nominations from the Centres/CRPs. Several virtual and face-to-face meetings were held prior to the national consultation workshop (March 2016, Accra). Other preliminary activities carried out by the SC were: (i) mapping of Centre/CRP project locations, thematic focus, target commodities and partnerships; (ii) Review of relevant national policy documents as well as donors' priorities; and (iii) engagement with and sensitization of local partners on Site Integration. From the mapping and review exercise, the SC identified potential thematic areas for CGIAR collaboration in Ghana.</p> <p>Two key national partners are the Ministry of Food and Agriculture (MoFA) and the Council for Scientific and Industrial Research (CSIR). These institutions co-organized the National Consultation workshop, attended by 60 persons from different stakeholder groups. The workshop revealed how the integrated efforts of the CGIAR Centres can complement national priorities and those of other partners, towards agricultural transformation. Following MoFA's presentation on the priorities for driving Ghana's Shared Growth and Development Objectives, the participants identified key themes that could be the CGIAR strategic focus. The workshop also suggested ways of working effectively together. The workshop further provided insight on tracking progress and impact of integration, as well as the coordination mechanism.</p> <p>Next steps are: (i) finalise the Site Integration plan with information gathered during the workshop; (ii) engage in regular consultation and exchange with the national partners through their representation in the SC and (iii) sharing information at national platforms. The SC agreed that sharing of information, as well as collaboration in joint activities and resource mobilisation is paramount to strengthen integration. Collaboration will commence on the identified themes and with a joint visit to the National Development Planning Commission.</p>	<ul style="list-style-type: none"> • The RPL is a member of the SC, and has contributed to SC meetings through sharing information on CCAFS-related projects and success stories, in preparation for the national consultation meeting. • In Phase I CCAFS developed that involved projects from 5 Centres (4 CRPs). CCAFS also developed national and district-level CSA science-policy platforms where multiple Centres participated. • RPLs are responsible for ensuring integration of CSA actions from site to regional level, and for integrating activities of different FPs, Centres, CRPs and partners involved with CCAFS. One of their TOR is to ensure that CCAFS activities are integrated in Site Integration Plans. • CCAFS attended the national consultation meeting and made presentations on CCAFS success stories. • The consultation workshop identified (1) the national science-policy dialogue platform, (2) the CSV approach, and (3) the scaling up of climate information services through ICTs as relevant areas for Site Integration. • The 2 CCAFS CSVs have been considered as research sites for DCL, FTA and Africa Rising project. The CSV baseline data and information have been shared with CRPs/Centres. • CCAFS is expected to play a key role in the one of the Site Integration thematic area (climate change adaptation and resilience, through CSA, climate information services and safety nets). • CCAFS will also contribute towards jointly raising bilateral funds with the centres/CRPs for the thematic area. By August 2016, CCAFS will have prepared a funding strategy for each country of its target countries. This strategy will be shared with the Site Integration coordinator and partners for comments and discussion. • Each Learning Platform will prepare a brief annual workplan in December of the previous year for discussion with the Site Integration coordinator, other CRPs and partners.

Target country (site Co-ordinator)	Define steps taken so far (March 2016) to establish national level engagement with other CRPs towards Site Integration (text from focal points, in some cases shortened)	Define plan and schedule through which your CRP will provide relevant elements for Site Integration in this country (text from CCAFS Regional Program Leaders [RPL])
Mali (Ramadjita Tabo, ICRISAT)	<p>The Site Integration process is coordinated by a steering committee representing seven organisations and one CRP (ICRISAT, ICRAF, ILRI, AVRDC, AGRA, Africa Rice, IITA). The SC has mapped on-going projects and organized a Site Integration workshop (March 2016, Bamako). Nearly 70 participants attended including representatives from the Ministry of Agriculture, NGOs, donor community, private sector, CGIAR Centres and farmers group. The participants produced a draft framework for Site Integration, including principles, gaps and opportunities for Site Integration, resourcing, internal and external communication, as well as mechanisms to monitor progress and assess impacts.</p> <p>The main outputs and conclusions of the integration workshop were as follows:</p> <ul style="list-style-type: none"> • Improvement of the inventory of research programs and project partnerships. • Opportunities for more efficiency and increased impact through stronger coordination and collaboration were highlighted. • Better understanding of what the gaps and opportunities are in Mali for AR4D. • Clear need for research to go beyond the production stage and focus on empowering farmers and NGOs to develop value chains. <p>Working groups were formed to progress on the following five main issues: (i) key features of integration, (ii) principles for selecting sites, and integrating actions, (iii) towards effective collaboration and cooperation, (iv) communication and (v) progress tracking and impact assessment.</p> <p>The Site Integration plan will be submitted on or before April 29th, 2016.</p>	<ul style="list-style-type: none"> • RPL is member of the SC and contributed to the technical preparation and facilitation of the consultation meeting. • In Phase I CCAFS developed CSVs that involved projects from 3 Centres (3 CRPs). CCAFS also developed national and district level CSA science-policy platforms where multiple Centres participate. • RPL is responsible for ensuring integration of CSA actions from site to regional level, and for integrating activities of different FPs, Centres, CRPs and partners involved with CCAFS. One of their TOR is to ensure that CCAFS activities are integrated in Site Integration Plans. • RPL attended the national consultation meeting and made presentations on the mapping of CGIAR intervention sites in Mali. He also shared CCAFS success stories (CSVs, partnerships, national platforms...) • The consultation workshop considered lessons learnt from (1) the national & district level science-policy dialogue platforms, (2) the CSV approach and the partnerships developed by CCAFS for its action research, as relevant experiences that could inform Site Integration. • The 2 CCAFS CSVs in Segou region have been considered as research sites for DCL, FTA and WLE. Baseline data and information have been shared with CRPs and Centres. • The SC will facilitate further work planning based on the lessons learnt from existing experiences, including those from CCAFS. • CCAFS will contribute to the thematic and geographical database of all CGIAR and partner projects. • By August 2016, CCAFS will have prepared a funding strategy for each country of its target countries. This strategy will be shared with the Site Integration coordinator and partners for comments and discussion. • Each CCAFS Learning Platform will prepare a brief annual workplan in December of the previous year for discussion with the Site Integration coordinator, other CRPs and partners.

Target country (site Co-ordinator)	Define steps taken so far (March 2016) to establish national level engagement with other CRPs towards Site Integration (text from focal points, in some cases shortened)	Define plan and schedule through which your CRP will provide relevant elements for Site Integration in this country (text from CCAFS Regional Program Leaders [RPL])
<p>Niger (Malick Ba, ICRISAT)</p>	<p>Niger CGIAR site integration was initiated on March 15, 2016 by organizing a consultation meeting of all CGIAR/CRPS operating in Niger. This meeting builds on an ICRISAT consultative meeting, held in August 2015. The meeting focused on Government of Niger strategy for Agricultural development (3N), and how the CGIAR can respond to that. Site Integration is coordinated by representatives of 3 CGIAR centers (ICRISAT, ICRAF, ILRI) and CCAFS. The first consultation meeting gathered participants from the above, with inputs also from IWMI and IITA. It was also attended by national AR4D actors (INRAN, CNRA, French R4D Institute, NGOs). CRPs operating in Niger include: WLE, DCL, A4NH, CCAFS, RICE, LIVESTOCK and Genebank.</p> <p>3N has the objective of strengthening the national capacity for food production to ensure a steady supply chain, and resilience in the face of food crises and natural disasters. Niger is designated as the lead country for livestock research and development for the 15 ECOWAS countries. The newly established Centre National for Agronomic Research (CNRA) oversees all AR4D. The consultation meeting highlighted opportunities for site integration in term of facilities (ICRISAT campus, and INRAN nationwide research stations) and funding (World Bank investments, IFAD and EU). Currently ICRISAT-CIAT and CCAFS are working towards development of a proposal on climate smart agriculture, which will reinforce Site Integration.</p> <p>Workshop identified key features of integration, principles for selecting sites and integrating actions. The next steps will include the development of a site integration plan.</p>	<ul style="list-style-type: none"> • RPL is member of the SC and has interacted with the Site Integration leader in preparation of the national consultation meeting. • In Phase I CCAFS developed CSVs that involved projects from 4 Centres (3 CRPs). CCAFS also developed a national CSA science-policy platform where multiple Centres participate. • RPL is responsible for ensuring integration of CSA actions from site to regional level, and for integrating activities of different FPs, Centres, CRPs and partners involved with CCAFS. One of their TOR is to ensure that CCAFS activities are integrated in Site Integration Plans. • A scientist from CCAFS team participated in the consultation meeting and shared CCAFS experiences and future activities in Niger • Preliminary results from the CSVs in term of technologies, approaches and tools will be further used within the basket of CGIAR-led products that could be brought to scale through large country-led development programs. • Household and village baseline studies in CSVs have been conducted and databases made available to other CRPs (e.g. DCL, WLE, FTA). • CCAFS has projects in CSVs (Fakara region) as well as at the national level (e.g. National science-policy dialogue platform led by CNEDD). These will be integrated into the emerging Site Integration plan. CCAFS will contribute to the thematic and geographical database of all CGIAR and partner project. • By August 2016, CCAFS will have prepared a funding strategy for each country of its target countries. This strategy will be shared with Site Integration coordinator and partners for discussion. • Each Learning Platform will prepare a brief annual workplan in December of the previous year for discussion with the Site Integration coordinator, other CRPs and partners.

Target country (site Co-ordinator)	Define steps taken so far (March 2016) to establish national level engagement with other CRPs towards Site Integration (text from focal points, in some cases shortened)	Define plan and schedule through which your CRP will provide relevant elements for Site Integration in this country (text from CCAFS Regional Program Leaders [RPL])
Nigeria (Alfred Dixon, IITA)	<p>The Site Integration National Consultation Workshop for Nigeria was held on 16th and 17th November 2015. The workshop focused on: Understanding Nigeria's agricultural research and development strategy; Mapping the CGIAR activities and sites in the country; Developing a common understanding of integration and key principles to be considered; Identifying the roles of various stakeholders in the integration process and; Developing a framework for integration. A Process Steering Committee was formed comprising all CRP focal point representatives to provide guidance. About 70 participants attended the consultation and there was a fair representation of stakeholders cutting across farmer organizations, Women groups, gender specialist, development partners, the private sector, private and public extension actors, CGIAR partners, regional and sub-regional organizations, the media, and policymakers, etc.</p> <p>Major outputs consisted in defining local or national priorities, articulating and breaking down the concept of "integration", collectively identifying principles and some general guidelines that could guide site selection and integration, identifying the major AR4D issues in the country, identify major ongoing AR4D initiatives funded by donors, and plan the beginnings of a framework. Also, the planning framework for integration was designed.</p> <p>The defined next steps were:</p> <ul style="list-style-type: none"> • to consult with CG focal points to agree on draft integration plan (what and how) • To share the integration plan with stakeholders, Consortium, CRP Directors and GFAR • To finalize integration plan, share with stakeholders and submit to Consortium and CRP Directors 	<ul style="list-style-type: none"> • CCAFS Africa Program Leader and the Senior Manager – African Policy Engagement, visited IITA-Ibadan (Feb 2016) for in-depth discussions with Site Integration leader on CCAFS plans in Nigeria. CCAFS does not have much activity in Nigeria but has been working with government officials and the insurance sector to plan the roll-out of weather-index insurance. • In Phase I CCAFS coordinated the development of a chapter to the report of the Advisory Committee on Agricultural Resilience in Nigeria with contributions from various CGIAR Centres. The report was the background to the development of the Nigeria resilience strategy. • CCAFS has commented and shared ideas on the Site Integration process. • CCAFS has ambitions to support an index-based insurance development for climate risk management in Nigeria, involving three Centers. CCAFS will also contribute to capacity development of Nigeria stakeholders for sound implementation of CSA. • CCAFS will pursue its partnership engagement for the insurance initiative and integrate such activities into the Site Integration plan. • By August 2016, CCAFS will have prepared a funding strategy for each country of its target countries. This strategy will be shared with the Site Integration coordinator and partners for discussion. • Each Learning Platform will prepare a brief annual workplan in December of the previous year for discussion with the Site Integration coordinator, other CRPs and partners.

Target country (site Co-ordinator)	Define steps taken so far (March 2016) to establish national level engagement with other CRPs towards Site Integration (text from focal points, in some cases shortened)	Define plan and schedule through which your CRP will provide relevant elements for Site Integration in this country (text from CCAFS RPLs [RPL])
EAST AFRICA		
Ethiopia (Siboniso Moyo, ILRI)	<p>The Ethiopia CGIAR country collaboration and Site Integration process is coordinated by a committee representing 14 CGIAR Centres and 10 CRP focal points (inc. CCAFS). The group plans to meet quarterly. The Agricultural Transformation Agency and the Ethiopian Institute of Agricultural Research are helping to better prepare the national consultation process.</p> <p>Some key activities to date include:</p> <ul style="list-style-type: none"> • Database of major partners/collaborators • Mapping CGIAR Centre and CRP work in Ethiopia (November 2015). • Partners' national consultations on alignment to Growth and Transformation Plan II (GTP II) (Nov 2015 – Jan 2016). • National Consultation Meeting (Dec 2015). Participants were drawn mainly from the Federal Government Departments, Development partners (Donors, NGOs) and a few private sector and farmer associations. • Different CRPs/Flagships conducting focused group consultations (Jan-Mar 2016) • Conduct focused group discussion with a target group of stakeholders (women and youth groups, farmers associations, as agreed in Dec meeting) • Creating a wiki for the coordinating committee <p>The Roadmap for agricultural and economic growth in Ethiopia is spelt out in Ethiopia's GTP II. The CGIAR should continue to align its programs to that (and there have been many meetings to do that planning) (Oct-Dec 2015).</p> <p>One the key recommendation is the need to establish a joint CGIAR-national agriculture research system collaboration and communication mechanism. Other areas of collaboration were: the development of joint research proposals, sharing of equipment and resources, streamlining policy engagement, and improving opportunities and modalities of capacity development.</p>	<ul style="list-style-type: none"> • CCAFS was represented by the CIAT country representative for Ethiopia at the first national consultation workshop. • RPLs are responsible for ensuring integration of CSA actions from site to regional level, and for integrating activities of different FPs, Centres, CRPs and partners involved with CCAFS. One of their TOR is to ensure that CCAFS activities are integrated in Site Integration Plans. • In Phase I CCAFS developed a research site in Borana, southern Ethiopia, where research activities related to the rangelands led by ILRI were conducted in collaboration with Managing Risk for Improved Livelihoods (MARIL). • The Borana site is an attractive investment area where a diversity of CRPs/Centres working on rangelands can come together to test their technologies and approaches. CCAFS activities in Borana, also link with the local government, with potential for much integration with the Livestock CRP – specifically linkages with ILRI Index-based Livestock Insurance (IBLI). • The first consultation workshop set out some key actions, and CCAFS is committed to play its role in those actions e.g. development of joint research proposals, streamlining policy engagement, and improving opportunities and modalities of capacity development, contribution to the thematic and geographical database of all CGIAR and partner projects in Ethiopia. • CCAFS also plans to contribute through its Learning Platforms. Each CCAFS Learning Platform will prepare a brief annual workplan in December of the previous year for discussion with the Site Integration coordinator, other CRPs and partners. • By August 2016, CCAFS will have prepared a funding strategy for Ethiopia. This strategy will be shared with the Site Integration coordinator and partners for discussion.

Target country (site Co-ordinator)	Define steps taken so far (March 2016) to establish national level engagement with other CRPs towards Site Integration (text from focal points, in some cases shortened)	Define plan and schedule through which your CRP will provide relevant elements for Site Integration in this country (text from CCAFS RPLs [RPL])
Kenya (Jonathan Muriuki, ICRAF)	<p>Kenya CGIAR country collaboration and site integration is led by ICRAF and coordinated by a steering committee representing 9 CGIAR Centres working in Kenya (ILRI, ICRAF, CIMMYT, CIAT, IITA, CIFOR, CIP, ICRISAT, Bioversity) and 8 CRP focal points (A4NH, CCAFS, FTA, Maize, Wheat, RTB, Livestock, Rice). The national stakeholders' consultation workshop held in March 10-11, 2016 brought together a wide range of stakeholder and included representatives from CGIAR centers and CRPs, Ministry of Agriculture, Livestock and Fisheries; devolved county governments; national universities; national agricultural research organizations (KALRO, KEFRI); National Council of Science, Technology and Innovation (NACOSTI); National Biosafety Authority (NBA); regional and other international agricultural research organizations (ASARECA, ACIAR, AATF, ICIPE), the private sector (Equity Group Foundation, Kenya Private Sector Alliance – KEPSA), farmer representatives (KNFF, KSSCGA, KLBO), donor organizations (World Bank, FAO, Embassy of Sweden, JICA), and development organizations (SNV, Technoserve, One Acre Fund).</p> <p>The meeting discussed a more coordinated and effective way of working in Kenya which optimally integrates with the Kenyan Agriculture priorities. Specific areas of focus included:</p> <ul style="list-style-type: none"> • Understanding the Kenya Agriculture Sector Priorities and policies (Agriculture Sector Development Strategy - ASDS), critical challenges facing agricultural development and implementation of the priorities. • Priority areas where research and development can most contribute • How best to organize the CGIAR input to address Kenyan priorities <p>The workshop identified six pillars of the ASDS where research can contribute to their implementation:</p> <ul style="list-style-type: none"> • Increasing agricultural productivity and commercialization • Promoting private sector investments • Promoting sustainable land and natural resources management • Improving agricultural services delivery • Promoting value addition, competitiveness and trade • Ensuring effective sector coordination and implementation 	<ul style="list-style-type: none"> • ILRI represents CCAFS in the SC, being the host Centre for CCAFS EA and FP4. • CCAFS was represented by the CCAFS PAR expert at the national consultation workshop. • RPLs are responsible for ensuring integration of CSA actions from site to regional level, and for integrating activities of different FPs, Centres, CRPs and partners involved with CCAFS. One of their TOR is to ensure that CCAFS activities are integrated in Site Integration Plans. • In Phase I CCAFS developed CSVs across two sites in Kenya (Nyando, Western Kenya; and Wote in Eastern Kenya). Four centres (ILRI, ICRISAT, CIMMYT, ICRAF), representing 4 CRPs have been working in these sites in collaboration with the national research partners (KARLO, Ministry of Agriculture, universities). • CCAFS also developed national CSA science-policy platforms where multiple Centres participated including CIFOR, CIAT, ILRI, ICRAF. The platform facilitated the development of the CSA Framework Program (CSA-FPs) for Kenya, with CSA also included in the Kenya INDC submitted to UNFCCC in 2015. • The following potential collaboration has been identified as possibly contributing to Site Integration: with DTMA (CIMMYT), DCL (ICRISAT), LIVESTOCK (ILRI); CSA science-policy dialogues (CIFOR, CIAT, ILRI, ICRAF and IITA). • CCAFS is expected to play a key role in the relevant Site Integration thematic areas (climate change adaptation and resilience, mitigation through CSA). • CCAFS will also contribute towards jointly raising bilateral funds with the centres/CRPs for the thematic area. • By August 2016, CCAFS will have prepared a funding strategy for Kenya. This strategy will be shared with the Site Integration coordinator and partners for discussion. • Each of the CCAFS Learning Platforms will prepare a brief annual workplan in December of the previous year for discussion with the Site Integration coordinator, other CRPs and partners.

Target country (site Co-ordinator)	Define steps taken so far (March 2016) to establish national level engagement with other CRPs towards Site Integration (text from focal points, in some cases shortened)	Define plan and schedule through which your CRP will provide relevant elements for Site Integration in this country (text from CCAFS RPLs [RPL])
Rwanda (Kirimi Sindi, CIP)	<p>The Site Integration process is coordinated by a committee of six individuals representing 4 Centers (CIP, CIAT, IITA and ICRAF). Four Site Integration meetings have been held, including one with the main donors in Rwanda (USAID, EU, and DFID).</p> <p>The committee is working on mapping all on-going projects in Rwanda.</p> <p>A Site Integration workshop will be held 29th Mar 2016, bringing together c. 75 representative of donors, government agencies, other development organizations, civil societies, and financial institutions. This will build on the Humid Tropics already-established R4D forum.</p> <p>This meeting will gather stakeholder views and use these to work on the Site Integration plan that will be finalized by end of April, 2016.</p>	<ul style="list-style-type: none"> • CCAFS is only now initiating work in Rwanda. CCAFS is leading a project on Climate Services in Rwanda in collaboration with Meteo-Rwanda and RAB beginning 2016, and will be represented at the Site Integration workshop by the Project Coordinator and Project Leader (from CIAT – Rwanda). CCAFS project on Climate Services in Rwanda will explore linkages with other CRPs and CGIAR centre initiatives e.g. through selection of pilot areas/districts. • CCAFS is committed to play its role in the proposed site integration activities, and will also contribute through its Learning Platforms. Each Learning Platform will prepare a brief annual workplan in December of the previous year for discussion with the Site Integration coordinator, other CRPs and partners. • By August 2016, CCAFS will have prepared a funding strategy for Rwanda to be shared with Site Integration coordinators and partners for discussion.
Tanzania (Regina Kapinga, IITA)	<p>The Site Integration process is coordinated by a group composed of representatives from: The Ministry of Agriculture , Livestock and Fisheries (3 persons), Private Sector (1), 11 CGIAR Centres (CIAT, CIP, ICRAF, IITA, IRRI, Africa Rice, ILRI, AfricaRice, ICRISAT, CIMMYT, Bioversity), 9 CRP focal points, (CCAFS, LIVESTOCK, MAIZE, A4NH, PIM, RICE, RTB, WLE) and the Genebank platform.</p> <p>The national stakeholders’ consultation workshop (Dec 2015) derived principles for success and identified major opportunities for integration. To ensure alignment with national priorities it is essential to understand the national strategies as elaborated in the Tanzanian Agricultural Sector Development Program (ASDP) Phase II. Reference to ASDP II should be made in proposals. IITA, as lead focal point for Site Integration, participated in a 5-days national ASDP II prioritization workshop to identify key focus areas.</p> <p>The plan is to jointly develop and implement projects that have multiple commodities and disciplines (as in Africa Rising that involves a number of Centres and has common research sites).</p> <p>Regarding sharing of facilities, IITA –Tanzania is already hosting three CGIAR Centers.</p> <p>The site-integration process group will meet at least once every six months. Plans are underway to discuss the possibility of organizing a CGIAR-NARS national awareness workshop aimed at popularizing</p>	<ul style="list-style-type: none"> • RPLs are responsible for ensuring integration of CSA actions from site to regional level, and for integrating activities of different FPs, Centres, CRPs and partners involved with CCAFS. One of their TOR is to ensure that CCAFS activities in Tanzania are integrated in Site Integration Plans. • CCAFS participated in the first Site Integration workshop for Tanzania through its PAR expert. • In Phase I, CCAFS developed CSVs in Lushoto, Northern Tanzania. Three CGIAR Centres (CIP, CIMMYT and IITA, covering three CRPs) have been testing crop-related CSA technologies working with the national research institute (SARI) to develop the CSV models. • National CSA science-policy platforms have also been developed, where multiple Centres (CIFOR, CIAT, ILRI, ICRAF) have participated. The platform facilitated the development of the CSA Framework Program (CSA-FP) for Tanzania in 2015, resulting in inclusion of CSA in Tanzania’s INDC submitted to UNFCCC in 2015. Learning Alliances which bring together stakeholders from national to local government to share information, knowledge, and experiences on issues of climate change in Tanzania have also been developed (led by IITA). • CCAFS is expected to play a key role in one or more of the following Site Integration thematic areas: CSA technologies and practices, business and enterprise

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	best-bet technologies for scaling-up	<p>development, capacity building, value addition and management of postharvest losses, sustainable intensification of smallholder systems to increase agricultural production and productivity.</p> <ul style="list-style-type: none"> • The CCAFS CSVs in Lushoto serve as a potential research site for other CRP, while the national platform already established by CCAFS through IITA can be used to facilitate science-policy dialogues for other CRPS. • CCAFS will also contribute towards jointly raising bilateral funds with the centres/CRPs for the thematic areas. By August 2016, CCAFS will have prepared a funding strategy for Tanzania. The strategy will be shared with the Site Integration coordinator and partners for discussion. • Each of the CCAFS Learning platforms will prepare a brief annual workplan in Dec of the previous year for discussion with the other CRPs, partners, Site Integration coordinator.
Uganda (Eldad Karamura, Bioversity)	<p>The Site Integration process in Uganda is jointly chaired by Bioversity and CIP. A steering committee (SC) involving all the 8 CGIAR Centres present in Uganda (Bioversity, CIAT, CIP, ICRAF, IFPRI, IITA, ILRI, and IWMI) was formed and held its first meeting (Jan 2016). After the second SC meeting the SC chairs and members consulted key stakeholders (NARO-Uganda, Makerere University, Uganda National Farmers' Federation, Ministry of Finance).</p> <p>The first stakeholder workshop on March 9, 2016 was co-hosted with NARO to enhance ownership by national partners.</p> <p>Materials collated so far include:</p> <ul style="list-style-type: none"> • CGIAR major partners/collaborators • Documents that highlight national development priorities • CGIAR research <p>The SC has noted that for several CRPs operational in Uganda, there are already several clusters of Centres collaborating in one or more CRPs, and that Centres were already sharing laboratory facilities along with NARO-Uganda institutes.</p> <p>The workshop on March 9 discussed Uganda's national agriculture priorities and how the CGIAR, NARES, scaling and policy partners can better collaborate. Increasing agricultural productivity and addressing climate change were among the priorities. The meeting laid a foundation for a long term engagement between the CRPs and Ugandan partners and stakeholders. Outputs of the meeting</p>	<ul style="list-style-type: none"> • CCAFS was represented at the first national consultative workshop by scientists from CIAT and IITA, and by ILRI Uganda country representative. • In Phase I CCAFS developed CSVs across two sites in Uganda (Hoima; and Rakai), with projects involving three CGIAR centres (CIAT, CIMMYT and IITA). CCAFS has also been working with national research partners (NARO) and Makerere University to develop the CSVs model. • CCAFS also developed national CSA science-policy platforms where multiple centres participate (CIFOR, CIAT, ILRI, ICRAF). Through the platform, a CSA Framework Program has been developed for Uganda. Uganda has also included CSA in their INDC submitted to UNFCCC in 2015. Through an IITA-led CCAFS project, Learning Alliances have been formed which bring together stakeholders from national to local government to share information, knowledge, and experiences on issues of climate change in Uganda. • RPLs are responsible for ensuring integration of CSA actions from site to regional level, and for integrating activities of different FPs, Centres, CRPs and partners involved with CCAFS. One of their TOR is to ensure that CCAFS activities are integrated in Site Integration Plans for Uganda. • CCAFS will also contribute towards jointly raising bilateral funds with the centres/CRPs for the thematic area. CCAFS will have prepared a funding strategy for Uganda. This

Target country (site Co-ordinator)	Define steps taken so far (March 2016) to establish national level engagement with other CRPs towards Site Integration (text from focal points, in some cases shortened)	Define plan and schedule through which your CRP will provide relevant elements for Site Integration in this country (text from CCAFS RPLs [RPL])
	will guide the development of the Site Integration plan.	<p>strategy will be shared with the Site Integration coordinator and partners for discussion.</p> <ul style="list-style-type: none"> • Each of the CCAFS Learning Platform will prepare a brief annual workplan in December of the previous year for discussion with the Site Integration coordinators, other CRPs and partners.

Target country (site Co-ordinator)	Define steps taken so far (March 2016) to establish national level engagement with other CRPs towards Site Integration (text from focal points, in some cases shortened)	Define plan and schedule through which your CRP will provide relevant elements for Site Integration in this country (text from CCAFS RPLs [RPL])
SOUTH ASIA		
<p>Bangladesh</p> <p>(Craig Meisner, WorldFish)</p>	<p>In Bangladesh, for over 3 years 7 CGIAR Centres representing over 7 CRPs have established a CGIAR Advisory Committee. Through this venue all CGIAR Centres plus AVRDC and IFDC meet with our NARS and Ministry officials twice a year. We have met twice in 2015 and will meet 2 times in 2016. All details for this integration as well as 4 CAC minutes are posted on the http://gcard3.cgiar.org/national-consultations/bangladesh/</p>	<ul style="list-style-type: none"> • In Phase I CCAFS developed CSVs in southern Bangladesh (Khulana and Rajapur; led by Worldfish) and in central Bangladesh (Kishorganj led by IRRI) where a number of CGIAR Centres are active. This was based on consultation with the partners and currently the CSVs have activities together with 3 CRPs. CCAFS also engaged with national policy makers on climate risk management where IFPRI provided leadership. • CCAFS' RPL is responsible for ensuring integration of CSA actions from site to regional level, and for integrating activities of different FPs, Centres, CRPs and partners involved with CCAFS. All centres implementing CCAFS projects in Bangladesh are part of the Steering Committee for Site Integration. • CCAFS is actively participating in developing the Site Integration plan. Its CSV sites are also sites for FISH. Its policy work is harmonized with PIM. • CCAFS will also contribute towards jointly raising bilateral funds with the centres/CRPs for the thematic area. CCAFS will develop a funding strategy which will be shared with Site Integration coordinator and partners. • CCAFS Learning Platforms will prepare a brief annual workplan in December of the previous year for discussion with the Site Integration coordinators, other CRPs and partners.
<p>India</p> <p>(Peter Carberry, ICRISAT)</p>	<p>Agriculture is a significant source of livelihood for the Indian population. This contribution of Indian agriculture has been made possible by an exceptionally strong National Innovation System that includes the Indian Council of Agricultural Research (ICAR), National and State science agencies and universities, a large NGO sector and a growing private sector. CGIAR has a long presence and history of collaboration in India, with ICRISAT headquartered in Hyderabad, Telangana State and most of the CGIAR Centers and CRPs having Regional Centers and staff based in India.</p> <p>Each year, ICAR hosts an annual coordination meeting of all CGIAR Centers in India to consult on ongoing and proposed research initiatives. The annual meeting in 2016 was held on 19th January in New Delhi and attended by all CGIAR Centers (meeting minutes posted at http://gcard3.cgiar.org/india/). In addition, ICAR also hosts annual planning meetings with most CGIAR Centers during which joint research projects are reviewed and planned. Hence, CGIAR research in India is already well coordinated with the main</p>	<ul style="list-style-type: none"> • In CRP phase 1, CCAFS did consultations with key stakeholders in the country to prioritize research activities and sites for project implementation. CCAFS established CSVs in Bihar, Haryana, Punjab, Telangana, Karnataka, and Maharashtra where CIMMYT, IRRI, IFPRI, IWMI, and ICRISAT and 4 CRPs participated. CCAFS also formalised an MOU with the lead NARS-ICAR to work together on CSA. • CCAFS' RPL-SA is responsible for ensuring integration of CSA actions from site to regional level, and for integrating activities of different FPs, Centres, CRPs and partners involved with CCAFS and thus to also ensure that CCAFS activities are integrated in country's Site Integration Plans. • CCAFS is actively participating in developing the Site Integration plan. Its CSV sites are also sites for DCL, WHEAT and MAIZE. Its policy work is harmonized with PIM. • CCAFS will also contribute towards jointly raising bilateral funds with the centres/CRPs for the thematic area. CCAFS will develop a funding strategy which will be shared with

Target country (site Co-ordinator)	Define steps taken so far (March 2016) to establish national level engagement with other CRPs towards Site Integration (text from focal points, in some cases shortened)	Define plan and schedule through which your CRP will provide relevant elements for Site Integration in this country (text from CCAFS RPLs [RPL])
	<p>research partner in India, ICAR.</p> <p>Specifically, in developing the CRP Phase 2 Site Integration Plan for India, a Steering Committee of representative CGIAR leaders was formed on 19th January 2016 and held its first face-to-face meeting on 23rd February 2016. A spreadsheet of current CGIAR research in India was created and these data have subsequently been mapped across all Indian States and agro-ecological zones. The SC agreed to a consultation process and the relative budget, contributions, agenda and local arrangements for this engagement. All Centers also contributed a 5-page description of their research in India.</p> <p>The Consultation Meeting was held March 2016. Over 100 CGIAR stakeholders participated to review current CGIAR research in India; comment on Phase 2 CGIAR Research Programs (CRPs) proposals and partnerships. The Steering Committee reviewed all comments and started developing a site integration plan to maximize synergies across CRPs and centers.</p>	<p>Site Integration coordinator and partners.</p> <ul style="list-style-type: none"> • CCAFS Learning Platforms will prepare a brief annual workplan in December of the previous year for discussion with the Site Integration coordinators, other CRPs and partners.
Nepal (Arun Joshi, CIMMYT; Sugden Fraser, IWMI)	<p>The process of Site Integration in Nepal was initiated November 2015 by organizing a meeting of all CGIAR Centres working in Nepal. The Site Integration steering committee was formed (with one member from each CGIAR Centre). This included CIMMYT, IWMI, Bioversity, IFPRI, IRRI, CIFOR and ICARDA. CCAFS was included in the subsequent meeting.</p> <p>Two meetings were held in December to share information on work being done by each Centre in Nepal and to plan for a stakeholder consultation meeting which was organized in Kathmandu (Jan 2016).</p> <p>More than 60 participants, representing 34 national institutions participated in the consultation meeting. A joint presentation on activities being undertaken by all CGIAR Centres on various CRPs in Nepal was presented and two discussion sessions were held. The first focused on better alignment of current CGIAR research activities, whilst the second one on targeting stakeholders' needs. Opportunities for further alignment of CGIAR programs and CRP integration were identified through shared goals, activities and increased partnerships.</p> <p>Highlights included how to better align CGIAR work with national policy issues, demand for continued capacity building of local agricultural scientists, the development of stronger national databases, promoting local genetic resources and the need for research on both climatic and non-climatic stresses on agriculture. Ideas for new research avenues were also raised.</p>	<ul style="list-style-type: none"> • In phase 1, CCAFS developed CSV field sites in Terai (Bardiya, Banke, Dang, Rupandehi, Nawalparasi, Morang and Mahotari) and Hill (Lamjung, Kaski and Gorkha) of Nepal based on several rounds of consultation and engagement with key stakeholders. • CCAFS' RPL-SA is responsible for ensuring integration of CSA actions from site to regional level, and for integrating activities of different FPs, Centres, CRPs and partners involved with CCAFS. All centres implementing CCAFS projects in Nepal are a part of the Steering Committee for Site Integration. • CCAFS is actively participating in developing the Site Integration plan. Its policy work is harmonized with PIM. • CCAFS will also contribute towards jointly raising bilateral funds with the centres/CRPs for the thematic area. CCAFS will develop a funding strategy which will be shared with Site Integration coordinator and partners. • CCAFS Learning Platforms will prepare a brief annual workplan in December of the previous year for discussion with the Site Integration coordinators, other CRPs and partners

Target country (site Co-ordinator)	Define steps taken so far (March 2016) to establish national level engagement with other CRPs towards Site Integration (text from focal points, in some cases shortened)	Define plan and schedule through which your CRP will provide relevant elements for Site Integration in this country (text from CCAFS RPLs [RPL])
	A central point for collaboration will be the Agriculture Development Strategy (ADS 2015-2035) approved by Government of Nepal on 14th August, 2015.	

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SOUTH EAST ASIA		
<p>Vietnam</p> <p>(Dindo Campilan, CIAT)</p>	<p>Nine CRPS and 10 Centres have participated in the Site Integration. A national stakeholders' consultation workshop was organized in Dec 2015, with over 70 participants representing: 1) research institutes and government agencies, 2) universities, 3) NGOs-private sector agencies and associations, 4) international organizations and donors, and 5) CGIAR staff.</p> <p>Stakeholders agreed on an eco-regional framework to facilitate in-country collaboration. The target regions are: 1) Northwest, 2) Northeast, 3) Red river delta, 4) North central coast, 5) Central highlands-south central coast and southeast, and 6) Mekong river delta. In addition, CRPs with national and local development plans were considered a key dimension of country collaboration. For each region, the stakeholders identified: 1) development priorities as set by government policymakers/ decision-makers, 2) key research gaps which are recommended for the CGIAR to address, and 3) potential partners for specific research and development initiatives.</p> <p>From Dec 2015 to March 2016, CRPs/Centres also engaged in bilateral discussions on specific collaboration needs and opportunities. Several CRPs also organized their respective country/regional planning and consultation events.</p> <p>A follow-up meeting by the CGIAR Vietnam team was held on 7 March, with 8 CRPs and 7 Centres represented. The 8 participating CRPs re-confirmed that Vietnam is a target country for CRP II proposals. As next step, it was also agreed that subnational targeting will be undertaken for higher-resolution Site Integration plans, i.e. within each agro-ecoregion. A draft agenda for the 10-element Site Integration report was prepared.</p>	<ul style="list-style-type: none"> • The CCAFS RPL represents IRRI, CCAFS and RICE in the Core Group. The CCAFS RPL integrates the different CCAFS activities in the region and within the country by providing coordination and guidance to CCAFS project leaders and by helping address some of the research gaps. The CCAFS RPL is also often designated to represent RICE in Vietnam, and interacts closely with country reps of RTB, Fish, FTA, Livestock, A4NH (who are also involved in CCAFS projects). • The CSVs established in Phase 1 involved 3 Centers (4 CRPS –GRISP, FTA, RTB, PIM). CCAFS projects in Vietnam involve 8 Centres (IRRI, CIAT, ICRAF, WorldFish, Bioversity, IFPRI, ILRI, CIP) with some Centres working together in particular projects. CCAFS provides a platform by gathering information from other Centres/CRPs and bringing them into CSA discussions with government of Vietnam. • In Nov 2015 the Ministry of Agriculture and Rural Development (MARD), Vietnam co-organized with IRRI (through CCAFS RPL) the 1st coordination MARD-CGIAR meeting participated by 9 Centres. • CCAFS also participated actively in the Vietnam Site Integration consultation meeting. In phase II, CCAFS will also participate in the planned joint annual review and planning at agro-ecological zone level. • Each CCAFS Learning Platform will prepare a brief annual workplan in Dec of the previous year for discussion with the Site Integration coordinators, other CRPs and partners. • The 3 current CSV sites of CCAFS have been identified possible Site Integration areas. In the plan being drafted, the lead Centres in the 3 CSV sites (CIAT, ICRAF & IRRI) have been identified as lead Centres in the eco-regions where the CSV sites are located. • CCAFS will contribute to the thematic and geographical database of CGIAR and partner projects. • Current resources will be applied to these actions. By Aug 2016, CCAFS will prepare a funding strategy for each of its target countries. This strategy will be shared with Site Integration coordinators and partners.

3.7 Staffing of management team and flagship projects

Program Management Committee

Name: Bruce CAMPBELL

Current position and affiliation: Director, CCAFS

Profile: Dr. Bruce Campbell has degrees in Ecology from Cape Town (B.Sc. Hons.), Minnesota (M.Sc.) and Utrecht (Ph.D.), but has increasingly moved into inter-disciplinary work, championing new approaches to doing applied research on natural resource management. For two decades he focused on social-ecological systems in southern Africa, covering a spectrum of production systems (forestry, livestock, dryland and irrigated cropping), from small-scale (e.g. soil fertility management) to large-scale (e.g. deforestation analyses), and from biophysical and social science angles.

Employment:

2011 – present	<i>Director, CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), Copenhagen – Denmark</i>
2009 – 2010	<i>Director, CGIAR Challenge Program on Climate Change, Agriculture and Food Security, University of Copenhagen - Denmark</i>
2007 – 2009	<i>Director, Forests and Livelihoods Program, Center for International Forestry Research (CIFOR), Bogor – Indonesia</i> <i>Adjunct Professor, School for Environmental Research, Charles Darwin University (CDU)</i>
2004 – 2007	<i>Director, School for Environmental Research, Charles Darwin University (CDU), Darwin - Australia</i>

Education:

- Ph.D. (University of Utrecht) (1985)
- M.Sc. (University of Minnesota) (1978)

Selected Recent Peer-reviewed publications:

- Wise RM, Fazey I, Stafford Smith MD, Park SE, Eakin HC, Archer Van Garderen ERM, Campbell B. 2014. Reconceptualising adaptation to climate change as part of pathways of change and response. *Global Environmental Change* 28:325-336.
- Campbell, B.M., Thornton, P., Zougmore, R., van Asten, P. and Lipper, L. 2014. Sustainable intensification: What is its role in climate smart agriculture? *Current Opinion in Environmental Sustainability*, 8: 39-43.
- Lipper L, Thornton P, Campbell BM, Baedeker T, Braimoh A, Bwalya M, Caron P, Cattaneo A, Garrity D, Henry K, Hottle R, Jackson L, Jarvis A, Kossam F, Mann W, McCarthy N, Meybeck A, Neufeldt H, Remington T, Sen PT, Sessa R, Shula R, Tibu A, Torquebiau EF. 2014. Climate-smart agriculture for food security. *Nature Climate Change* 4:1068–1072.
- Vermeulen, S.J., Campbell, B.M and Ingram, J.S.I. 2012. Climate Change and Food Systems. *Annu. Rev. Environ. Resour.* 37:195–222.
- Sayer, J. & Campbell, B. 2004. *The science of sustainable development: local livelihoods and the global environment*. Cambridge University Press, Cambridge.

Other Evidence of Leadership, large-program management and delivery:

- Awarded the CGIAR 2002 Prize for Outstanding Scientific Article
- Member Scientific Steering Committee of the ICSU Program on Ecosystem Change and Society (PECS) (2009-)
- Member of Panel of Scientific Advisors of *The Global Diversity Foundation* (2001-2005).

Role in CCAFS: Director. Leadership of all aspects of the Program

Name: Andy JARVIS

Current position and affiliation: FP2 Leader, CCAFS and Research Area Director, Decision and Policy Analysis, International Centre for Tropical Agriculture (CIAT)

Profile: Dr. Jarvis has 10 years' experience of cutting edge scientific research in developing countries to support the goals of alleviating poverty and protecting essential ecosystem services of importance to humanity. In 2003 Dr. Jarvis won the Crop Science Society of America (CSSA) C-8 Genetic Resources award for best research paper stemming from his work on conservation prioritization research for wild peanuts in Latin America, and in 2009 received the prestigious Ebbe Nielsen award for innovative research in bioinformatics and biosystematics.

Employment:

- 2011 – present *Flagship 2 Leader, CGIAR Research Program on Climate Change, Agriculture and Food Security, Cali – Colombia*
- 2012 - present *Research Area Director, Decision and Policy Analysis, International Centre for Tropical Agriculture (CIAT), Cali – Colombia*
- 2009 - 2010 *Theme Leader, CGIAR Challenge Program on Climate Change, Agriculture and Food Security*
- 2008 - 2011 *Program Leader, Decision and Policy Analysis, International Centre for Tropical Agriculture (CIAT), Cali – Colombia*
- 2004 - 2006 *Post Doctoral Fellow, joint-position between CIAT and Bioversity International, housed in the Land Use Project of CIAT.*

Education:

- Ph.D. – Department of Geography, King's College, London, UK (2005)
- M.S. – Department of Geography, King's College, London, UK (2001)

Selected Recent Peer-reviewed publications:

- Colin K. Khoury, Anne D. Bjorkman, Hannes Dempewolf, Julian Ramirez-Villegas, Luigi Guarino, Andy Jarvis, Loren H. Rieseberg and Paul C. Struik. 2014. Increasing homogeneity in global food supplies and the implications for food security. PNAS, 2014.
- Lipper, L. Philip Thornton, Bruce M. Campbell, Tobias Baedeker, Ademola Braimoh, Martin Bwalya, Patrick Caron, Andrea Cattaneo, Dennis Garrity, Kevin Henry, Ryan Hottle, Louise Jackson, Andrew Jarvis, Fred Kossam, Wendy Mann, Nancy McCarthy, Alexandre Meybeck, Henry Neufeld, Tom Remington, Pham Thi Sen, Reuben Sessa, Reynolds Shula, Austin Tibu and Emmanuel F. Torquebiau. 2014. Climate-smart agriculture for food security. Nature Climate change 4: 1068–1072.
- Vermeulen S J, Challinor A, Thornton P K, Campbell B M, Eriyagama N, Vervoort, J M, Kinyangi J, Jarvis A, Läderach P, Ramírez-Villegas J, Nicklin K J, Hawkins E, Smith D R. 2013. Addressing uncertainty in adaptation planning for agriculture. Proceedings of the national academy of sciences of the United States of America 110 (21): 8357-8362.
- Jarvis, A., Ramirez-Villegas, J., Herrera Campo, B.V., and Navarro-Racines, C.E. 2012. Is Cassava the Answer to African Climate Change Adaptation? *Tropical Plant Biology* 5 (1): 9-29.
- Series of Climate-Smart Agriculture Country profiles supported by the World Bank (Colombia, Argentina, Costa Rica, Mexico, Grenada, Peru, El Salvador)

Other Evidence of Leadership, large-program management and delivery:

- Director of the Decision and Policy Analysis research area in CIAT, and successfully grew the team from ~20 people in 2009 into a ~150 strong research area focused on diverse topics from market linkages, to ecosystem services to climate change challenges.
- PI on several high profile projects, including leading a US\$15m agreement with the Ministry of Agriculture and Rural Development of Colombia, a NERC-ESPA funded project on [ecosystem services for food and nutritional security in the Amazon](#), and has successfully led for CCAFS a Theme/Flagship for 5 years.
- Managed resources summing >US\$20m per year, delivering a slew of development outcomes at both centre and CRP level, including [big data in extension](#), [inclusive business models](#), and [influencing CSA investment](#).

Role in CCAFS: Flagship 2 Leader

Name: Eva “Lini” WOLLENBERG

Current position and affiliation: FP3 Leader, CCAFS and *Research Associate Professor*, Gund Institute for Ecological Economics and Rubenstein School of Environment and Natural Resources, University of Vermont.

Profile: Dr. Wollenberg holds a PhD and MS in Wildland Resource Science from the University of California, Berkeley and has worked for more than 30 years on research and policy related to climate change mitigation, local governance, environment and rural livelihoods, community-based forest management, participatory action research and adaptive collaborative management

Employment:

2011 – present *Flagship 3 Leader*, CGIAR Research Program on Climate Change, Agriculture and Food Security and *Research Associate Professor*, Gund Institute for Ecological Economics and Rubenstein School of Environment and Natural Resources, University of Vermont.

2009 – 2010 *Theme Leader*, CGIAR Challenge Program on Climate Change, Agriculture and Food Security

2007 – 2009 *Director*, Centre for Sustainable Agriculture, University of Vermont

1994 – 2007 *Principle Scientist*, Governance Program, Centre for International Forestry Research (CIFOR). Bogor – Indonesia

Education:

- Ph.D. – Wildland Resource Science, University of California, Berkeley, US [1991]
- M.S. – Wildland Resource Science, University of California, Berkeley, US [1986]

Selected Recent Peer-reviewed publications:

- Agrawal A, Wollenberg E, Persha L. 2014. Governing Agriculture-Forest Landscapes to Achieve Climate Change Mitigation. Lead article of special section. *Global Environmental Change*. 29: 270-280.
- Ogle SM, Olander L, Wollenberg E, Rosenstock T, Tubiello FN, Paustian K, Buendia L, Nihart A, Smith P. 2014. Reducing greenhouse gas emissions and adapting agricultural management for climate change in developing countries: providing the basis for action. *Global Change Biology*. 20:1–6.
- Neufeldt H, Jahn M, Campbell C, Beddington JR, DeClerck F, De Pinto A, Hellin J, Herrero M, Jarvis A, LeZaks D, Holger M, Rosenstock T, Scholes M, Scholes R, Vermeulen S, Wollenberg E, Zougmore R. 2013. Beyond climate-smart agriculture – toward safe operating spaces for global food systems. *Agriculture and Food Security*. 2:12.
- Newton P, Agrawal A, Wollenberg E. 2013. Enhancing the sustainability of commodity supply chains in tropical forest and agricultural landscapes. *Global Environmental Change*. 23:1761-1772.
- Olander L, Wollenberg L., Tubiello FN, Herold M. 2013. Advancing agricultural greenhouse gas quantification. *Environmental Research Letters*. 8(1):011002.

Other Evidence of Leadership, large-program management and delivery:

- Led and delivered CCAFS strategies for partnership and engagement globally, linking to major global partners
- 25 years of coordinating national and international programs and projects with up to 35 country teams per project and budgets > USD 10 million
- Co-chairs and coordinates major partnerships including IFAD-CCAFS Learning Alliance on agriculture and climate change (co-investment USD 3.9 million) and World Business Council on Sustainable Development Partnership on Climate-Smart Agriculture

Role in CCAFS: Flagship 3 Leader

Name: Pramod AGGARWAL

Current position and affiliation: Regional Program Leader for South Asia, CCAFS

Profile: Prof Aggarwal holds a Ph.D. from University of Indore and also from Wageningen University, Netherlands. His research contributions include developing the concept of climate-smart villages (CSVs), crop growth models for the tropical environments, impact assessment of climatic variability and climate change on crops, characterizing risks of yield loss for developing weather derivatives, adaptation strategies, inventories of greenhouse gases emissions, mitigation options, yield gap analysis, genotype by environment by management interactions, and crop yield monitoring systems. CSVs are now being replicated in more than 1500 villages in South Asia. His work on insurance has led to improved products with higher satisfaction of stakeholders and is being used by millions of farmers in India.

Employment:

2010 – present *Regional Program Leader for South Asia, CGIAR Research Program on Climate Change, Agriculture and Food Security. New Delhi - India*

2007 – 2010 *ICAR National Professor, Indian Agricultural Research Institute. New Delhi - India*

2003 - 2007 *Head of the Division of Environmental Sciences, Indian Agricultural Research Institute, New Delhi-India*

Education:

- Ph.D. – University of Indore, India (1983)
- Ph.D. – Wageningen University, Netherlands (2000)

Selected Recent Peer-reviewed publications:

- S. Asseng, F. Ewert, P. Martre, R.P. Rötter, D.B. Lobell, D. Cammarano, B.A. Kimball, M.J. Ottman, G.W. Wall, J.W. White, M.P. Reynolds, P.D. Alderman, P.V.V. Prasad, P.K. Aggarwal, et al.. 2015. Rising temperatures reduce global wheat production. *Nature Climate change*. 5: 143-147.
- Campbell, B., Kinyangi, J., Nersisyan, A., Leigh, RA, Dibb-Leigh, J.A., Zougmore, RB, Seré, S. Aggarwal, P.K. & Hoefner, P. 2013. Perspectives: Legislating change: What should governments do to enhance sustainable agriculture and mitigate droughts?; *Nature* 501, S12–S14 (26 September 2013)
- Aggarwal P, Zougmore R and Kinyangi J. 2013. Climate-Smart Villages: A community approach to sustainable agricultural development. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Available online at: www.ccafs.cgiar.org
- Naresh Kumar, S., P. K. Aggarwal, Rani Saxena, Swaroopa Rani, Surabhi Jain and Nitin Chauhan. 2013. An assessment of regional vulnerability of rice to climate change in India. *Climatic Change*. 118:683–699.
- Varshney RK, Bansal KC, Aggarwal PK, Datta SK, Craufurd PQ. 2011. Agricultural biotechnology for crop improvement in a variable climate: hope or hype? *Trends Plant Sci.*;16(7):363-71.

Other Evidence of Leadership, large-program management and delivery:

- Coordinating Lead Author for the chapter ‘Food, fibre, and forest products’ of the Fourth Assessment Report (2007) of the Inter-Governmental Panel on Climate Change (IPCC).
- Awarded *Ernesto Illy Trieste Science Prize* for the year 2009 by the Academy of Sciences for the Developing World (TWAS), Italy, ‘for the outstanding leadership and scientific contributions to the understanding the vulnerability of agriculture to climate change’
- Coordinator of the Indian NARS’s Network on Global Climate Change and Indian Agriculture (2004-2010)

Role in CCAFS: Regional Program Leader for South Asia

Name: Robert B. ZOUGMORE

Current position and affiliation: Regional Program Leader for Africa, CCAFS

Profile: Robert Zougmore is an agronomist and soil scientist. He currently leads the CGIAR research program on Climate Change, Agriculture and Food Security (CCAFS) for the Africa Region. With 25 years of research experience, his major research covered soil and water management, runoff and soil erosion, land rehabilitation and integrated soil fertility management at plot and watershed levels. His current work focuses on the development of climate-smart agriculture technologies, practices, institutions and policies for better climate risk management in West Africa. He initiated the national science-policy dialogue platforms in the CCAFS pilot countries to stimulate knowledge exchange among key national stakeholders and also linked with the sub-regional actors such as ECOWAS to inform the setup of the regional CSA alliance in West Africa.

Employment:

- | | |
|----------------|---|
| 2010 – present | <i>Regional Program Leader for West Africa, CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)</i> |
| 2009 – 2010 | <i>Senior officer, Expert in Environment at the Sahara and Sahel Observatory</i> |
| 2006 – 2009 | <i>Senior Researcher at the Department of Natural Resource Management & Production Systems, Institute for Environment & Agricultural Research, Burkina Faso</i> |
| 2004 – 2005 | <i>Post Doc JIRCAS-OKINAWA research fellowship program, Japan</i> |

Education:

- Ph.D. in Production Ecology & Resource Conservation, University of Wageningen, The Netherlands (2003)
- Master degree, Pedology, Plant physiology, Rural economy and sociology, Agronomy, University of Ouagadougou, Burkina Faso (1990)

Selected Recent Peer-reviewed publications:

- Robert Zougmore, Alain Sy Traoré and Yamar Mbodj (Eds.), 2015. Overview of the Scientific, Political and Financial Landscape of Climate-Smart Agriculture in West Africa. Working Paper No. 118. CGIAR Research Program on Climate Change, Agriculture and Food Security. Available online at: www.ccafs.cgiar.org
- Zougmore R., Jalloh A., Tioro A., 2014. Climate-smart soil water and nutrient management options in semiarid West Africa: a review of evidence and analysis of stone bunds and zaï techniques. *Agriculture & Food Security*; 3:16.
- Campbell, B.M., Thornton, P., Zougmore, R., van Asten, P. and Lipper, L. 2014. Sustainable intensification: What is its role in climate smart agriculture? *Current Opinion in Environmental Sustainability* 8: 39-43.
- Vom Brocke K., Trouche J., Weltzien E., Kondombo-Barro C.P., Sidibé A., Zougmore R., Gozé E., 2014. Helping farmers adapt to climate and cropping system change through increased access to sorghum genetic resources adapted to prevalent sorghum cropping systems in Burkina Faso. *Expl Agric.*: 50(2): 284-305.
- Bruce Campbell, James Kinyangi, Robert Zougmore, Pramod Aggarwal, et al., 2013. Agriculture and Drought. Perspectives: Legislating change, *Nature outlook* 501, S12–S14 (26 September 2013).

Other Evidence of Leadership, large-program management and delivery:

- 1990 - 2008, Chief department of the research Program on Natural resources Management and farming systems at the Institute for Environment and Agricultural Research in Burkina Faso.
- Board member of the African Conservation Tillage Network
- 1992 - 2004, Coordinator of the action research and participatory learning activities with farmers-based organizations involved in the IFAD and AfDB investment projects in Burkina Faso
- 1995 and 2001, Grantee of the International Foundation for Science for research projects
- 2005, awarded a medal "*Chevalier de l'ordre des palmes académiques*" from the government of Burkina Faso for my outstanding research work

Role in CCAFS: Regional Program Leader for Africa

Name: Sophia HUYER

Current position and affiliation: Gender and Social Inclusion Research Leader, CCAFS

Profile: Before taking on her current position with CCAFS, Sophia Huyer was Executive Director of Women in Global Science and Technology – WISAT. She has been a leader in research and policy analysis on global gender equality issues relating to science, technology and sustainable development for over 20 years, including agriculture, climate change, energy and natural resources management. She has worked for major UN organizations such as UNESCO and UNCSTD, as well as a consultant to FAO, UN Women and UNDP. She was Director of GenderInSITE, Gender in science, innovation, technology and engineering, a global multistakeholder policy research program. Among other positions, she was also Senior Advisor to the Organization for Women in Science for the Developing World (OWSD), advisor to the FAO initiative on Reducing Women’s Work Burden and co-author of the resulting publication: *Running Out of Time: The Reduction of Women’s Work Burden in Agricultural Production* and author of the UNDP / Government of Macedonia report “Gender and Climate Change in Macedonia: Applying a Gender Lens to the Third National Communication on Climate Change”.

Employment:

- 2015 – present *Gender and Social Inclusion Research Leader, CGIAR Research Program on Climate Change, Agriculture and Food Security.*
- 1998– 2015 *Executive Director, Women in Global Science and Technology (WISAT)*
- 2013-2015 *Director, GenderInSITE – Organization for Women in Science for the Developing World (OWSD) and The World Academy of Sciences (TWAS)*
- 2009 – 2013 *Senior Advisor, Organization for Women in Science for the Developing World, (OWSD)*

Education:

- Ph.D. Environmental Studies, York University, Toronto, Canada (2000)
- M.A. History, University of Toronto, Toronto, Canada (1987)

Selected Recent Peer-reviewed publications:

- Huyer, S., Ed.. (2016). Special Issue on Closing the Gender Gap in Agriculture in a Changing Climate. *Gender, Technology and Development*, 20 (2).
- Huyer, S. (2016). Gender in International climate policy: An analysis of progress in gender equality at COP21. Info Note. Copenhagen, Denmark: CGIAR Climate Change, Agriculture and Food Security Programme.
- Huyer, S. (2015). “Is the gender gap narrowing in science and engineering?”, in UNESCO Science Report 2015, Paris: UNESCO.
- Huyer, S., Twyman, J., Koningstein, M., Ashby, J., & Vermeulen, S. (2015). Supporting women farmers in a changing climate: five policy lessons. Policy Brief. Copenhagen, Denmark: CGIAR Climate Change, Agriculture and Food Security Programme.
- Co-author in Asfaw et al, (2015). Gender and CSA Module, Gender and Agriculture Sourcebook, FAO and World Bank.

Other Evidence of Leadership, large-program management and delivery:

- Managed strategy, organizational development and fundraising for the Organization for Women in the Developing World (OWSD). Successful in obtaining a \$10 mn grant.
- Developed the concept for, successfully obtained an inaugural grant of \$2mn, and managed GenderInSITE, a multistakeholder global program on Gender in science, innovation, technology and engineering
- Leader of the WISAT program National Assessments on Gender and STI, a global policy research program managing studies in 12 countries to date with funding from the Elsevier Foundation and Sida. Wide media coverage, including Voice of America, Swedish Public Broadcasting Corp., CNN. The study in Mexico is co-sponsored by CONACYT, the national science research fund and will be launched at Gender Summit 8, April 29, 2016 in Mexico City.
- Managed and raised funds (\$1.2mn) for the second phase of operation of the Gender Advisory Board, UN Commission on Science and Technology for Development (UNCSTD)

Role in CCAFS: Gender and Social Inclusion Research Leader

Name: Sonja VERMEULEN

Current position and affiliation: Head of Research, CCAFS

Proposed position: Leader of the Cross-Cutting Learning Platform on Partnerships and Capacity Development for Scaling Up Climate smart Agriculture

Profile: Sonja Vermeulen works in the PMC on the CRP's strategy and delivery, synthesises across the work of the FPs and Regions, and leads policy engagement at the global level. Prior to this, Dr Vermeulen served as Director of the Program on Business and Sustainable Development at the International Institute for Environment and Development (IIED) and earlier in her career she worked in research and management positions in Zimbabwe. Trained as an ecologist, Dr Vermeulen's work has spanned the natural and social sciences, across the fields of forestry, agriculture and natural resource management. Her career has bridged academic and applied research, with a strong focus on linking science with policy processes and private sector strategies.

Employment:

2011 – 2016	<i>Head of Research</i> , CGIAR Research Program on Climate Change, Agriculture and Food Security
2010 – 2011	<i>Deputy Director</i> , CGIAR Challenge Program on Climate Change, Agriculture and Food Security
2007 – 2009	<i>Director</i> , Program on Business and Sustainable Development, International Institute for Environment and Development
2001 – 2007	<i>Senior Researcher</i> , Program on Forestry and Land Use, International Institute for Environment and Development

Education:

- Ph.D. in Ecology/Conservation Biology, Imperial College London (1999)
- M.Sc. in Tropical Resource Ecology, University of Zimbabwe (1994)

Selected recent peer-reviewed publications:

- Rippke, U., Ramirez-Villegas, J., Jarvis, A., Vermeulen, S.J., Parker, L., Mer, F., Diekkrüger, B., Challinor, A.J. and Howden, M. 2016. Timescales of transformational climate change adaptation in Sub-Saharan African agriculture. *Nature Climate Change*.
- Steenwerth, K.L., Hodson, A.K., Bloom, A.J., Carter, M.R., Cattaneo, A., Chartres, C.J., Hatfield, J.L., Henry, K., Hopmans, J.W., Horwath, W.R., Jenkins, B.M., Kebeab, E., Leemans, R., Lipper, L., Lubell, M.N., Msangi, S., Prabhu, R., Reynolds, M.P., Sandoval Solis, S., Sisch, W.M., Springborn, M., Titttonell, P., Vermeulen, S.J., Wheeler, S.M., Wollenberg, E.K., Jarvis, L.S. and Jackson, L.E. 2014. Climate-smart agriculture global research agenda: scientific basis for action. *Agriculture & Food Security* 3:11.
- Garnett, T., Appleby, M.C., Blamford, A., Bateman, I.J., Benton, T.G., Bloomer, P., Burlingame, B., Dawkins, M., Dolan, L., Fraser, D., Herrero, M., Hoffmann, I., Smith, P., Thornton, P.K., Toulmin, C., Vermeulen, S.J. and Godfray, C.J. 2013. Sustainable intensification in agriculture: premises and policies. *Science* 341: 33-34.
- Vermeulen, S.J., Challinor, A.J., Thornton, P.K., Campbell, B.M., Eriyagama, N., Vervoort, J., Kinyangi, J., Jarvis, A., Läderach, P., Ramirez-Villegas, J., Nicklin, K., Hawkins, E., and Smith, D.R. 2013. Addressing uncertainty in adaptation planning for agriculture. *Proceedings of the National Academy of Sciences* 110: 8357–8362.
- Vermeulen, S.J., Campbell, B.M. and Ingram, J.S.I. 2012. Climate change and food systems. *Annual Review of Environment and Resources* 37: 195-222.

Other evidence of leadership, large-program management and delivery:

- Led and delivered CCAFS strategies for partnership and engagement globally, linking to major global partners
- 25 years of coordinating national and international programs and projects with up to 35 country teams per project and budgets > USD 10 million
- Co-chairs and coordinates major partnerships including IFAD-CCAFS Learning Alliance on agriculture and climate change (co-investment USD 3.9 million) and World Business Council on Sustainable Development Partnership on Climate-Smart Agriculture

Role in CCAFS: Learning Platform on Partnerships and Capacity Development for Scaling Up Climate smart Agriculture: Leader

Other Members of Core Team

Name: James HANSEN

Current position and affiliation: CCAFS Flagship Leader: Climate Services and Safety Nets; Senior Research Scientist, International Research Institute for Climate and Society (IRI), Columbia University.

Profile: Hansen is an Agricultural Systems Scientist with 20 years applied research experience on issues dealing with management of climate risk and use of climate information for agriculture and food security. His research focuses on finding practical, equitable and scalable solutions to the challenges of making smallholder livelihoods more resilient through climate services, climate-related insurance, and climate-informed food security management. His research contributions have included: the economics of risk and advance information in agriculture; integrating climate information with crop simulation; tailoring climate-related information to needs of agricultural decision-makers, participatory methods to communicate climate information with farmers; farm risk and sustainability analysis; spatial scaling in agroecosystem modeling; stochastic weather modeling; and modeling multiple cropping systems.

Employment:

2010 - present	<i>CCAFS Theme/Flagship Leader, IRI, USA</i>
2014 - present	<i>Senior Research Scientist, IRI, USA</i>
2004 - 2014	<i>Research Scientist, IRI, USA</i>
1999 - 2004	<i>Associate Research Scientist, IRI, USA</i>

Education:

- 1996, Ph.D., Agricultural and Biological Engineering, University of Florida, USA
- 1989, M.S., Agronomy and Soil Science, University of Hawaii at Manoa, USA

Selected Recent Peer-reviewed publications:

- Greatrex, H., Hansen, J.W., Garvin, S., Diro, R., Blakeley, S., Le Guen, M., Rao, K.N., Osgood, D.E., 2015. Scaling up index insurance for smallholder farmers: Recent evidence and insights. CCAFS Report No. 14. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Copenhagen, Denmark. (Refereed report)
- Zebiak, S.E., Orlove, B., Vaughan, C., Muñoz, A.G., Hansen, J.W., Troy, T., Thomson, M., Lustig, A., Garvin, S., 2014. Investigating El Niño-Southern Oscillation and society relationships. *Wiley Interdisciplinary Reviews: Climate Change*. 6(1):17-34.
- Vermeulen, S.J., Aggarwal, P.K., Ainslie, A., Angelone, C., Campbell, B.M., Challinor, A.J., Hansen, J.W., Ingram, J.S.I., Jarvis, A., Kristjanson, P., Lau, C., Nelson, G.C., Thornton, P.K., Wollenberg, E., 2012. Options for support to agriculture and food security under climate change. *Environmental Science and Policy* 15:136-144.
- Hansen, J.W., Mason, S., Sun, L., Tall, A., 2011. Review of seasonal climate forecasting for agriculture in sub-Saharan Africa. *Experimental Agriculture* 47:205-240.
- Hansen, J.W., Mishra, A., Rao, K.P.C., Indeje, M., Ngugi, R.K., 2009. Potential value of GCM-based seasonal rainfall forecasts for maize management in semi-arid Kenya. *Agricultural Systems* 101:80-90.

Other Evidence of Leadership, large-program management and delivery:

- Joint Editor-In-Chief, *Agricultural Systems* (2002-2010)
- Member of the Leadership Group that developed the successful proposal for a CGIAR Global Challenge Program on Climate Change, Agriculture and Food Security (2007-2008)
- Delegate representing the Scientific and Technological Communities Major Group at the 16th and 17th sessions of the UN Commission on Sustainable Development (2008-2009)

Role in CCAFS: Flagship 4 Leader

Name: Philip K THORNTON

Current position and affiliation: FP1 Leader, CCAFS; Principal Scientist, International Livestock Research Institute (ILRI)

Profile: Leads Flagship 1 on “*Priorities and policies for climate-smart agriculture*” and previously the research theme on “*Integration for Decision Making*”. An Honorary Research Fellow in the School of Geosciences at the University of Edinburgh, and a CSIRO McMaster Research Fellow for 2015-2016. Over 30 years’ experience as a researcher and research leader in agricultural research for development organisations in the fields of farming systems research, agricultural economics, farm management, bio-economic modelling, impact assessment, and priority setting.

Employment:

2014 - present	<i>Flagship 1 Leader</i> , CGIAR Research Program on Climate Change, Agriculture and Food Security; Principal Scientist, ILRI
2010 - 2014	<i>Theme Leader</i> , "Integration for Decision Making", CGIAR Research Program on Climate Change, Agriculture and Food Security; Principal Scientist, ILRI
2002 - 2009	<i>Senior then Principal Scientist and consultant</i> , International Livestock Research Institute (ILRI), Nairobi, Kenya
2000 – 2002	<i>Programme Coordinator</i> , Systems Analysis and Impact Assessment, International Livestock Research Institute (ILRI), Nairobi, Kenya.

Education:

- Ph.D. in Farm Management and Agricultural Economics, Lincoln College, New Zealand (1983).
- BSc (Hons), Agricultural Systems, Reading University (1979).

Selected Recent Peer-reviewed publications:

- Thornton PK, Herrero M (2015). Adapting to climate change in the mixed crop-livestock farming systems in sub-Saharan Africa. *Nature Climate Change* 5, 830-836.
- Perez C, Jones E, Kristjanson P, Cramer L, Thornton P K, Förch W, Barahona C (2015). How resilient are farming households, communities, men and women to a changing climate in Africa? *Global Environmental Change* 34, 95-107.
- Förch W, Kristjanson PM, Cramer L, Barahona C, Thornton PK (2014). Back to baselines: Measuring change and sharing data. *Agriculture and Food Security* 3, 13.
- Thornton PK, Ericksen PJ, Herrero M and Challinor A J (2014). Climate variability and vulnerability to climate change: a review. *Global Change Biology* 20 (11), 3313-3328.
- Kristjanson PM, Harvey B, Van Epp M, Thornton PK (2014). Social learning and sustainable development. *Nature Climate Change* 4, 5-7.

Other Evidence of Leadership, large-program management and delivery:

- Leadership and coordination of one of the four CCAFS theme / flagship areas since 2010 with many partners within and outside CGIAR, delivering a wide range of research outputs and outcomes.
- Authorship contributions to recent global assessments (IIASTD, IPCC's Fourth and Fifth Assessment Reports).
- Since 1993, leadership and coordination of interdisciplinary research teams and strategic development of project portfolios and funding support in multiple countries with different organisations.

Role in CCAFS: Flagship 1 Leader

Name: Leocadio S. SEBASTIAN

Current position and affiliation: Regional Program Leader for South East Asia, CCAFS

Profile: Prior to joining CCAFS, Dr. Sebastian was Regional Director for Asia Pacific Region at Bioversity International (September 2008-August 2013) and Executive Director (2000-2008) of the Philippine Rice Research Institute (PhilRice), where he strengthened and mobilized the national rice research and development network, enabling the Philippines to increase rice productivity and improve PhilRice's stature as a premier knowledge-generating institution in Southeast Asia. His expertise in research and development management is internationally recognized due to his involvement in various international research networks, consortia, and review panels organized by the World Bank, the Food and Agriculture Organization of the United Nations (FAO), Global Crop Diversity Trust (GCDT), Rockefeller Foundation, the CGIAR, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), and the International Rice Research Institute (IRRI). Leo has received the following prestigious awards in the Philippines: Ten Outstanding Young Men (TOYM) in 2001, Outstanding Young Scientist in Plant Breeding, Pantas (Sage) Award for Research Management and the Japan International Cooperation Agency (JICA) Presidential Award.

Employment:

2013 - present	<i>Regional Program Leader for South East Asia, CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)</i>
2008 - 2013	<i>Regional Director for Asia Pacific Region, Bioversity International</i>
2000 - 2008	<i>Executive Director, PhilRice</i>
1998 - 2000	<i>Deputy Executive Director, PhilRice</i>

Education:

- Ph.D. in Plant breeding and Genetics, Cornell University, Ithaca, NY (1994)
- M.S. Genetics, University of the Philippines, Los Banos (1987)

Selected Recent Peer-reviewed publications:

- Tsuji K, Mohd Norfaizal G, Zulhairil A, Mohd Shukor M, Maya Izar K, Dulloo ME. and Sebastian LS. 2015 Genetic Diversity and Geographical Differentiation of Nipa (Nypa fruticans Wurmb.) Populations in Peninsular Malaysia Based on AFLP. JARQ 50 (1), 49-56.
- Ramirez M, Ortiz R, Taba S, Sebastian LS, Williams D, Ebert A, Vezina A. 2012. Demonstrating interdependence on plant genetic resources for food and agriculture. In: Halewood M, Lopez NI, Louafi S, (Eds.). 2012. Crop Genetic Resources as a Global Commons: Challenges in International Law and Governance. Earthscan.
- Sebastian LS, Chandrabalan D, Borromeo KH, Zhang Z, Mathur PN. 2011. Agrobiodiversity Conservation and Use in Asia, Pacific and Oceania region. FFTC Extension Bulletin.
- Mamaril CP, Castillo M, Sebastian LS. 2009. Facts and Myths about Organic Fertilizers. PhilRice. Science City of Munoz, Nueva Ecija, Philippines.
- Sebastian LS, Payumo JG. 2008. NARES capacity in relation to international treaties and conventions on intellectual property rights, agricultural biotechnology, and plant genetic resources management. Asian Journal of Agricultural Development. 3:91-114.

Other Evidence of Leadership, large-program management and delivery:

- Executive Director, PhilRice
- Program Director, Hybrid Rice Commercialization Program, Flagship Program of the Philippine Government (2002-2004)
- Team Leader, Philippine Rice R&D Network (2000-2008)
- Project Director, JICA-PhilRice TCP 3, TCP4, TCP 5 (2000-2008)

Role in CCAFS: Regional Program Leader for South East Asia

Name: Ana Maria LOBOGUERRERO RODRIGUEZ

Current position and affiliation: Regional Program Leader for Latin America, CCAFS

Profile: Dr. Ana María Loboguerrero Rodríguez is the leader of the Latin American program of the CGIAR Research Program for Climate Change, Agriculture and Food Security (CCAFS), based in Cali, Colombia. Dr. Loboguerrero has 7 years' experience of working on climate change challenges. Previously, she worked in the research and the monetary and reserves departments of the Central Bank of Colombia, the research department of the Inter-American Development Bank and the Sustainable Environmental Development Deputy Directorate of the National Planning Department of Colombia as coordinator of climate change. While at the deputy directorate, Dr. Loboguerrero led the formulation of the Colombian Climate Change Policy, the National Adaptation Plan, the National Development Plan and the research agenda on climate change as well as coordinated technical support for the Colombian Low Carbon Growth Strategy. Dr. Loboguerrero has also worked as an external expert panel member of the evaluation of the Food and Agriculture Organization's (FAO) work in climate change mitigation and adaptation. She was a lecturer of economics at UCLA and several universities in Colombia. She taught Economics of Climate Change at the University of Los Andes and supervised several undergraduate, masters and PhD dissertations.

Employment:

2013 – present	<i>Regional Program Leader for Latin America, CCAFS, Colombia</i>
2014 – 2015	<i>External expert panel member for the evaluation of FAO's work in climate change adaptation and mitigation, FAO, Colombia.</i>
2009 – 2012	<i>Climate Change Coordinator, Sustainable Environmental Development Deputy Directorate of the National Planning Department of Colombia, Colombia</i>
2002 – 2004	<i>Research Fellow, Research Department of the Inter-American Development Bank, Washington D.C.</i>

Education:

- Ph.D., Economics, University of California Los Angeles (UCLA), USA (2008)
- Master of Arts, Economics, University of California Los Angeles (UCLA), USA (2006)

Selected Recent Peer-reviewed publications:

- Clarke L, McFarland J, Octaviano C, Van Ruijven B, Beach R, Daenzer K, Hernandez S, Lucena A, Kitous A, Labriet M, Loboguerrero Rodriguez AM, Mundra A, Van der Zwaan B. 2016. Long-term abatement potential and current policy trajectories in Latin American countries. *Energy Economics*.
- Calderon S, Alvarez AC, Loboguerrero Rodriguez AM, Arango S, Calvin K, Kober T, Fisher-Vanden K, Daenzer K. 2015. Achieving CO2 reductions in Colombia: Effects of carbon taxes and abatement targets. *Energy Economics*.
- Calvin K, Beach R, Gurgel A, Labriet M, Loboguerrero Rodriguez AM. 2015. Agriculture, forestry, and other land-use emissions in Latin America. *Energy Economics*.
- Andrieu N, Pédelahore P, Howland F, Descheemaeker K, Vall E, Bonilla-Findji O, Corner C, Loboguerrero Rodriguez AM, Chia E. 2015. Chaptire 11. Exploitations agricoles climato-intelligentes? Études de cas au Burkina Faso et en Colombie in *Changement climatique et agricultures du monde*, Éditions Quae.
- Loboguerrero Rodriguez AM, Uribe M. 2014. Chapter 5: Macroeconomic Analysis in Low-Carbon Development for Colombia. World Bank and National Planning Department.

Other Evidence of Leadership, large-program management and delivery:

- In 2011, Dr. Loboguerrero was selected to participate in the Fulbright Regional Network for Applied Research (NEXUS) Program with a project related to the Economics of Climate Change for Colombia.
- While working at the National Planning Department of Colombia, Dr. Loboguerrero led an economic study that focus directly into moving ideas from laboratories to the marketplace in the climate change field and that was used to inform the Colombian Policy on Climate Change.

Role in CCAFS: Regional Program Leader for Latin America

Dr. Philip K Thornton – See “Other members of core team”

Name: Joost VERVOORT

Current position and affiliation: Senior Researcher, Environmental Change Institute, University of Oxford

Profile: Joost Vervoort is a senior researcher at the Environmental Change Institute, University of Oxford. He leads a work package on scenario development in FP7 TRANSMANGO (2014-2017) on European food systems, and co-leads a work package in H2020 SUSFANS (2015-2019) which focuses on a modelling toolbox for policy on European food and nutrition security. Vervoort has a keen interest in combining scenarios and games for the exploration of strategies and policies – he is developing a scenario game for the Future Earth project ‘Seeds of a Good Anthropocene’. He has taught scenario methods at Oxford University (including training for high-level private sector executives at the Saïd Business School), Wageningen University, the University of Amsterdam, at Microsoft, and a range of design schools.

Employment:

2011 - present	<i>Senior Researcher, Environmental Change Institute, University of Oxford, UK</i>
2007 - 2011	<i>PhD researcher at Land Dynamics group, Wageningen University, Netherlands</i>
June - Dec 2006	<i>Research Assistant at Paleoecology Laboratory, Utrecht University</i>
Feb - June 2006	<i>Consultancy/internship project at the Oxfordshire Woodland Project</i>

Education:

- Ph.D. in Production Ecology and Resources Conversation, Wageningen University, The Netherlands, 2011
- M.Sc. in Natural Resources Management, Utrecht University, 2006

Selected Recent Peer-reviewed publications:

- Vervoort, J. M., P. K. Thornton, P. Kristjanson, W. Förch, P. J. Ericksen, K. Kok, J. S. I. Ingram, M. Herrero, A. Palazzo, A. E. S. Helfgott, A. Wilkinson, P. Havlík, D. Mason-D'Croz, and C. Jost. 2014. Challenges to scenario-guided adaptive action on food security under climate change. *Global Environmental Change*.
- Vermeulen, S. J., A. J. Challinor, P. K. Thornton, B. M. Campbell, N. Eriyagama, J. M. Vervoort, J. Kinyangi, A. Jarvis, P. Läderach, J. Ramirez-Villegas, K. J. Nicklin, E. Hawkins, and D. R. Smith. 2013. Addressing uncertainty in adaptation planning for agriculture. *Proceedings of the National Academy of Sciences of the United States of America*. 110:8357-8362.
- Chaudhury, M., J. Vervoort, P. Kristjanson, P. Ericksen, and A. Ainslie. 2013. Participatory scenarios as a tool to link science and policy on food security under climate change in East Africa. *Regional Environmental Change* 13:389-398.
- Vervoort, J. M., K. Kok, P. J. Beers, R. Van Lammeren, and R. Janssen. 2012. Combining analytic and experiential communication in participatory scenario development. *Landscape and Urban Planning* 107:203-213.
- Vervoort, J. M., K. Kok, R. van Lammeren, and T. Veldkamp. 2010. Stepping into futures: Exploring the potential of interactive media for participatory scenarios on social-ecological systems. *Futures* 42:604-616.

Other Evidence of Leadership, large-program management and delivery:

- 2011 – present: Leader of the CCAFS Scenarios Project
- 2014 – present: Work package leader and management team member for FP7 TRANSMANGO
- 2015 – present: Work package co-leader for H2020 SUSFANS

Role in this CRP: Leader of Scenarios activities and team

Name: Mario HERRERO

Current position and affiliation: Chief Research Scientist and Office of the Chief Executive Science Leader in CSIRO's Agriculture Flagship

Profile: Dr. Herrero has more than 20 years' experience working on strategic agricultural R4D projects in Africa, Latin America, Asia and Europe. He works in the areas of agriculture, food security and global change, targeting agricultural investments in the developing world, sustainable development pathways for smallholder systems, ex-ante impact assessment, climate change (impacts, adaptation and mitigation), development of scenarios of livelihoods and nutrition futures, multi-scale integrated assessment, and others. He has experience working at different scales, from the animal and farm level to the country, regional and global levels. He has coordinated several global and regional integrated assessments initiatives such as the African Livestock Futures Report for the Office of the UN Special Representative on Food Security, and the CGIAR global assessment of food production systems, ecosystems services and human well-being to 2030. He has also contributed to numerous international assessments such as the IPCC 4th and 5th Assessment Reports, 2010 World Development Report, the 2007/2008 Human Development Report and the 2007 Comprehensive Assessment of Water Management in Agriculture.

Employment:

2013 – present	<i>Chief Research Scientist and Office of the Chief Executive Science Leader in CSIRO's Agriculture Flagship, Australia</i>
2004 – 2012	<i>Various management roles at the International Livestock Research Institute (2009 – 2012: Programme Manager, Sustainable Livestock Futures and Climate Change Programmes)</i>
1999 – 2003	<i>Joint appointment Scientist, Systems Analysis, International Livestock Research Institute, Nairobi, Kenya and Senior Research Fellow, School of GeoSciences, University of Edinburgh</i>
1996 – 1999	<i>Research Fellow, Institute of Ecology and Resource Management, University of Edinburgh, Edinburgh, Scotland</i>

Education:

- Ph.D., Ecology and Resource Management, University of Edinburgh, Scotland, 1998
- MSc Tropical Animal Health And Production, University of Edinburgh, 1992 (Distinction)

Selected Recent Peer-reviewed publications:

- Herrero, M., Henderson, B., Havlik, P., Thornton, P., Conant, R., Smith, P., Wiersenius, S., Hristov, A., Gerber, P., Gill, M., Butterbach-Bahl, K., Valin, H., Garnett, T., Stehfest, E. 2016. Greenhouse gas mitigation potentials in the livestock sector. *Nature Climate Change*.
- Thornton, P.K. and Herrero, M. 2015. Adapting to climate change in the mixed crop-livestock farming systems in sub-Saharan Africa. *Nature Climate Change* 5: 830-836.
- Herrero, M., Thornton, P.K., Bernués, A., Baltenweck, I., Vervoort, J., van de Steeg, J., Makokha, S., van Wijk, M.T., Karanja, S., Rufino, M.C., Staal, S.J. 2014. Exploring future changes in smallholder farming systems by linking socio-economic scenarios with regional and household models. *Global Environmental Change* 24, 165-182.
- Herrero, M., Havlik, P., Valin, H., Notenbaert, A., Rufino, M.C., Thornton, P.K., Blümmel, M., Weiss, F., Grace, D., Obersteiner, M. 2013. Biomass use, production, feed efficiencies, and greenhouse gas emissions from global livestock systems. *PNAS* 110 (52), 20888-20893. (+ dataset developed, updated and maintained)
- Herrero, M., Thornton, P.K. 2013. Livestock and global change: Emerging issues for sustainable food systems. *PNAS* 110 (52), 20878-20881.

Other Evidence of Leadership, large-program management and delivery:

- Member of the The Lancet Commission on Obesity, 2016 onwards
- Member of the IPCC Mitigation Working Group AR4 and AR5
- Member of the Shared Socio-economic Pathways (SSP) Scenarios development team (SSP2)

Role in CCAFS: Strategic partner

Name: Polly ERICKSEN

Current position and affiliation: Program Leader, Livestock Systems and Environment, International Livestock Research Institute (ILRI)

Profile: Dr. Rosegrant has extensive experience in research and policy analysis in agriculture and economic development, with an emphasis on climate change, water resources and other natural resource and agricultural policy issues as they impact food security, rural livelihoods, and environmental sustainability. He currently directs research on climate change, water resources, sustainable land management, genetic resources and biotechnology, and agriculture and energy. Rosegrant developed IFPRI's International Model for Policy Analysis of Agricultural Commodities and Trade (IMPACT), and led the further development of IMPACT to include water supply and demand and climate change through linked crop models. IMPACT has been used widely for projections and scenarios for global and regional food demand, supply, trade and prices under climate change. He is the author or editor of 12 books and over 100 refereed papers in agricultural economics, water resources, and food policy analysis. Dr. Rosegrant has won numerous awards, such as Outstanding Journal Article (2008), Quality of Communications Award (2004), and Distinguished Policy Contribution Award (2002) awarded by the Agricultural and Applied Economics Association (formerly American Agricultural Economics Association); and Best Article Award (2005) from the International Water Resources Association. Dr. Rosegrant is a Fellow of the American Association for the Advancement of Science; and a Fellow of the Agricultural and Applied Economics Association.

Employment:

2013 – present	<i>Program Leader</i> , Livestock Systems and Environment, International Livestock Research Institute (ILRI), Nairobi, Kenya
2010 – 2013	<i>Principal Scientist</i> , Livestock Systems and Environment, ILRI, Nairobi Kenya
2005 - 2010	<i>Senior Researcher</i> , Environmental Change Institute, University of Oxford, UK
2003 - 2005	<i>Research Scientist</i> , International Research Institute for Climate and Society (IRI), Columbia University, New York, NY

Education:

- Ph.D. in Soil Science, University of Wisconsin-Madison, USA (1998)
- M.Sc. in Economics, University of Wisconsin-Madison, USA (1991)

Selected Recent Peer-reviewed publications:

- Rosegrant, M.W. and S. Msangi. 2015. Consensus and Contention in the Food-Versus-Fuel Debate. *Annual Review of Environmental Resources* 39:271–94.
- Rosegrant, M.W., R.E. Evenson, S. Msangi and T.B. Sulser. 2014. Agricultural Productivity and Child Mortality: The Impact of the Green Revolution. *World Food Policy* 1(1)1-24.
- Rosegrant, Mark W.; Ringler, Claudia; Zhu, Tingju; Tokgoz, Simla; Bhandary, Prapti. Water and food in the bioeconomy. 2013. Challenges and opportunities for development. *Agricultural Economics* 44 (2013) supplement 139–150.
- Robertson, R., G. Nelson, T. Thomas and M.W. Rosegrant. 2013. Incorporating process based crop simulation models into global economic analyses. *American Journal of Agricultural Economics* 95(2)228-235.
- Rosegrant, M.W., S. Tokgoz, P. Bhandary. 2013. The New Normal? A tighter global agricultural supply and demand relation and its implications for food security. *American Journal of Agricultural Economics* 95(2)303-309.

Other Evidence of Leadership, large-program management and delivery:

- Leads ILRI's Livestock Systems and Environment Programme, which includes over 40 staff in five countries with an annual budget of about USD 10 million.
- Serves as ILRI's focal point for CCAFS since 2012.
- Served as ILRI's focal point and regional coordinator ESA for Dryland Systems 2012 to 2015.
- For GECAFS she led cross regional teams in food systems research (S. Asia, S. Africa and the Caribbean).

Role in CCAFS: ILRI contact point for CCAFS

Name: Mark ROSEGRANT

Current position and affiliation: Director, Environment and Production Technology Division at the International Food Policy Research Institute (IFPRI)

Profile: Dr. Rosegrant has extensive experience in research and policy analysis in agriculture and economic development, with an emphasis on climate change, water resources and other natural resource and agricultural policy issues as they impact food security, rural livelihoods, and environmental sustainability. He currently directs research on climate change, water resources, sustainable land management, genetic resources and biotechnology, and agriculture and energy. Rosegrant developed IFPRI's International Model for Policy Analysis of Agricultural Commodities and Trade (IMPACT), and led the further development of IMPACT to include water supply and demand and climate change through linked crop models. IMPACT has been used widely for projections and scenarios for global and regional food demand, supply, trade and prices under climate change. He is the author or editor of 12 books and over 100 refereed papers in agricultural economics, water resources, and food policy analysis. Dr. Rosegrant is a Fellow of the American Association for the Advancement of Science; and a Fellow of the Agricultural and Applied Economics Association.

Employment:

2003 – present	<i>Director, Environment and Production Technology Division, IFPRI</i>
1991 – 2003	<i>Senior Research Fellow, IFPRI</i>
1980 – 1991	<i>Research Fellow, IFPRI</i>
1978 – 1980	<i>Economist, Integrated Agricultural Production and Marketing Project, Ministry of Agriculture, Philippines</i>

Education:

- Ph.D., Public Policy Studies (Economics and Political Science), University of Michigan (1978)
- M.P.P., Public Policy Studies, University of Michigan (1974)

Selected Recent Peer-reviewed publications:

- Rosegrant, Mark W.; Valmonte-Santos, Rowena; Thomas, Timothy S.; You, Liangzhi; and Chiang, Catherine A. 2015. Climate change, food security, and socioeconomic livelihood in Pacific Islands. Mandaluyong City, Philippines; and Washington, DC: Asian Development Bank (ADB); and International Food Policy Research Institute (IFPRI).
- Rosegrant, M.W. and S. Msangi. 2015. Consensus and Contention in the Food-Versus-Fuel Debate. *Annual Review of Environmental Resources* 39:271–94.
- Rosegrant, Mark W. 2015. Global outlook for water scarcity, food security, and hydropower. In *Handbook of water economics and institutions*, ed. Kimberly Burnett, Richard Howitt, James A. Roumasset, and Christopher A. Wada. Chapter 1. New York, NY, USA: Routledge.
- Thomas, Timothy S. and Rosegrant, Mark W. 2015. Climate change impact on key crops in Africa: Using crop models and general equilibrium models to bound the predictions. In *Climate Change and Food Systems: Global assessments and implications for food security and trade*, ed. Aziz Elbehri. Chapter 5, pp. 146 - 175. Rome, Italy: Food and Agricultural Organization of the United Nations (FAO).
- Rosegrant, M.W., R.E. Evenson, S. Msangi and T.B. Sulser. 2014. Agricultural Productivity and Child Mortality: The Impact of the Green Revolution. *World Food Policy* 1(1)1-24.

Other Evidence of Leadership, large-program management and delivery:

- Director of a research division with 80 staff, \$22 million annual budget. Doubled the size and work program of the division within five years.
- Project leader of multiple international research projects of \$1 million or more.
- Developer and manager of IMPACT model, a 20-year continuing program with total funding of more \$15 million, which is a state of the art global agricultural modeling system. Analysis using this model has contributed to investment decisions by the World Bank, Asian Development Bank, and national governments.

Role in CCAFS: Activity Leader

Name: Michael HALEWOOD

Current position and affiliation: Leader of the ‘Genetic Resources Policies, Institutions and Monitoring’ group, Bioversity International

Profile: Dr. Halewood has more than 20 years’ experience working in the field of genetic resources policy research with a focus on agricultural systems and innovation. His research currently addresses how policies and institutions effect the availability and use of crop diversity to adapt to climate change; options for national level implementation of international agreements on access and benefit sharing and climate change in ways that support the use of biological diversity for climate change adaptation; the impacts of current trends in public investment in and regulation of seed systems on the use of biological diversity and options for policy reform; and how social networks influence the diffusion and uptake of climate smart technology. Since joining Bioversity International in 2001, Michael has managed a number of large policy development and implementation projects in countries across Africa, Asia and South America. These projects work to achieve policy outcomes through i) establishing and establishing partnerships through multistakeholder policy actor teams linked to national policy development processes, ii) active participation in international policy-making fora including CBD, ITPGRFA, CGRFA. Michael is a co-editor of the ‘Issues in Agrobiodiversity’ book series published by Routledge (with 8 titles to date).

Employment:

2001 – present	<i>Leader of the Genetic Resources Policies, Institutions and Monitoring group, Bioversity International, Rome, Italy</i>
1997 – 2001	<i>Coordinator, Crucible II Project, International Development Research Center (IDRC), Ottawa, Canada</i>

Education:

- Doctor of Jurisprudence (D. Jur.), Osgoode Hall Law School, York University, Canada. Thesis: Common law Aboriginal knowledge protection rights: Promoting the right of Aboriginal people in Canada to restrict others’ use of their knowledge. 2005.
- Bachelor of Laws (LLB). University of Toronto School of Law, Canada. 1991.

Selected Recent Peer-reviewed publications:

- Halewood M. (ed.). 2016. Farmers’ Varieties/Farmers’ Rights: Issues at the intersection of Taxonomy Agriculture and Law, Routledge, Oxon.
- Galuzzi, G., Halewood, M., Lopez., I., Vernooy, R. Forthcoming. Twenty five years of international exchanges of plant genetic resources facilitated by the CGIAR genebanks: a case study on international interdependence. Accepted by Biodiversity and Conservation (BIOC).
- Bedmar Villanueva, A., Halewood, M., López Noriega, I. 2015. Agricultural Biodiversity in climate change adaptation planning: an analysis of the National Adaptation Programs of Action. CCAFS Working Paper no. 95.
- Halewood, M. (2014) International Efforts to Pool and Conserve Crop Genetic Resources in Times of Radical Legal Change. In: Cimoli, M., Dosi, G., Maskus, K.E., Okediji, R.L. Reichman, J.L. and Stiglitz J.E. (eds) Intellectual Property Rights: Legal and Economic Challenges for Development. Oxford University Press, Oxford.
- Halewood M, Lopez Noriega I, Louadi S. (eds.). 2013. Crop genetic resources as a global commons: Challenges in international governance and law Routledge, Oxon.

Other Evidence of Leadership, large-program management and delivery:

- Managed Genetic Resources Policy Initiative I, 2005-2009 (5 million USD)
- Managed Genetic Resources Policy Initiative II, 2011-2015 (5 million USD)
- Managed numerous smaller projects with partners in Asia, Africa and South America
- Nominated as a facilitator of a “Friends of Co-Chairs” group with mandate to develop text for ongoing renegotiations of the ITPGRFA multilateral system of access and benefit-sharing.

Role in CCAFS: Activity leader on research concerning the availability and use of plant genetic resources

Name: Petr HAVLIK

Current position and affiliation: Senior Research Scholar, International Institute for Applied Systems Analysis (IIASA)

Profile: At IIASA, Petr works in the Ecosystems Services and Management Program. He is the major developer of the global agricultural and forest sector economic model GLOBIOM, and currently leads a group of 20 economists and natural scientists who continue the development and implementation of the model. GLOBIOM is extensively used for designing solutions to satisfy the future needs of humanity in terms of food, fibre and fuel, climate change mitigation, and ecosystems services in general, within the limited resources of land and water under climate change. Petr is one of the main contributors to the land component of the new IPCC scenarios, and participates in global agriculture related foresight activities within European Commission funded research projects. He also contributes to regional foresight activities in collaboration with CCAFS.

Employment:

2007 – present	<i>Senior Research Scholar</i> , International Institute for Applied Systems Analysis (IIASA), Austria
2010 – 2012	<i>Researcher</i> , International Livestock Research Institute (ILRI), Kenya (joint appointment with IIASA)
2007 – 2007	<i>Research assistant</i> , French National Institute for Agricultural Research (INRA), France

Education:

- Ph.D. in Business and Economics, University of Montpellier, France and the Mendel Univ. of Agriculture and Forestry in Brno (Czech Republic), 2006
- Masters in Economics of Development of Agriculture, Agri-business and Rural Areas, Univ. of Montpellier, France, 2002

Selected Recent Peer-reviewed publications:

- Havlík, P., D. Leclère, H. Valin, M. Herrero, E. Schmid, J-F Soussana, C. Müller and M. Obersteiner. (2015). Global climate change, food supply and livestock production systems: A bioeconomic analysis, In: Climate change and food systems: global assessments and implications for food security and trade, Aziz Elbehri (editor). Food Agriculture Organization of the United Nations (FAO), Rome, 2015.
- Havlík, P., Valin, H., Herrero, M., Obersteiner, M., Schmid, E., Rufino, M.C., Mosnier, A., Thornton, P.K., Böttcher, H., Conant, R.T. Frank, S., Fritz, S., Fuss, S., Kraxner, F., Notenbaert, A. (2014). Climate change mitigation through livestock system transitions. *Proceedings of the National Academy of Sciences U.S.A.* 111: 3709-3714.
- Cohn, A.S., Mosnier, A., Havlík, P., Valin, H., Herrero, M., Schmid, E., O'Hare, M. and Obersteiner, M. (2014). Cattle ranching intensification in Brazil can reduce global greenhouse gas emissions by sparing land from deforestation. *Proceedings of the National Academy of Sciences U.S.A.* 111: 7236-7241.
- Nelson, G.C., Valin, H., Sands, R.D., Havlík, P., Ahammad, H., Deryng, D., Elliott, J., Fujimori, S., et al. (2014). Climate change effects on agriculture: Economic responses to biophysical shocks. *Proceedings of the National Academy of Sciences U.S.A.* 111(9): 3274-3279.
- Herrero, M., Havlík, P., Valin, H., Notenbaert, A., Rufino, M.C., Thornton, P.K., Bluemmel, M., Weiss, F., Grace, D. and Obersteiner, M. (2013). Biomass use, production, feed efficiencies, and greenhouse gas emissions from global livestock systems. *Proceedings of the National Academy of Sciences U.S.A.* 110(52): 20888-20893.

Other Evidence of Leadership, large-program management and delivery:

- Steering Committee of the Energy Modeling Forum (EMF) 33 Project. The project gathers modelers from 20+ institutions with aim to better understand the global land use implications of high decarbonisation scenarios.
- Principal Investigator at IIASA for the European Commission H2020 SUSFANS project with a total budget of €5.000.000 euros
- Leader of a group of 20+ scientists with an annual budget of more than €1.5 million

Role in CCAFS: Project Leader

Name: Lars Otto NAESS

Current position and affiliation: Social Scientist, Institute of Development Studies (IDS)

Profile: Dr Naess has 20 years professional experience on climate change, development and agriculture working in Tanzania, Kenya, Ethiopia, Malawi, Indonesia, Namibia, Zimbabwe, Brazil, Pakistan, India, and Nepal. Current research interests incl social and institutional dimensions of adaptation to climate change, the political economy of policy processes on climate change and agriculture at national and sub-national levels, the role of local knowledge for adaptation to climate change, and adaptation planning in the context of international development. Previous affiliations incl Centre for International Climate and Environmental Research-Oslo (CICERO), FAO, and the Tyndall Centre for Climate Change Research, University of East Anglia.

Employment:

2008 – present	<i>Research Fellow</i> , Resource Politics Cluster, Institute of Development Studies (IDS), UK. Team Leader, Climate Change Team (Oct 2012-Sept 2013). IDS convenor for the MSc course on Climate Change and Development (2011-present), Co-convenor, IDS MA Development studies (2009/10).
2013 – 2015	<i>Associate Professor II</i> (20%), Department of International Environment and Development Studies (Noragric) at the Norwegian University of Life Sciences
2002 – 2008	<i>Research Fellow</i> , Center for International Climate & Environmental Research (CICERO), University of Oslo, Norway
1999 – 2002	<i>Associate Professional Officer</i> , UN Food and Agriculture Organization (FAO), Rome and Tanzania Country Officer

Education:

- Ph.D. in Environmental Sciences from the Tyndall Centre for Climate Change Research, School of Environmental Sciences, University of East Anglia, UK
- Cand. Agric., Nature Conservation and Resource Economics, Agricultural University of Norway (now Norwegian University of Life Sciences), Norway, 1994

Selected Recent Peer-reviewed publications:

- Naess LO, Newell P, Newsham A, Phillips J, Pueyo A, Quan J, Tanner T. 2015. Climate policy meets national development contexts: Insights from Kenya and Mozambique. *Global Environmental Change* 35: 534-544.
- Quan J, Naess LO, Newsham A, Siteo A, Fernandez MC. 2014. Carbon Forestry and Climate Compatible Development in Mozambique: A Political Economy Analysis, IDS Working Paper 448, Brighton: IDS
- Okali C, Naess LO. 2013. Making sense of gender, climate change and agriculture in sub-Saharan Africa: Creating gender-responsive climate adaptation policy. *Future Agricultures Consortium*. IDS, Brighton.
- Naess LO. 2013. The Role of Local Knowledge in Adaptation to Climate Change. *WIREs Climate Change*, 4: 99-106.
- Naess LO, Polack E, Chinsinga B. 2011. Bridging research and policy processes for climate change adaptation. *IDS Bulletin* 42(3): 97-103.

Other Evidence of Leadership, large-program management and delivery:

- Adaptation Theme Leader, Ideas to Impact, DFID (from April 2014): This five-year programme will design and implement five innovation prizes to test whether prizes can be designed to achieve significant benefits for poor and marginalised communities.
- Project co-manager and researcher, Political Economy of Climate Compatible Development, Ghana, Kenya, Mozambique, CDKN (March 2013 – March 2014): My role is as project co-manager reporting to CDKN, and lead researcher on the Mozambique case study.
- Lead Consultant, Review of Research and Policy for Climate Change Adaptation on health, agriculture and urban areas, Sub-Saharan Africa, IDRC (December 2012 – September 2013): Leading peer review and synthesis of 12 regional reports on research-policy linkages in three sectors; urban areas, agriculture, and health; across four regions of Sub-Saharan Africa (SSA), with the aim of helping to enhance the knowledge base and to support research-based policy formulation for climate change adaptation across the region.

Role in CCAFS: Activity Leader

Name: Ruth MEINZEN-DICK

Current position and affiliation: Senior Research Fellow at International Food Policy Research Institute (IFPRI); Coordinator of the CGIAR System-wide Program on Collective Action and Property Rights (CAPRI).

Profile: Ruth Meinzen-Dick has more than 25 years' experience in the CGIAR, conducting and directing research on water policy, local organizations, property rights, gender, adoption of climate-smart agriculture and poverty impacts. She led the IFPRI Gender Task Force, co-leads IFPRI's theme on Strengthening Institutions and Governance, and leads serves on the Management Committee of the CGIAR Research Program on Policies, Institutions and Markets. She has been involved in research in many other countries in Africa, Southeast Asia, and Latin America.

Employment

1991 - present	<i>Senior Research Fellow</i> , International Food Policy Research Institute
1989 - 1991	<i>Post-Doctoral Fellow</i> , International Food Policy Research Institute

Education

- PhD, Development Sociology, Cornell University, USA (1989)
- MSc, Development Sociology, Cornell University, USA (1983)

Selected recent peer-reviewed publications

- Doss, C. and Meinzen-Dick, R. (2015). Collective action within the household: Insights from natural resource management. *World Development*.
- Meinzen-Dick, R. (2014). Property rights and sustainable irrigation: A developing country perspective. *Agricultural Water Management* 145:23–31 .
- Meinzen-Dick, R., C. Kovarik and A. Quisumbing. (2014). Gender and sustainability. *Annual Review of Environment and Resources* 39:29–55.
- Doss, C., R. Meinzen-Dick and A. Bomuhangi. (2014). Who owns the land? Perspectives from rural Ugandans and implications for large-scale land acquisitions. *Feminist Economics* 20(1): 76-100.
- Mwangi, E., H. Markelova, and R. Meinzen-Dick (Eds.) (2012). *Collective action and property rights for poverty reduction: Insights from Africa and Asia*. Philadelphia: University of Pennsylvania Press.

Other evidence of leadership, large-program management and delivery

- Gender, Agriculture and Assets Project I and II: \$8 million total from Bill and Melinda Gates Foundation, 2010-2019
- CGIAR Science Award for Outstanding Partnership awarded to CAPRI program, 2002
- Co-developer of Women's Empowerment in Agriculture Index

Role in this CRP: Researcher involved in governance-related research activities

Name: Thom ACHTERBOSCH

Current position and affiliation: Senior Researcher, LEI, Wageningen University and Research Centre

Profile: Thom Achterbosch is senior researcher and leader of the research theme on economic assessment of food and nutrition security at LEI, the research institute for agricultural economics at WUR. He currently leads the project H2020 [SUSFANS](#) (2015-2019) which focuses on a modelling toolbox for policy on European food and nutrition security. The toolbox combines analytical tools from consumer studies, nutrition science, agricultural and institutional economics, and integrated assessment. He also co-leads the project FP7 [FOODSECURE](#) (2012-2017) on EU policies for global food and nutrition security. A development economist with a background in quantitative international economics and the humanities, Achterbosch is interested in the institutional fabric of food systems and the interplay of policy strategies and market developments with individual and household-level FNS outcomes. He has done consultancies for governments in The Netherlands, Indonesia and South Africa, for UNECA and World Bank.

Employment:

2002 - present	<i>Senior Researcher and leader of the research theme on economic assessment of food and nutrition security, LEI, Wageningen University and Research Centre</i>
2011 - 2012	<i>Senior advisor for Europe, International Agri-Food Trade Policy Council, Washington DC, on secondment: organizing trade policy discussions (e.g. WTO public forum), editing IPC policy briefs</i>
2000 - 2001	<i>Researcher, Department of Economics, Stellenbosch University: economic analysis of the determinants of matriculation performance in secondary schooling in South Africa</i>

Education:

- M.Sc in Development Economics (2000), Erasmus University Rotterdam, The Netherlands
- BSc, Economics (1997), Erasmus University Rotterdam

Selected Recent Peer-reviewed publications:

- M Rutten, T Achterbosch, I de Boer, J Cuaresma, M Geleijnse, P Havlík, T Heckeley, J Ingram, S Marette, H van Meijl, LG Soler, J Swinnen, P van 't Veer & K Zimmermann. "Metrics, models and foresight for sustainable food and nutrition security in Europe." *Agricultural Systems*, forthcoming.
- Achterbosch TJ, van Dorp M, van Driel WF; Groot JJ, van der Lee J, Verhagen A, Bezlepina I. 2014. The food puzzle: pathways to securing food for all. Wageningen: Wageningen UR. 72 p.
- Achterbosch TJ, Bertelings H, van Berkum S, van Meijl JCM, Tabeau AA, Woltjer GB. 2014. The effects of bioenergy production on food security. In: *Socio-economic impacts of bioenergy production*, Rutz D, Janssen R (eds). New York: Springer.
- P van Horne, T Achterbosch. Animal Welfare in Poultry Production Systems: Impact of EU Standards on World Trade. *World Poultry Science Journal*, Volume 64 (March 2008).
- 'Poverty Alleviation in the Horticulture Sector: Insights from Uganda and Vietnam.' In: W Hout (ed.) *EU Development Policy and Poverty Reduction: Enhancing Effectiveness*. Aldershot: Ashgate Publishing (2005) (with D Eaton, A de Jager, G Meijerink, S van Wijk).

Other Evidence of Leadership, large-program management and delivery:

- Coordinator, SUSFANS – Metrics, models and foresight for European sustainable food and nutrition security. Design, acquisition, and oversight on the €5 million research program (2015-2019), 15 research partners, EU grant no. 633692 (H2020).
- Deputy coordinator FOODSECURE – Interdisciplinary Research Project to Explore the Future of Food and Nutrition Security. Design, acquisition, and day-to-day management of €8 million research program (2012-2017), 18 research partners in EU and global south, EU grant no. 290693 (7th framework program). Coordinator: Global food security: Scarcity and transition. Scientific and overall coordination of €6 million research program (2011-2014), grant KB-11 from Dutch Ministry of Economic Affairs.

Role in CCAFS: Co-leader of scenario-based policy guidance in six regions

Flagship 2

Dr. Andy Jarvis – see under Program Management Committee

Name: Andrew Juan CHALLINOR

Current position and affiliation: CCAFS CoA 2.2 Joint Leader, Institute for Climate and Atmospheric Science (ICAS), School of Earth and Environment, University of Leeds.

Profile: Professor Challinor led the NERC consortium End-to-end quantification of uncertainty for impacts prediction (EQUIP) and currently co-leads Flagship work on modeling work for crop breeding under the Climate-Smart Agricultural Practices Flagship of the CGIAR research program on Climate Change, Agriculture and Food Security (CCAFS). Professor Challinor's work focusses principally on using climate modelling and process studies to understand food production and food security; treatments of uncertainty and managing risk; and climate-resilient pathways and adaptation. He is the co-creator and lead developer of the crop simulation model GLAM, which has over 300 registered users across the globe. Professor Challinor's career goal is to contribute significantly to the knowledge and policy base for sustainably strengthening the food security and health of populations vulnerable to climate variability and change. He achieves this by working with experts in a range of disciplines, from epidemiologists and ecologists to social scientists and economists. He was also Lead Author on the 'Food Production Systems and Food Security' chapter of the Fifth Assessment report of the IPCC and has published over 70 publications.

Employment:

2010 - present	<i>Professor of Climate Impacts</i> , School of Earth and Environment, The University of Leeds, UK.
2010 - 2010	<i>Reader</i> , School of Earth and Environment, The University of Leeds, UK.
2007 - 2010	<i>Lecturer</i> , School of Earth and Environment, The University of Leeds, UK.
2005 - 2007	<i>Senior Research Fellow</i> , NCAS-Climate (formerly CGAM), The University of Reading, UK.

Education:

- Ph.D. in Meteorology and Forest Micro-Climate, School of Earth and Environment, University of Leeds, UK (1996-1999)
- B.Sc. Physics (European) Honours Class I, Department of Physics, University of Leeds, UK (1992-1996)

Selected Recent Peer-reviewed publications:

- Challinor AJ; Watson J; Lobell DB; Howden SM; Smith DR; Chhetri N (2014) A meta-analysis of crop yield under climate change and adaptation, *Nature Climate Change* 4 (4) pages 287 – 291.
- Challinor, A. J., Parkes, B. and Ramirez-Villegas, J. (2015), Crop yield response to climate change varies with cropping intensity. *Global Change Biology*.
- Asseng, S., et al. (2015) Rising temperatures reduce global wheat production. *Nature Climate Change* 5, 143-147. Authors 11+ placed in alphabetical order.
- Iizumi T, Luo JJ, Challinor AJ, Sakurai G, Yokozawa M, Sakuma H, Brown ME, Yamagata T. (2014) Impacts of El Niño Southern Oscillation on the global yields of major crops, *Nature Communications* 5.
- Challinor, A.J., Simlenton, E.S., Fraser, E.D.G., Hemming, D., and Collins, M. (2010) Increased crop failure due to climate change: assessing adaptation options using models and socio-economic data for wheat in China. *Environ. Res. Lett.* 5 (2010) 034012.

Other Evidence of Leadership, large-program management and delivery:

- Lead Author for the UK Climate Change Risk Assessment 2017
- Lead Author on the 'Food Production Systems and Food Security' chapter of the Fifth Assessment Report of the IPCC
- PI on NERC consortium grant 2009-2014; End-to-end quantification of uncertainty for impacts prediction (EQUIP). Total value £1.4M

Role in CCAFS: Co-leader on Flagship 2

Name: Annemarie GROOT

Current position and affiliation: Researcher at Alterra, Wageningen UR, The Netherlands

Profile: Annemarie Groot has worked for more than 18 years on international issues in Kenya, Uganda, Ethiopia, Egypt, Senegal, Burkina Faso, India, Nepal, Pakistan, Bangladesh, China and multiple European countries. Major areas of expertise include CSA with focus on scaling CSA through business development, climate (adaptation) services and governance of climate change adaptation. Since 2015, she is activity leader of the CCAFS flagship project on Scaling Climate Smart Agriculture through business development. In the ongoing Euro-India collaborative project 'Water4Crops' she develops business models for waste water reuse technologies to support the Green Economy in Europe and India. She has extensive experience in the governance of climate change adaptation, including the development of enabling policy and institutional environments in Asia and Africa.

Employment:

- | | |
|----------------|--|
| 2008 – present | <i>Senior researcher</i> , climate change adaptation and climate smart agriculture at Alterra, Wageningen UR, The Netherlands. |
| 2003 – 2008 | <i>Specialist multi-stakeholder process management and participatory policy development in environmental issues</i> , agriculture, spatial planning and rural development, Alterra Wageningen UR, The Netherlands. |
| 1992 – 2003 | <i>University teacher/researcher</i> at the Communication and Innovation department, Wageningen University, Wageningen UR, The Netherlands. |
| 1988 – 1992 | <i>Agricultural Extension specialist</i> for the Dutch International Development Organisation in the 'Programme d'Exécution d'un Développement Intégré', Burkina Faso. |

Education:

- PhD Social Science; thesis title 'Demystifying Facilitation of Multi-Actor Learning Processes' at the Department of Communication and Innovation Studies, Wageningen University, The Netherlands. (2002)
- MSc Tropical Agriculture at the Department of Tropical Agriculture, Wageningen University, The Netherlands (1988)

Selected Recent Peer-reviewed publications

- Blom-Zandstra M. G, H. Korevaar, M. Stuiver & A. Groot. Critical success factors for governing farmer-managed public goods in rural areas in the Netherlands (2015). International Journal of Agricultural Sustainability.
- Groot A.M., P.R. Bosch, S. Buijs, C.M.J. Jacobs and E.J. Moors (2014). Integration in urban climate adaptation: Lessons from Rotterdam on integration between scientific disciplines and integration between scientific and stakeholder knowledge, Building and Environment.
- Bhadwal S, A. Groot, S. Balakrishnan, S. Ghosh, G.J. Lingaraj, C. Scheltinga, A. Bhawe and C.Siderius (2013). Adaptation to changing water resource availability in Northern India with respect to Himalayan Glacier retreat and changing monsoons using participatory approaches Science of the Total Environment. Volumes 468–469, Supplement, 1 December 2013, Pages S152–S161.
- Bhawe, A., A. Mishra and A. Groot (2013) Sub-basin scale characterization 1 of climate change vulnerability, impacts and adaptation in an Indian river basin. Regional Environmental Change, February 2013.
- González, A, Donnelly, A, Jones, M, Klostermann, J, Groot, A and M. Breil (2012). Community of Practice Approach to Developing Urban Sustainability Indicators. In: Journal of environmental assessment policy and management, vol.13, nr.4 - p. 591 - 617.

Other Evidence of Leadership, large-program management and delivery:

- Initiator and organiser of the international masterclass 'Green Finance Academy', The Netherlands
- Initiator /taskforce member of CSA@WUR
- Coordinator of the Alterra's strategic programme Green Climate Solutions
- Work package leader /project leader multiple international projects

Role in CCAFS: CoA leadership CoA 2.4 'Business models, incentives and innovative finance for scaling CSA up and out'

Name: Julian RAMIREZ-VILLEGAS

Current position and affiliation: Research Fellow, CCAFS

Profile: Dr. Julian Ramirez-Villegas is a Research Fellow for F1 of the CGIAR Research Program on Climate Change, Agriculture and Food Security since 2013. Before this, Julian was doing a PhD on climate change impacts and adaptation at University of Leeds funded by CCAFS; and prior to that he worked as a research assistant at CIAT for a few years. During his career, he has contributed to a broad range of research projects and has published a number of papers related to crop-climate modeling, climate change impacts, adaptation, and genetic resources conservation. Julian's trajectory at CIAT and the University of Leeds has made him earn two best peer reviewed publication prizes (in 2013 at University of Leeds, and 2015 at CIAT), an innovation grant for young scientists (2014, CIAT), and an outstanding young scientist award (2010, CIAT).

Employment:

2013 – present	<i>Research Fellow, CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)</i>
2013 – present	<i>Research Fellow, School of Earth and Environment, The University of Leeds, UK</i>
2013 – present	<i>Research Fellow, International Center for Tropical Agriculture (CIAT), Colombia</i>
2010 – 2013	<i>Research Postgraduate, School of Earth and Environment, The University of Leeds, UK</i>

Education:

- Ph.D. on Climate Change Impacts and Adaptation, School of Earth and Environment, The University of Leeds, UK (2014)
- B. Eng., Honours, Agricultural Engineering, Faculty of Engineering and Administration, Universidad Nacional de Colombia, Colombia. (2008)

Selected Recent Peer-reviewed publications:

- Rippke, U.*, Ramirez-Villegas, J.*, et al. Timescales of transformational adaptation in sub-Saharan African Agriculture. *Nature Climate Change*. *Authors contributed equally.
- Ramirez-Villegas, J., Koehler, A.K., and Challinor, A. J. 2015. Assessing uncertainty and complexity in regional-scale crop model simulations. *European Journal of Agronomy*.
- Ramirez-Villegas, J., Watson, J., and Challinor, A. J. 2015. Identifying traits for genotypic adaptation using crop models. *Journal of Experimental Botany*, 66(12): 3451-3462.
- Ramirez-Villegas, J. and Khoury, C. K. 2013. Reconciling approaches to climate change adaptation for Colombian agriculture. *Climatic Change*, 119(3-4): 575-583
- Ramirez-Villegas, J., Jarvis, A., and Laderach, P. 2013. Empirical approaches for assessing impacts of climate change on agriculture: the EcoCrop model and a case study with grain sorghum. *Agricultural and Forest Meteorology*, 121: 26-45.

Other Evidence of Leadership, large-program management and delivery:

- Co-Investigator on the Embrapa-CIAT Target Population of Environments (TPE) project
- Coordinator of Flagship 1 science activities in the period 2010–present, including planning, execution and reporting of various tools, peer-reviewed publications, and joint activities with CCAFS Flagship 1 Center-led projects.
- Scientific leadership at CIAT for the Agricultural and Climate Modelling Team, with operating budget of 1M USD per year and 12 staff members.

Role in CCAFS: Research Fellow

Name: Mangi Lal JAT

Current position and affiliation: Senior Cropping Systems Agronomist & CIMMYT-CCAFS South Asia Coordinator, Sustainable Intensification Program (SIP), International Maize and Wheat Improvement Centre (CIMMYT)

Profile: Dr. Jat started his professional career in agricultural research in 1998 as Scientist (Agronomy) at Project Directorate for Cropping Systems Research, Indian Council of Agricultural Research (ICAR), Meerut and served ICAR for 12 years as systems agronomist before joining CIMMYT and contributed immensely in developing, adapting and deploying modern agronomic management practices in major cropping systems. Joined CIMMYT's Global Conservation Agriculture Program in 2009 and contributed to the development & deployment of Conservation Agriculture and Precision Agriculture based management technologies, climate smart agriculture practices (CSAPs) and capacity development to several thousand stakeholders across South Asia for linking science with society. He also endow several prestigious awards in his credit including NAAS fellowship 2015, Indian Society of Agronomy Fellow 2010, etc. His outstanding high impact search publications include over 200 reviewed journal articles, book chapter, manual etc

Employment:

2012 - present	<i>Senior Cropping Systems Agronomist & CIMMYT-CCAFS South Asia Coordinator, Sustainable Intensification Program (SIP), International Maize and Wheat Improvement Centre (CIMMYT)</i>
2010 -2012	<i>Senior Cropping Systems Agronomist, Delivery Coordinator, Cereal Systems Initiative for South Asia (CSISA), Global Conservation Agriculture Program, International Maize and Wheat Improvement Centre (CIMMYT)</i>
2009 – 2010	<i>Hub Coordinator, Haryana, Cereal Systems Initiative for South Asia (CSISA), Global Conservation Agriculture Program, International Maize and Wheat Improvement Centre (CIMMYT)</i>
2007 – 2009	<i>Senior Scientist (Agronomy), Directorate of Maize Research (DMR), ICAR, New Delhi, India</i>

Education:

- Ph.D. in Agronomy, Indian Agricultural Institute (IARI), New Delhi, India (1999)
- M.Sc. (Ag) Agronomy, Rajasthan Agricultural University, Bikaner, Rajasthan, India (1996)

Selected Recent Peer-reviewed publications:

- Jat, ML; Dagar, JC; Sapkota, TB; Yadvinder-Singh, Govaerts, Bram Ridaura, SL; Saharawat, YS; Sharma, RK; Tetarwal, JP; Jat, RK; Hobbs, H and Stirling Clare. 2016. Climate Change and Agriculture: Adaptation Strategies and Mitigation Opportunities for Food Security in South Asia and Latin America. *Advances in Agronomy*, 137.
- Powlson, DS; Stirling, CM; Thierfelder, C; White, RP and Jat, ML. 2016. Does conservation agriculture deliver climate change mitigation through soil carbon sequestration in tropical agro-ecosystems? *Agriculture, Ecosystem and Environment*. 220: 164-174.
- Aryal, JP; Bhatia, M; Jat, ML and Sidhu, HS. 2015. Impacts of Laser Land Leveling in Rice-Wheat Systems of the North-western Indo-Gangetic Plains of India. *Food Security*. Published online on 7th May 2015.
- Aryal, JP; Sapkota, TB; Jat, ML and Bishnoi, D. 2015. On-farm economic and environmental impact of zero-tillage wheat: a case of north-west India. *Experimental Agriculture*, 51: 1-16., Cambridge University Press 2014.
- Powlson, DS; Stirling, CM; Jat, ML, Gerard, BG., Palm, CA; Sanchez, PA and Cassman, KG. 2014. Limited potential of no-till agriculture for climate change mitigation. *Nature Climate Change*, 4: 678-683.

Other Evidence of Leadership, large-program management and delivery:

- Cluster of Activity (CoA) Leader for sustainable intensification flagship of Wheat CRP
- Delivery Coordinator, (India-Pakistan), CIMMYT led bilateral project, Cereal Systems Initiative for South Asia (CSISA), 2010-12

Role in CCAFS: Senior Cropping Systems Agronomist & CIMMYT-CCAFS South Asia Coordinator

Name: Julian F. GONSALVES

Current position and affiliation: Senior Advisor, IIRR (Asia)

Profile: Julian Gonsalves is an experienced facilitator, manager, action researcher and advocate with a three decade focus on smallholder agriculture, international agriculture and rural development. He is a proponent of participatory approaches. He has worked in more than 35 countries since his career in 1980. His special area of interest/competence include: program formulation/design, management, review and evaluation, external assessment, training design and evaluation on sustainable resource use and management, rural and agricultural research, climate-resilient livelihoods farmer-led extension; community-based natural resources management/community forestry; participatory development approaches; and integrated conservation development activities; strengthening institutional capacity and human resources development; designing development support communications (IEC) strategies; networking, advocacy and collaborative mechanisms for effective partnerships; documenting best practices through participatory workshops and approaches for scaling up impact of pilot program for research efforts. Julian Gonsalves has also pioneered the writeshop process and has since helped conceptualized or manage over 30 writeshops in over a dozen countries. Most of the early work of Julian has focused on regenerative agriculture approaches.

Employment:

2000 - present	<i>Freelance Consultant, Reviewer, and Evaluator, Global</i>
1992 - 2000	<i>Vice President-Program, IIRR, Philippines</i>
1984 - 1992	<i>Director, Appropriate Technology Unit, IIRR, Philippines</i>
1982	<i>Research Associate, University of Dar es Salaam, Tanzania</i>

Education:

- Ph.D. in extension education and international agricultural and rural development, Cornell University, Ithaca, NY, USA (1984)
- Masters degree in Communication (knowledge utilization program), Michigan State University, USA (1975)

Selected Recent Peer-reviewed publications:

- Gonsalves, J. 2014. *A new relevance and better prospects for wider uptake of social learning within the CGIAR*. CCAFS Working Paper 37. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), Copenhagen, Denmark.
- Gonsalves, J. and P. Mohan. 2011. *Strengthening Resilience in Post-Disaster Situations: Stories, Experience, and Lessons from South Asia*. Academic Foundation and International Development Research Centre (IDRC), New Delhi, India.
- Campilan, D., J. Roa and J. Gonsalves. 2009. *Beyond the farmer and the farm: users' perspectives and agricultural livelihoods*. In: *Farmer First Revisited* (I. Scoones and J. Thompson eds). ITDG Publishing, Oxford, UK. 97-101.
- Gonsalves, J., T. Becker, A. Braun, D. Campilan, H. de Chavez, E. Fajber, M. Kapiriri, J. Rivaca-Caminade and R. Vernooy (eds). 2005. *Participatory Research and Development for Sustainable Agriculture and Natural Resource Management: A Sourcebook*. CIP-UPWARD, Los Baños, Philippines and IDRC, Ottawa, Canada. 3 volumes. 666pp.
- Estrella, M., J. Blauert, D. Campilan, J. Gaventa, J. Gonsalves, I. Guijt, D. Johnson and R. Ricafort (eds). 1999. *Learning from Change: Issues and Experiences in Participatory Monitoring and Evaluation*. Intermediate Technology Publications, London, UK. 274pp.

Other Evidence of Leadership, large-program management and delivery:

- Research and compilation of a source book on Climate Resilience Agriculture for CCAFs CIAT for Planners in Southeast Asia (2015-2016)
- Senior advisor for CIP FoodStart Program (four countries) and IFAD support program on root and tuber crops in a changing climate (2016)
- Produce a compilation on Community Resilience in Disaster Affected areas (this includes case studies from IDRC supported post tsunami work in Sri Lanka and India), and secondary sources of information (2009-2010)

Role in CCAFS: IIRR focal point. Project leader, including contributing to the FP2 Learning Platform

Name: Jacob Van ETTEN

Current position and affiliation: Component leader, Information services and seed supplies, Bioversity International

Profile: Dr Jacob van Etten works as a senior scientist at Bioversity International since 2012. Before that he was professor, academic director and dean in biology and environmental studies at IE University in Madrid, Spain. He has also worked in the Food and Agriculture Organization of the United Nations (FAO) and the International Rice Research Institute (IRRI). His work focuses on agriculture from an interdisciplinary geographical perspective.

Employment:

2015 – <i>present</i>	<i>Component Leader</i> , Information Services and Seed Supplies, Bioversity International
2012 - 2014	<i>Theme Leader</i> , Climate adaptation, Bioversity International
2009 - 2011	<i>Associate Professor</i> , IE University, Madrid/Segovia, Spain
2008 - 2009	<i>Postdoctoral Fellow</i> , International Rice Research Institute, Los Baños, Philippines

Education:

- Ph.D. in Social sciences and Production Ecology and Resource Conservation, Wageningen University, Netherlands (2006)
- MSc, Tropical land use, Wageningen University (2001)

Selected Recent Peer-reviewed publications:

- Ulrichs, M., Cannon, T., van Etten, J., et al. (2015). Assessing climate change vulnerability and its effects on food security: Testing a new toolkit in Tanzania. CCAFS Working Paper.
- Brush, S. B., Bellon, M. R., Hijmans, R. J., Orozco, R. Q., Perales, H. R., & van Etten, J. (2015). Assessing maize genetic erosion. PNAS, 112(1), E1.
- Harvey, C. A., et al. (2014). Climate-Smart Landscapes: Opportunities and Challenges for Integrating Adaptation and Mitigation in Tropical Agriculture. Conservation Letters, 7(2), 77-90.
- van Etten, J. 2011. Crowdsourcing crop improvement in Sub-Saharan Africa: a proposal for a scalable and inclusive approach to food security. IDS Bulletin 42(4) 102-110.
- Fuller, D.Q., J. van Etten, Y.I. Sato, C. Castillo, L. Qin, A.R. Weisskopf, E.J. Kingwell-Banham, J. Song, and S.M. Ahn. 2010. The contribution of rice agriculture and livestock pastoralism to prehistoric methane levels: an archaeological assessment. The Holocene, 21: 743-759.

Other Evidence of Leadership, large-program management and delivery:

- At IRRI, Dr Van Etten led a project activity on geo-referencing of all CGIAR genebank accession with lacking geographical coordinates, facilitating use of these data for climatic analyses (2009)
- At IE University, Dr Van Etten led the design and implementation of a new international Master programme on Environmental Management. It obtained the best academic scores of all Master programmes at IE University and IE Business School in 2011.

Role in CCAFS: CCAFS Contact Point for Bioversity International

Name: Mark LUNDY

Current position and affiliation: Senior Researcher and Theme Leader, Linking Farmers to Markets, International Centre for Tropical Agriculture, CIAT

Profile: Mark Lundy is a Senior Scientist at CIAT. His focus is on the role of markets in reducing rural poverty and includes topics such as learning networks to increase NGO and farmer capacities for enterprise development, exploring how private companies can better partner with smallholder farmers, the role of public and donor agencies in supporting better market linkages and how to establish and sustain effective trading relationships between buyers and smallholder farmers that add business value while reducing rural poverty. Emerging areas of work include sustainable food systems and climate adapted value chains. Mr. Lundy's recent work has focused on how to move from the identification of climate risks to effective mechanisms for scaling CSA practices through value chain institutions.

Employment:

2012 – present	<i>Senior Researcher and Theme Leader</i> , Linking Farmers to Markets, International Centre for Tropical Agriculture, CIAT, Colombia
2002 - 2012	<i>Researcher</i> , Rural Agroenterprise Development Project, International Centre for Tropical Agriculture, CIAT, Colombia
1999 - 2002	<i>Research Fellow</i> , Rural Agroenterprise Development Project, International Centre for Tropical Agriculture, CIAT, Colombia
1995 - 1999	<i>General Manager</i> , Corporación para el Desarrollo de Versalles, Versalles, Colombia

Education:

- M.Sc. in Community and Regional Planning, University of Texas at Austin, USA
- M.A. in Latin American Studies, University of Texas at Austin, USA

Selected Recent Peer-reviewed publications:

- Lundy, M., Amrein, A., Hurtado, JH., Bexc., G., Zamierowski, N., Rodriguez, F., Mosquera, EE. 2014. *LINK Methodology: A Participatory Guide on Business Models that Link Smallholders to Markets*, Second edition. International Centre for Tropical Agriculture, CIAT, Cali, Colombia.
- Lundy, M., Bexc, G., Rodriguez Camayo, F., Oberthur, T. 2012. *Business models for quality coffee*. In T. Oberthur, P. Läderach, H.A. J. Pohlen and J. Cock (eds.) *Specialty Coffee: Managing Quality*. International Plant Nutrition Institute, Southeast Asia Program, Penang, Malaysia.
- Díaz Nieto J, Fisher M, Cook S, Läderach P, Lundy M. 2012. Weather Indices for Designing Micro-Insurance Products for Small-Holder Farmers in the Tropics. *PLoS ONE* 7(6): e38281.
- Lundy, M., Gottret, M.V., Best, R. 2012. *Linking Research and Development Actors through Learning Alliances*. In World Bank (eds.) *Agricultural Innovation Systems: A Sourcebook*. World Bank, Washington, DC, USA.
- Faminow, M.D.; Carter, S.E.; Lundy, M. 2009. Social entrepreneurship and learning: The case of the Central American learning alliance. *Journal of Developmental Entrepreneurship*: 14 (4): pages 433-450.

Other Evidence of Leadership, large-program management and delivery:

- Lead researcher on the Climate Smart Value Chains project (CCAFS) and the Learning Community for Unlocking Private Sector Investment in CSA (USAID) active in West Africa, East Africa, and Central America.
- Lead for CIAT market access work globally and Focal Point for CIAT in the Policies, Institutions and Markets Collaborative Research Program. Directly responsible for managing research programming in Latin America, Eastern Africa and South-east Asia worth approximately US\$ 2.3 m annually
- Lead author of the LINK Methodology for inclusive business that is currently being applied by international NGOs in Latin America, Africa and Asia, used in program evaluation by the World Bank and the Ministry of Agriculture and Rural Development of Colombia and adapted as the global buyers guide for smallholder sourcing by Unilever.

Role in CCAFS: Project leader, including contributing to CoA 2.4

Name: Todd S. ROSENSTOCK

Current position and affiliation: Environmental Scientist, World Agroforestry Centre

Profile: Dr. Todd Rosenstock is Environmental Scientist at the World Agroforestry Centre (ICRAF). Before this, he was an ICRAF Research Fellow focused on Climate Change Mitigation and Land Health. He sits on the Steering Committee for the Alliance for Climate-Smart Agriculture in Africa and participates in the Integrated Planning and Monitoring Sub-group of the Global Alliance for Climate-Smart Agriculture's Knowledge Action Group. He is a member of the Editorial Board of the journal *Global Change Biology*.

His research contributions include evaluating the scientific basis for climate-smart agriculture, targeting climate-smart agricultural responses under multiple uncertainties, methods for measurement and monitoring greenhouse gas emissions and removals in smallholder farming systems, developing mitigation strategies in complex systems, and inventories of greenhouse gases emissions. His work on climate-smart agriculture is helping set the global research and development agendas on the topic.

Employment:

2013 – present	<i>Environmental Scientist, World Agroforestry Centre (ICRAF), Nairobi, Kenya.</i>
2011- 2012	<i>Research Fellow, The World Agroforestry Centre (ICRAF), Nairobi, Kenya.</i>
2009- 2011	<i>Postdoctoral Fellow, Agricultural Sustainability Institute, UC Davis, USA.</i>
2006- 2008	<i>Graduate Student Researcher, Depts. Plant Sciences, UC Davis, USA.</i>

Education:

- Ph.D. in Agroecology, University of California, Davis, USA (2008)
- M.S. in International Agricultural Development, University of California, Davis, USA (2006)

Selected Recent Peer-reviewed publications:

- Kimaro, AA, M Mpanda, J Rioux, S Shaba, E Aynekulu, K Karttunen, H Neufeldt and TS Rosenstock. 2015. Is conservation agriculture 'climate-smart' for maize farmers in the highlands of Tanzania? *Nutrient Cycling in Agroecosystems*.
- Rosenstock, TS, M Mpanda, J Rioux, E Betemariam, A Kimaro, H Neufeldt, K Shepherd, and E Luedeling. Targeting conservation agriculture in the context of livelihoods and landscapes. 2014. *Agriculture, Ecosystems, & the Environment*, 187:47-51.
- Rosenstock, TS, K Tully, C Arias-Navarro, H Neufeldt, K Butterball-Bach, and L Verchot. 2014. Agroforestry with N_2 -fixing trees: sustainable development's friend or foe? *Current Opinion in Environmental Sustainability*, 6: 15-21.
- Ogle, SM, L Olander, L Wollenberg, TS Rosenstock, F Tubiello, K Paustian, L Buendia, A Nihart, and P Smith. 2013. Reducing greenhouse gas emissions and adapting agricultural management for climate change in developing countries: providing the basis for action. *Global Change Biology*, 10:1-6.
- Rosenstock TS et al. (eds) in press. Guidelines to quantify greenhouse gas emissions and removals and identify climate change mitigation options in smallholder farming systems at whole-farms and landscape levels. Springer. 10 chapter volume.

Other Evidence of Leadership, large-program management and delivery:

- Led and delivered on cross-CCAFS low emissions development initiative including nine centres called SAMPLES (Standard Assessment of Mitigation Potential and Livelihoods in Smallholder Systems).
- Co-Leads the CCAFS Flagship Project 'Partnership for Scaling Climate-Smart Agriculture (P4S)' that engages major political and civil society partners throughout Africa and globally. He sits on the Steering Committee for the ACSAA and participates in the Integrated Planning and Monitoring Sub-group of the GACSA Knowledge Action Group.
- Recently awarded a grant from the Innovative Metrics for Agriculture and Nutrition Action for low-cost monitoring of nutrition outcomes during the scaling up of climate-smart agriculture in Africa.

Role in CCAFS: Leader of the Flagship Project Partnerships for Scaling Climate-Smart Agriculture

Flagship 3

Dr. Eva “Lini” Wollenberg – see under Program Management Committee

Name: Alessandro (Alex) de PINTO

Current position and affiliation: Senior Research Fellow, Environment and Production Technology Division, International Food Policy Research Institute (IFPRI)

Profile: Dr. Alex De Pinto is an environmental and natural resource economist with 20 years of experience working in economically depressed areas. His research focuses on land-use management and economic spatial analysis and uses a series of modeling techniques that make it possible to simulate location-specific effects of policy changes and their consequent environmental effects.

Employment:

2009 – present	<i>Senior Research Fellow</i> , Environment and Production Technology Division, International Food Policy Research Institute (IFPRI), Washington DC, USA
2004 – 2009	<i>Assistant Professor of Economics</i> , Department of Economics, University of Redlands, CA, USA.
2002 – 2004	<i>Lecturer in Economics and Director</i> , Environmental Resource Management Program. California State University Bakersfield, CA, USA

Education:

- University of Illinois at Urbana-Champaign, College of Agricultural, Consumer and Environmental Science. Ph.D., area of specialization: Policy and Environmental Economics (2004)
- Overseas Agronomic Institute, Florence, Italy M.S. (Equivalent): "Remote Sensing and Natural Resource Valuation" (1995)

Selected Recent Peer-reviewed publications:

- De Pinto, A., Haruna, A., Li, M., Hyman, G., Creamer, B., Kwon, H., Brayan Valencia Garcia, J., Tapasco, J., David Martinez, J. 2016: "Low Emission Development Strategies in Agriculture. An Agriculture, Forestry and Other Land Uses (AFOLU) Perspective." World Development. Forthcoming.
- Li M, De Pinto A, Ulimwengo J, You L, Robertson R. 2015. Modeling Land-use Allocation with Mixed-level Data: An Econometric Analysis for the Democratic Republic of the Congo. Environment and Resource Economics. 60:433–469.
- Neufeldt H, Jahn M, Campbell BM, Beddington JR, DeClerck F, De Pinto A, Gullledge J, Hellin J, Herrero M, Jarvis A, LeZaks D, Meinke H, Rosenstock T, Scholes M, Scholes R, Vermeulen S, Wollenberg E, Zougmore R 2013. Beyond climate-smart agriculture: toward safe operating spaces for global food systems. Agriculture & Food Security. 2:12.
- De Pinto A, Robertson R. 2013. Adoption of Climate Change Mitigation Practices by Risk-averse Farmers in the Ashanti Region, Ghana. Ecological Economics. Vol 86.
- Bryan E, De Pinto A, Ringler C, Asuming-Brempong S, Bendaoud M, Artur, Givá N, Anh DT, Mai NN, Asenso-Okyere K, Sarpong DB, El-Harizi K, van Rheeën T, Ferguson J. 2012. Institutions for agricultural mitigation: potential and challenges in four countries. CAPRI Working Paper 107.

Other Evidence of Leadership, large-program management and delivery:

- Led the Low Emission Development Strategies project leading teams of researchers in four countries. Results of the project contributed to the formulation of official policies and the Independent Nationally Determined Contributions (INDCs) in Colombia.
- 7 years of coordinating international research projects in 8 countries with an average budgets greater than \$1 million.
- 20 year experience working in economically depressed areas and leading research project with significant repercussion on land use management.

Role in CCAFS: IFPRI focal contact point for CCAFS

Name: Klaus BUTTERBACH-BAHL

Current position and affiliation: Principal Scientist, Livestock Systems and the Environment, International Livestock Research Institute (ILRI), Head of Department “BioGeoChemical Cycles”, Karlsruhe Institute of Technology, Institute of Meteorology, Atmospheric Environmental Research (IMK-IFU)

Profile: Dr. Klaus Butterbach-Bahl works as principal scientist in the Livestock Systems and Environment group of the International Livestock Research Institute (ILRI). He has a joint appointment with the Institute of Meteorology and Climate Research, Atmospheric Environmental Research (IMK-IFU), Karlsruhe Institute of Technology, where he is head of the Bio-Geo-Chemical Cycles Department. He has gained more than two decades of work experience researching biosphere-atmosphere exchange processes of climate-relevant trace gases as affected by environmental changes and anthropogenic management. He has been the principal investigator on a significant number of national and international research projects and has published approximately 200 research papers in peer-reviewed journals. At ILRI he works on the establishment of environmental footprints of agricultural production systems, using both modelling and field experiments. Key foci are quantifying greenhouse gas emissions associated with livestock production and developing and testing feasible mitigation strategies in the context of smallholder livestock production systems. Given his background, he also focuses on inventorying agricultural greenhouse gas emissions, including emissions from upland croplands and rice paddies and national- and regional-scale emissions that use GIS-coupled biogeochemical and empirical modelling approaches.

Employment:

2013 - present	<i>Principal Scientist</i> , International Livestock Research Institute (ILRI), joint appointment with IMK-IFU
2008 - present	<i>Head of Department</i> , “BioGeoChemical Cycles” at IMK-IFU
1998 - present	<i>Group leader</i> , “Regionalisation of biogenic trace gases” at IMK-IFU
1993 - present	<i>Scientist</i> at IMK-IFU

Education:

- Habilitation and Venia Legendi, University of Freiburg, Germany (2002)
- Dr. rer. Nat. in Biology, Technical University of Munich, Germany (1992)

Selected Recent Peer-reviewed publications:

- Weller S, Janz B, Jörg L, Kraus D, Racela HSU, Wassmann R, Butterbach-Bahl K, Kiese R, 2016, Greenhouse gas emissions and global warming potential of traditional and diversified tropical rice rotation systems. *Global Change Biol.* 22, 432-448.
- Barton L, Wolf B, Rowlings D, Scheer C, Kiese R, Grace P, Stefanova K, Butterbach-Bahl K, 2015, Sampling frequency affects estimates of annual nitrous oxide fluxes. *Scientific Reports* 5, 16912.
- Zhou M, Zhu B, Brüggemann N, Wang X, Zheng X, Butterbach-Bahl K, 2015, Nitrous oxide and methane emissions from a subtropical rice–rapeseed rotation system in China: A 3-year field case study. *Agricultural Ecosystems and Environment* 212, 297-309.
- Zhou M, Butterbach-Bahl K, 2014, Assessment of nitrate leaching loss on a yield-scaled basis from maize and wheat cropping systems. *Plant Soil* 374, 997-991.
- Butterbach-Bahl K, Baggs EM, Dannenmann M, Kiese R, Zechmeister-Boltenstern S, 2013 Nitrous oxide emissions from soils: how well do we understand the processes and their controls? *Phil Trans R Soc B* 368, 20130122.

Other Evidence of Leadership, large-program management and delivery:

- Led several EU and German Science Research Group projects with total budgets >10 Mio €
- Schrödinger Prize of the *Stifterverband für die Deutsche Wissenschaft* and the Helmholtz Society (2013), Vladimir Ivanovich Vernadsky Medal 2014 of the European Geosciences Union for exceptional contributions to biogeosciences in general

Role in CCAFS: Scientist

Name: Christopher MARTIUS

Current position and affiliation: Team Leader Climate Change, Bioenergy and Low-Carbon Development, Center for International Forestry Research (CIFOR), Bogor, Indonesia

Profile: Dr. Martius has 25 years of leadership experience in in development research, climate change, dryland agriculture, and tropical biology. He has a PhD in Biology (University of Göttingen, Germany) with a specialisation in ecology. He is also a lecturer (professor - Privatdozent) in Agroecology at the University of Bonn, Germany, where he is teaching in the Master Course “Nature Protection and Landscape Management” and where he has supervised 30 PhD students.

Employment:

2013 - present	<i>Principal Scientist Climate Change</i> , Center for International Forestry Research (CIFOR), Bogor, Indonesia
2012 - 2013	<i>Senior Fellow</i> , Center for Development Research (ZEF) Bonn, Germany; also Visiting Professor, Indo-German Center for Sustainability (IGCS), Chennai, India
2009 - 2011	<i>Assistant Director</i> , Science Programs, Inter-American Institute for Global Change Research (IAI), São José dos Campos, Brazil
2008 - 2009	<i>Head of CGIAR Program Facilitation Unit (PFU)</i> , and <i>Regional Coordinator</i> , ICARDA (International Center for Agricultural Research in the Dry Areas), CGIAR Program for Sustainable Agriculture in Central Asia and the Caucasus, Tashkent, Uzbekistan

Education:

- Ph.D. in Biology, University of Göttingen, Germany (1989)
- Habilitation in Agroecology, University of Bonn, Germany (2003)

Selected Recent Peer-reviewed publications:

- Conrad, C., Lamers, J.P.A., Ibragimov, N., Löw, F., Martius, C. (2016): Analysing irrigated crop rotation patterns in arid Uzbekistan by the means of remote sensing: A case study on post-Soviet agricultural land use. *Journal of Arid Environments* 124, 150–159.
- Siebers, N., C. Martius, A.G. Bandeira, M.V.B. Garcia, K.-U. Eckhardt, P. Leinweber, W. Amelung (2015): Origin and alteration of organic matter in termite mounds from different feeding guilds of the Amazon rainforests. *PLOS1*, 10(4).
- Awan, U.K., B. Tischbein, C. Martius (2015): Simulating Groundwater Dynamics Using Feflow-3D Groundwater model under complex irrigation and drainage network of dryland ecosystems of Central Asia. *Irrigation and Drainage* 64(2), 283–296.
- Devkota, M., Gupta, R.K., Martius, C., Lamers, J.P.A., Devkota, K.P., Sayre, K.D., Vlek, P.L.G. (2015): Soil salinity management on raised beds with different furrow irrigation modes in salt-affected lands. *Agricultural Water Management* 152, 243–250.
- Martius, C., I. Rudenko, J.P.A. Lamers, P.L.G. Vlek (Eds., 2012): *Cotton, water, salts and Soums - economic and ecological restructuring in Khorezm, Uzbekistan*. Springer, Berlin, Heidelberg, New York. 426 pp. ISBN 978-94-007-1962-0 / doi 10.1007/978-94-007-1963-7_7.

Other Evidence of Leadership, large-program management and delivery:

- 2013-today: Coordination and management of the Forests and Climate Change FP in the CGIAR Research Program Forests, Trees and Agroforestry. Coordinating climate change mitigation and adaptation research at CIFOR (an annual portfolio of US\$ 20 million).
- 2008-2009: CGIAR Program for Sustainable Agriculture in Central Asia and the Caucasus, Tashkent, Uzbekistan: Coordinating the CGIAR’s and specifically ICARDA’s research activities in eight countries in Central Asia and the Caucasus. 2008 received CGIAR King Baudouin Science Award for Outstanding Partnership for the CGIAR Program for Central Asia and the Caucasus
- 2000-2010: Coordinator, ZEF research project on sustainable landscape management in irrigated cropland of the Aral Sea Basin, cf. <http://www.zef.de/khorezm.0.html>

Role in CCAFS: CIFOR focal point for CCAFS

Name: Henry NEUFELDT

Current position and affiliation: Head of the Climate Change Unit at the World Agroforestry Centre (ICRAF)

Profile: Dr. Henry Neufeldt is head of the Climate Change Unit at ICRAF in Nairobi, Kenya. After his PhD on indicators of sustainable soil management in the Cerrado region of Brazil, he first worked as a consultant on questions related to soil and water salinization in the Chaco region of Paraguay and then at the Institute for Energy and Environment in Leipzig, Germany on modeling policy interventions on greenhouse gas emissions and farm economics at regional scales. He also worked as a research coordinator at the Tyndall Centre for Climate Change Research at the University of East Anglia in Norwich, where he directed the European Commission's flagship project called Adaptation and Mitigation Strategies: Supporting European Climate Policy (ADAM). Dr. Neufeldt now focuses on climate impacts, adaptation, mitigation, food security, land cover change and sustainable development in the context of agroforestry systems and climate policies. He is an advisor on agriculture, forestry, and other land use (AFOLU) climate bonds to the Climate Bond Initiative. Over the past ten years, Dr. Neufeldt has published more than 90 articles, book chapters or books, with over 40 of these in peer-reviewed articles published in international journals.

Employment:

2009 – present	<i>Head of the Climate Change Unit at the World Agroforestry Centre (ICRAF), Nairobi, Kenya</i>
2006 – 2009	<i>Senior Research Coordinator at the Tyndall Centre for Climate Change Research, University of East Anglia, Norwich, UK</i>
2001 – 2006	<i>Senior Scientist and Project Manager at the Institute for Energy and Environment, Leipzig, Germany</i>
2000 – 2001	<i>System Consultant at ALICE Software Service, Düsseldorf, Germany</i>

Education:

- Ph.D. in Environmental Sciences and Soil Science, Bayreuth University, Germany (1998)
- M.Sc. in Environmental Sciences at the University of Bayreuth, Germany (1992)

Selected Recent Peer-reviewed publications:

- Neufeldt H, Kissinger G, Alcamo J. 2015. No-till agriculture and climate change mitigation. *Nature Climate Change* 5 488-489.
- Neufeldt H, Pacheco P, Ojha HR, Ayeri Ogalleh S, Donovan J, Fuchs L, Kleinschmit D, Kristjanson P, Kowero G, Oeba VO, Powell B. 2015. Public Sector, Private Sector and Socio-Cultural Response Options. In: B Vira, C Wildburger, S Mansourian (eds.), *Forests, Trees and Landscapes for Food Security and Nutrition. A Global Assessment Report*. IUFRO World Series Volume 33. Vienna. p.129-153.
- Lipper L, Thornton P, Campbell BM, Baedeker T, Braimoh A, Bwalya M, Caron P, Cattaneo A, Garrity D, Henry K, Hottle R, Jackson L, Jarvis A, Kossam F, Mann W, McCarthy N, Meybeck A, Neufeldt H, Remington T, Thi Sen P, Sessa R, Shula R, Tibu A, Torquebiau EF, 2014. Climate-smart agriculture for food security. *Nature Climate Change*. 4, 1068-1072.
- Neufeldt H, Adhya TK, Coulibaly JY, Kissinger G, Pan G. 2013. Bridging the gap I: Policies for reducing emissions from agriculture. In: UNEP 2013 (ed), *The Emissions Gap Report 2013*. United Nations Environment Program, Nairobi.
- Neufeldt H, Jahn M, Campbell BM, Beddington JR, DeClerck F, De Pinto A, Gullledge J, Hellin J, Herrero M, Jarvis A, LeZaks D, Meinke H, Rosenstock T, Scholes M, Scholes R, Vermeulen S, Wollenberg E, Zougmore R. 2013. Beyond climate-smart agriculture – toward safe operating spaces for global food systems. *Agriculture and Food Security* 2:12.

Other Evidence of Leadership, large-program management and delivery:

- Lead EU FP6 flagship project on adaptation and mitigation policies (ADAM)
- Lead the GEF funded Carbon Benefits Project (CBP)
- Lead the High Value Carbon Development project (BIODEV)
- CoA co-lead for WLE on City Region Food Systems and technical advisor to the AFOLU Climate Bonds Initiative

Role in CCAFS: ICRAF focal point for CCAFS

Name: Pablo PACHECO

Current position and affiliation: Principal Scientist, Centre for International Forestry Research (CIFOR)

Profile: Dr. Pablo Pacheco has an interdisciplinary background, and has a leading role at CIFOR on research and policy engagement with emphasis on the governance arrangements for sustainable commodity supply, market and investments shaping landscape transformation and people's livelihoods in the tropics, and government and private sector responses, including voluntary system standards, to manage impacts and trade-offs. He has over 20 years of experience on scientific research to support the goals of natural resources management, alleviating poverty and promoting rural development, and supporting land and landscape management with improved governance and institutional arrangements. His work emphasizes tropical developing countries in Latin America and Southeast Asia. His main research areas include the implications of trade and investment for forests and people, landscapes and agrarian change, forests and landscape governance, and institutions for natural resources management.

Employment:

2005 - present	<i>Principal Scientist</i> , Forests and Governance Portfolio, Centre for International Forestry Research (CIFOR), Bogor, Indonesia. Team Leader 'Value Chains, Finance and Investments'.
2002 - 2004	<i>Long term consultant</i> , Center for International Forestry Research (CIFOR), Belem, Brazil.
1999 - 2001	<i>Research assistant</i> , Graduate School of Geography. Clark University, MA, USA.
1993 - 1996	<i>Scientist</i> , Inter-American Institute for Cooperation on Agriculture (IICA), La Paz, Bolivia

Education:

- Ph.D. in Geography, Graduate School of Geography, Clark University, MA, USA [2005]
- M.Sc. in Agricultural Economics, Bolivian Catholic University (UCB), La Paz, Bolivia [1996]

Selected Recent Peer-reviewed publications:

- Pacheco, P. and J.H. Benatti. 2015. Tenure security and land appropriation under changing environmental governance in lowland Bolivia and Pará. *Forests* 6: 464-491.
- Pacheco, P. and R. Pocard-Chapuis. 2015. Cattle ranching development in the Brazilian Amazon: Looking at long-term trends to explore the transition towards sustainable beef cattle production. In J. Emel and N. Harvey (eds). *The political ecologies of meat*, London and New York, Routledge, Earthscan. pp. 42-66.
- Godar, J., T. A. Gardner, E. Jorge Tizado and P. Pacheco. 2014. Actor-specific contributions to the deforestation slowdown in the Brazilian Amazon. *Proceedings of the National Academy of Sciences of the United States of America*. 111(43): 15591-15596.
- Pokorny, B. and P. Pacheco. 2014. Money from and for forests: A critical reflection on the feasibility of market approaches for the conservation of Amazonian forests. *Journal of Rural Studies*, 36:441-452.
- Pacheco, P. and R. Pocard-Chapuis. 2012. The complex evolution of cattle ranching development amid market integration and policy shifts in the Brazilian Amazon. *Annals of the Association of American Geographers*. 102(6): 1366-1390.

Other Evidence of Leadership, large-program management and delivery:

- [2011- present] Team Leader at CIFOR of theme "Value Chains, Finance and Investment".
- [2011-present] Coordinator of Flagship 5 "Global Governance, Trade and Investment" under FTA. Working in South America, Southeast Asia and sub-Saharan Africa with emphasis on governance systems and arrangements shaping commodity supply, and implication of markets and investments.
- [2014-2015] Coordinates a network to understand the drivers, dynamics and outcomes of oil palm development in Indonesia, Malaysia, Cameroon, Nigeria, Peru, Colombia and Brazil.

Role in CCAFS: Contributing CoA 3.3 and coordinates Flagship 3 on sustainable value chains under FTA

Name: Idulpulati RAO

Current position and affiliation: Principal Scientist, Plant Nutrition/Physiology, Agrobiodiversity Research Area CIAT

Profile: Dr. Idulpulapati Rao is a plant nutritionist and physiologist with the tropical forages and bean programs in the agrobiodiversity research area of the International Centre for Tropical Agriculture (CIAT), based in Cali, Colombia. He worked for about 10 years at the University of Illinois and the University of California before joining CIAT in 1989. He has been working at CIAT for the past 26 years and has contributed to the development of abiotic stress (soils and climate)-adapted tropical forages and common bean germplasm options for sustainable intensification of crop-livestock systems in the tropics. He has been the principal investigator on several international research projects and has published 155 journal articles and 50 book chapters. He won the outstanding principal staff award from CIAT in 2000 and outstanding research publication awards in 1999, 2003 and 2009. He was also part of the CIAT team that won the excellence in science award from the CGIAR for outstanding partnership in 2001.

Employment:

1989 – present	<i>Plant Nutritionist/Physiologist</i> , Agrobiodiversity Research Area, International Centre for Tropical Agriculture (CIAT), Cali, Colombia
1984 – 1989	<i>Assistant Specialist</i> , University of California, Berkeley, USA
1982 – 1984	<i>Research Associate</i> , University of Illinois, Urbana-Champaign, USA
1981 – 1982	<i>Research Associate</i> , University of Illinois, Chicago, USA

Education:

- Ph.D. Plant Physiology, Sri Venkateswara University, India (1978)
- M. Sc. Botany, Bhopal University, India (1973)

Selected Recent Peer-reviewed publications:

- Rao IM, Peters M, Castro A, Schultze-Kraft R, White D, et al. 2015. LivestockPlus – The sustainable intensification of forage-based systems to improve livelihoods and ecosystem services in the tropics. *Tropical Grasslands–Forrajes Tropicales*. 3: 59-82.
- Rao IM. 2014. Advances in improving adaptation of common bean and Brachiaria forage grasses to abiotic stresses in the tropics. In: M. Pessaraki (ed). *Handbook of Plant and Crop Physiology*, Third Edition. pp. 847-889. CRC Press, Taylor and Francis Group, USA.
- Subbarao GV, Rao IM, Nakahara K, Sahrawat KL, Hash CT, Ando Y, Kawashima T. 2013. Potential for biological nitrification inhibition (BNI) to reduce nitrification and N₂O emissions from pasture-crop-livestock systems. *Animal*. 7s2: 322-332.
- Peters M, Rao I, Fisher M, Subbarao G, Martens S, Herrero M, van der Hoek R, Schultze-Kraft R, Miles J, Castro A, Graefe S, Tiemann T, Ayarza M, Hyman G. 2013. Tropical forage-based systems to mitigate greenhouse gas emissions. In: C. H. Hershey and P. Neate (Eds.) *Eco-Efficiency: From Vision to Reality*. pp. 171-190, CIAT, Cali, Colombia.
- McClean P, Burrridge J, Beebe S, Rao I, Porch T. 2011. Crop improvement in the era of climate change: An integrated multi-disciplinary approach for common bean (*Phaseolus vulgaris* L.). *Functional Plant Biology*. 38: 927-933.

Other Evidence of Leadership, large-program management and delivery:

- 2015-2018 LivestockPlus: Supporting low emissions development planning in the Latin American cattle sector. CCAFS-CGIAR Research Program.
- 2012-2016 Innovative programmatic approach to climate change in support of BecA's mission: Climate-smart Brachiaria grasses for improving livestock production in East Africa. Sida, Sweden.
- 2012-2015 Climate-smart crop-livestock systems for smallholders in the tropics: Integration of new forage hybrids to intensify agriculture and to mitigate climate change through regulation of nitrification in soil. BMZ-GIZ, Germany.

Role in CCAFS: Lead work on reducing emissions from livestock in Colombia and Costa Rica

Name: Clare STIRLING

Current position and affiliation: Senior Scientist, Global Conservation Agriculture Program, CIMMYT

Profile: Dr Stirling has over 20 years of experience working in the area of agricultural crop and native species responses to climate change, both as a researcher and research manager. She has held positions as a senior research manager in natural resource management and climate change for the UK Agriculture and Horticulture Development Board, where she sat on a number of high-level committees including the UK agriculture industry's Greenhouse Gas Action Plan. Previously, Dr. Stirling worked for several years in Photosynthesis Productivity at Essex University and whilst a lecturer there ran a MSc course called Crops in a Changing Environment. She also held research positions in crop physiology at ICRISAT in Patancheru, India; in ecophysiology with the climate change group at the UK's Natural Environment Research Council's Centre of Ecology and Hydrology, and was principle investigator on several long-term research projects funded by the UK Department for International Development (DFID) Plant Sciences Research Program on smallholder intercropping systems in Asia whilst at the University of Bangor.

Dr. Stirling has published over 50 articles, book chapters or books, including over 30 in peer-reviewed articles published in international journals.

Employment:

2012 - present	<i>Senior Scientist</i> , Sustainable Intensification Program, International Maize and Wheat Improvement Centre (CIMMYT), Mexico City
20010 - 2012	<i>Research Manager</i> , Natural Resources and Climate Change, UK Agriculture and Horticulture Development Board.
2008 – 2010	<i>PI and research management</i> , University of Bangor, Wales, UK
2003 - 2010	<i>Research scientist</i> , Climate Change Group, Centre of Ecology and Hydrology, Bangor, Wales, U.K.

Education:

- Ph.D. - Department of Agriculture at Sutton Bonington, University of Nottingham, United Kingdom (UK) [1988]
- Hons B.Sc. - Department of Agriculture at Sutton Bonington, University of Nottingham, United Kingdom (UK) [1983]

Selected Recent Peer-reviewed publications:

- Powlson, D.S., Stirling, C.M., Thierfelder, C., White, R.P. and Jat, M.L. 2016. Does conservation agriculture deliver climate change mitigation through soil carbon sequestration in tropical agro-ecosystems? *Agriculture, Ecosystems and Environment* 220 (2016) 164–174.
- Farnworth, C.R., Baudron, F., Andersson, J.A., Misiko, M., Badstu, L., and Stirling, C.M. (2016). Gender and conservation agriculture in East and Southern Africa: towards a research agenda. *International Journal of Agricultural Sustainability*, 14 142-165.
- Powlson DS, Stirling CM, Jat ML, Gerard BG, Palm CA, Sanchez PA, Cassman KG. 2015. Reply to 'No-till agriculture and climate change mitigation'. *Nature Climate Change*. 5(6):489.
- Bellarby J, Stirling C, Vetter SH, Kassie M, Kanampiu F, Sonder K, Smith P, Hillier J. 2014. Identifying secure and low carbon food production practices: A case study in Kenya and Ethiopia. *Agriculture, Ecosystems and the Environment*. 197:137-146.
- Powlson DS, Stirling CM, Jat ML, Gerard BG, Palm CA, Sanchez PA, Cassman KG. 2014. No-till agriculture and climate change mitigation. *Nature Climate Change*. 4(8):678-683.

Other Evidence of Leadership, large-program management and delivery:

- Lecturer and course manager of MSc 'Crop Production in a changing climate' University of Essex, U.K.
- Represented the interests of the UK cereal industry on various research committees in the UK including NERC and DEFRA.
- Member of the steering group of the UK agriculture industry's Greenhouse Gas Action Plan.

Role in CCAFS: CIMMYT focal point for CCAFS and leads global work on nitrogen for FP3

Name: Theun VELLINGA

Current position and affiliation: Senior Researcher in Livestock Systems, Wageningen University and Research Centre

Profile: As senior researcher, Theun Vellinga has 30 years of experience in agricultural research, including foci on grassland management, grazing, environmental impacts, modelling farming systems, life cycle assessments, feed chain analysis and manure management. He is experienced in cooperation with policy-makers, farmers and industry and is skilled in developing solutions to apply developed knowledge in practical tools for stakeholders.

Employment:

2010 – 2016	<i>Senior researcher</i> , Wageningen UR Livestock Research, Wageningen, the Netherlands
2009 – 2010	<i>Lead consultant</i> , Food and Agriculture organisation of the UN, Rome, Italy
2007 – 2008	<i>Senior researcher</i> , Wageningen UR Livestock Research, Wageningen, the Netherlands
2003 – 2007	<i>Team leader</i> , Service for land and water management, Groningen, the Netherlands

Education:

- Ph.D. Environmental Sciences, Wageningen University, the Netherlands (2006)
- M.Sc. Grassland Science, Wageningen University, the Netherlands (1985)

Selected Recent Peer-reviewed publications:

- van Middelaar, C. E., C. Cederberg, T. V. Vellinga, H. M. G. van der Werf and I. J. M. de Boer (2013). "Exploring variability in methods and data sensitivity in carbon footprints of feed ingredients." *International Journal of Life Cycle Assessment* 18(4): 768-782.
- De Boer, I. J. M., I. E. Hoving, T. V. Vellinga, G. W. J. Van de Ven, P. A. Leffelaar and P. J. Gerber (2013). "Assessing environmental impacts associated with freshwater consumption along the life cycle of animal products: the case of Dutch milk production in Noord-Brabant." *International Journal of Life Cycle Assessment* 18(1): 193-203.
- Powell, J. M., M. MacLeod, T. V. Vellinga, C. Opio, A. Falcucci, G. Tempio, H. Steinfeld and P. Gerber (2013). "Feed-milk-manure nitrogen relationships in global dairy production systems." *Livestock Science* 152(2-3): 261-272.
- Ripoll-Bosch, R., I. J. M. de Boer, A. Bernues and T. V. Vellinga (2013). "Accounting for multi-functionality of sheep farming in the carbon footprint of lamb: A comparison of three contrasting Mediterranean systems." *Agricultural Systems* 116: 60-68.
- Schils, R. L. M., J. Eriksen, S. F. Ledgard, T. V. Vellinga, P. J. Kuikman, J. Luo, S. O. Petersen and G. L. Velthof (2013). "Strategies to mitigate nitrous oxide emissions from herbivore production systems." *Animal* 7: 29-40.

Other Evidence of Leadership, large-program management and delivery:

- Project leader of FeedPrint, a feed chain analysis for the feed sector in the Netherlands. Delivered a tool that was the basis for the LEAP Guidelines for animal feeds supply chains and the international Feed LCA institute (in development).
- Project leader of the Livestock and Manure Management Component, funded by the CCAC, an international project focussing on awareness creation, knowledge transfer and policy development regarding manure management and the co benefits between mitigating methane emissions and improving food security.
- Consultant in greenhouse gas emissions of the livestock sector, a FAO led research program. Development of the combination of the LCA and GIS methodologies: a global assessment tool for GHG emissions from livestock. Tool developer, analyst and coordinator of data collection.

Role CCAFS: Lead work in the dairy sector in Indonesia

Name: Reiner WASSMANN

Current position and affiliation: Senior Scientist and Climate Change Specialist; International Rice Research Institute (IRRI)

Profile: Dr. Reiner Wassmann is the Coordinator of Climate Change Research at the International Rice Research Institute (IRRI). He is also affiliated with the Karlsruhe Institute of Technology (Germany), where he holds a permanent position as Senior Scientist with several delegations to work at IRRI. Dr. Wassmann has been working on climate change research since 1987 and has focused on rice production systems since 1991. His initial research addressed GHG emissions and mitigation, his current portfolio covers a wide range of aspects related to rice systems, including both mitigation and adaptation. Geographically his current research is concentrated on Southeast Asia. Dr. Wassman was a lead author of the revised IPCC Guidelines, National Greenhouse Gas Inventories Guidelines: Agriculture, Forestry, and Other Land Use, published in 2007.

Employment:

2006 – present	<i>Senior Scientist and Climate Change Specialist</i> ; International Rice Research Institute (IRRI); Los Baños, Philippines
2000 - 2006	<i>Scientist</i> , Institute for Meteorology and Climate Research (IMK), Garmisch-Partenkirchen, Germany
1991 - 1999	<i>Scientist</i> , International Rice Research Institute (IRRI); Los Baños, Philippines
1987 - 1991	<i>Scientist</i> , Institute for Meteorology and Climate Research (IMK), Garmisch-Partenkirchen, Germany

Education:

- Ph.D. in Biology, University of Goettingen, Germany (1987)
- M.Sc. in Biology, University of Goettingen, Germany (1982)

Selected Recent Peer-reviewed publications:

- Sander BO, Wassmann R. 2014. Common Practices for Manual Greenhouse Gas Sampling in Rice Production: A Literature Study on Sampling Modalities of the Closed Chamber Method. *Greenhouse Gas Measurement and Management*. 4:1-13.
- Zhang T, Zhu J, Wassmann R. 2010. Responses of rice yields to recent climate change in China: An empirical assessment based on long-term observations at different spatial scales (1981–2005). *Agricultural and Forest Meteorology*. 150:1128–1137.
- Wassmann R, Jagadish SVK, Heuer S, G, Ismail, Redoña E, Serraj R, Singh RK, Howell A, Pathak H, Sumfleth K. 2009. Climate Change Affecting Rice Production: The Physiological and Agronomic Basis for Possible Adaptation Strategies. *Advances in Agronomy*. 101:59-122.
- Wassmann R, Jagadish SVK, Sumfleth K, Pathak H, Howell G, Ismail A, Serraj R, Redoña E, Singh RK, Heuer S. 2009. Regional vulnerability of climate change impacts on Asian rice production and scope for adaptation. *Advances in Agronomy*. 102:91-133.
- Gadde B, Menke C, Wassmann R. 2009. Rice straw as a renewable energy source in India, Thailand, and the Philippines: Overall potential and limitations for energy contribution and greenhouse gas mitigation. *Biomass and Bioenergy*. 33:1532–1546.

Other Evidence of Leadership, large-program management and delivery:

- Working on Climate Change Issues since 1987, with research focus on rice production and climate change since 1991. Member of the Editorial Board of Nutrient Cycling in Agroecosystems since 2005.
- Coordinated extensive projects on methane emissions and possible mitigation strategies in rice production at IRRI including an Asia-wide network from 1993-1999 and IRRI's work on Climate Change mitigation, adaptation and impact assessment since 2006. Current coordinator of the Rice and Climate Change Consortium
- Co-author of the revised IPCC Guidelines: "National Greenhouse Gas Inventories Guidelines: Agriculture, Forestry, and Other Land Use" (2004-2006)

Role in CCAFS: CCAFS focal point for IRRI

Flagship 4

Dr. James Hansen – see “Other members of core team”

Name: Pierre C. Sibiry TRAORE

Current position and affiliation: Senior Scientist in Remote Sensing, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)

Profile: Mr. Traoré specializes in climate change science, remote sensing, systems modeling, spatial analysis applied to agro-ecological intensification with smallholders. With 20 years of scientific experience focused on physical geography and remote sensing, he develops smallholder agricultural services with public-private partnerships. He managed the CGIAR’s ESRI Virtual Campus Account, is Advisory Board Member for the African Climate Change Fellowship Program, and is member of the AgMIP-CGRA science integration group. His work contributed to ICRISAT’s strategic vision – he coined the “Hypothesis of Hope” concept for climate strategy, developed research thrust on knowledge engineering, geospatial white paper. He also contributed to various visioning and foresighting exercises with IER, the McKnight Foundation, ACCFP, BMGF, e.g. on next-gen agricultural models.

Employment:

2013 - present	<i>Senior Scientist in Remote Sensing</i> , International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Bamako, Mali
2008 - 2013	<i>Scientist & Head</i> , Geographical Information Systems, ICRISAT
2006 - 2007	<i>Visiting Scientist</i> , Agricultural & Biological Engineering, University of Florida
2000 - 2005	<i>Scientist</i> , GIS Manager, ICRISAT

Education:

- Ph.D. in Remote Sensing, Universite de Sherbrooke, Canada (ongoing)
- M.Sc. in Remote Sensing, Universite de Sherbrooke (1996)

Selected Recent Peer-reviewed publications:

- Traore, S.S., Forkuo E.K., Traore, P.C.S., Landmann T., 2015. Assessing the inter-relationship between vegetation productivity, rainfall, population and land cover over the Bani River Basin in Mali (West Africa). *IOSR Journal of Engineering*, 5 (6), 10-18.
- Akinseye, F.M., Agele, S.O., Traore, P.C.S., Adam, M., Whitbread, A.M., 2015. Evaluation of the onset and length of growing season to define planting date— a case study for Mali (West Africa). *Theor. Appl. Climatol.*
- de By, R. A., Zurita-Milla, R., Stratoulas, D., Bijker, W., Tolpekin, V., Traore, P.S., Schulthess, U., Dempewolf, J., Becker-Reshef, I., and Blaes, X., 2015. STARS - Monitoring smallholder farming in sub-Saharan Africa and South Asia from an UAV perspective. 9th EARSeL SIG Imaging Spectroscopy Workshop. Special Session on RPAS based hyperspectral remote sensing of vegetation. Luxembourg, 14-16 April 2015.
- Traore, S.S., Landmann, T., Forkuo, E.K., Traore, P.C.S., 2014. Assessing Long-Term Trends in Vegetation Productivity Change Over the Bani River Basin in Mali (West Africa). *J. Geography and Earth Sciences* 2(2):21-34.
- Singh, P., Nedumaran, S., Traore, P.C.S., Boote, K.J., Rattunde, H.F.W., Vara Prasad, P.V., Singh, N.P., Srinivas, K., Bantilan, M.C.S., 2014. Quantifying potential benefits of drought and heat tolerance in rainfed season sorghum for adapting to climate change. *Ag. For. Meteorology* 185:37-48.

Other Evidence of Leadership, large-program management and delivery:

- Over 10 years of project leadership in Africa;
- Secured and managed over USD12M in research grants from BMZ, the World Bank (in partnership with IFPRI), the International START Secretariat, BMGF, CCAFS, IDRC, and DFID;
- Regional programme coordination with regional climate centers AGRHYMET and ACMAD;

Role in CCAFS: Leading the Capacitating African Smallholders with Climate Advisories and Insurance Development (CASCAID) project and ICRISAT’s contributions to the Agricultural Model Inter-comparison and Improvement Project (AgMIP)

Name: Giriraj AMARNATH

Current position and affiliation: Sub-theme leader: Water-related Disaster Risk Management, International Water Management Institute (IWMI)

Profile: Dr. Giriraj Amarnath is a remote sensing researcher specialized in the application of Remote Sensing and Geographic Information Systems in the study of risk assessment across a wide range of natural hazards and monitoring land and water resources in Asia and Africa. He has over 13 years' experience in research including 3 years in academic at University of Bayreuth, Germany. He has conducted research on the: (1) mapping flood inundation extent in south Asia and south-east Asia, (2) global flood hotspots assessment for climate risk studies, (3) piloting operational flood mapping and modeling in Eastern Sudan, (4) snow cover mapping and monitoring in the Hindu-Kush Himalayas, (5) vegetation cover change and biodiversity assessment in Western Ghats (India), Sagarmatha National Park (Nepal), (6) species niche modeling for endangered plants species in Western Ghats (India), (7) environmental impact assessment using RS/GIS and (8) relationship between upstream-downstream linkages in Indo-Gangetic plain and the possible causes of climate change impacts in this region.

Employment:

2016 – present	<i>Sub-theme leader</i> , Water-related Disaster Risk Management, International Water Management Institute (IWM), Sri Lanka
2015 – 2016	<i>Senior Researcher</i> , Remote Sensing and Water Resources, IWMI, Sri Lanka
2011 – 2014	<i>Researcher</i> , Remote Sensing and Geographic Information Systems (GIS), IWMI, Sri Lanka
2009 – 2011	<i>Remote Sensing Specialist</i> , International Centre for Integrated Mountain Development (ICIMOD), Nepal

Education:

- Ph.D. Applied Remote Sensing, National Remote Sensing Centre (NRSC), India (2004)
- M.Sc., Geoinformatics, Sikkim Manipal University, India (2006)

Selected Recent Peer-reviewed publications:

- Amarnath, G. and Rajah M.A. (2015) A comparative evaluation of flood inundation mapping using MODIS and ALOS satellites in Pakistan. *Geomatics, Risks, Natural Hazards* (accepted).
- Amarnath, G.; Umer, Yakob Mohammed; Alahacoon, Niranga; Inada, Yoshiaki. 2015. Modelling the flood-risk extent using LISFLOOD-FP in a complex watershed: case study of Mundeni Aru River Basin, Sri Lanka. *Proceedings of the International Association of Hydrological Sciences*, 370:131-138.
- Pandey, Rajesh; Amarnath, G. (2015). The potential of satellite radar altimetry in flood forecasting: concept and implementation for the Niger-Benue River Basin. *Proceedings of the International Association of Hydrological Sciences*, 370:223-227.
- Roy et al. (2015). New vegetation type map of India prepared using satellite remote sensing: comparison with global vegetation maps and utilities. *International Journal of Applied Earth Observation and Geoinformation*, 39:142-159.
- Silk et al. (2015) An estimate of the number of tropical tree species. *Proceedings of the National Academy of Sciences of the United States of America*, 112(24):7472-7477.

Other Evidence of Leadership, large-program management and delivery:

- Over 7 years of leadership in project handling in various countries in Asia and Africa;
- Regional risk products on floods and drought developed for South Asia has been widely used by international agencies to develop climate adaptation programme based on our outcomes;
- Regional programme coordination for UNSPIDER Regional Support office to promote space technology for disaster risk management;
- Research grants awarded from CCAFS, MAFF (Japan), IFAD, FMARD (Nigeria), WMO-GWP;

Role in CCAFS: Project Leader

Name: Jonathan HELLIN

Current position and affiliation: Poverty and Value Chain Specialist, International Maize and Wheat Improvement Centre (CIMMYT)

Profile: Dr. Jonathan Hellin has 25 years' agricultural research and rural development experience (farmers' access to markets, land management, and climate change adaptation and mitigation) including fourteen years' field work in Latin America, East Africa and South Asia. He has authored two books and 50 peer-reviewed journals articles. His current research include index insurance and farmer' uptake of climate smart agricultural technologies in Sub-Saharan Africa, and agricultural development in the Western Highlands of Guatemala focusing on farmers' use of maize landraces and also soil conservation. Dr. Hellin's program at CIMMYT contributes to the improved livelihoods and poverty reduction in maize and wheat-based farming systems through better targeting, assessments of methods and impacts, improvement of policies and capacity building. Dr. Hellin has also conducted research on (1) maize input and output chains in South Asia, East Africa and Mexico; (2) improved post-harvest maize storage in East Africa; (3) maize diversity and market access in Mexico and (4) smallholder farmers' adaptation to climate change. He has also developed and used training materials on sustainable livelihoods in China and Latin America.

Employment:

2005 – present	<i>Poverty and Value Chain Specialist</i> , International Maize and Wheat Improvement Centre (CIMMYT), Mexico
2002-2005	<i>International Team Leader</i> , Markets and Livelihoods Programme, ITDG (now called Practical Action), UK
2000-2002	<i>Independent consultant</i>
1994-1999	<i>Senior Scientific Officer</i> , Natural Resources Institute (NRI), UK but based in Honduras

Education:

- Ph.D. in Geography, Geography Department, Oxford Brookes University, UK (1999)
- MSc. Forestry and its Relation to Land Use. University of Oxford, UK (1989)

Selected Recent Peer-reviewed publications:

- Hellin, J., Krishna, V.V., Erenstein, O. and Boeber, C. 2015. India's Poultry Revolution: Implications for its Sustenance and the Global Poultry Trade. *International Food and Agribusiness Management Review* Volume 18 Special Issue A: 151-163.
- Beuchelt, T.D., Camacho Villa, C.T., Göhring, L., Hernández Rodríguez, V.M., Hellin, J., Sonder, K. and Erenstein, O. 2015. Social and income trade-offs of conservation agriculture practices on crop residue use in Mexico's central highlands. *Agricultural Systems* 134: 61– 75.
- Hellin, J., Bellon, M.R. and Hearne, S. 2014. Maize Landraces and Adaptation to Climate Change in Mexico. *Journal of Crop Improvement*, 28:4, 484-50.
- Neufeldt, H., Jahn, M., Campbell, B., Beddington, J.R., DeClerck, F., De Pinto, A., Gullledge, J., Hellin, J., Herrero, M., Jarvis, J., LeZaks, D., Meinke, H., Rosenstock, T., Scholes, M., Scholes, R., Vermeulen, S., Wollenberg, E. and Zougmore, R. 2013. Beyond climate-smart agriculture: toward safe operating spaces for global food systems. *Agriculture & Food Security* 2:12.
- Cairns, J.E., Hellin, J., Sonder, K., Araus, J.L., MacRobert, J.F., Thierfelder, C. and Prasanna, B.P. 2013. Adapting maize production to climate change in sub-Saharan Africa. *Food Security* 5:345–360.

Other Evidence of Leadership, large-program management and delivery:

- 2010-2014 Jonathan led CIMMYT's socio-economics team in the "Sustainable Modernization of Traditional Agriculture" (MasAgro) initiative in Mexico. He also contributed to the MasAgro proposal and subsequent strategic direction of the initiative.
- 2009-2010 Jonathan was the interim director of CIMMYT's Socio-economics program managing a team of international scientists in Latin America, Africa and Asia, while also serving on CIMMYT's Senior Mngmnt Committee.
- Since joining CIMMYT in 2005, Jonathan has contributed to successful proposal writing for projects supported by the Bill and Melinda Gates Foundation, USAID, SDC, European Union and DFID

Role in CCAFS: Project Leader

Name: Peter LADERACH

Current position and affiliation: Theme leader climate change at the International Centre for Tropical Agriculture (CIAT)

Profile: Peter Läderach holds an Msc in Geography and a PhD in Tropical Agriculture. Peter is currently the theme leader for Climate Change at the International Center for Tropical Agriculture (CIAT). Peter led for CIAT over the last 10-years the expansion of the Decision and Policy Analysis (DAPA) Research Area to Central America, East-Africa and Southeast Asia, where he has established interdisciplinary research groups by forming partnerships, raising funds, implementing research projects and publishing intensively. Peter's passion is conducting research that leads to visible impacts on the ground, that is why his research supports private sector, NGO's, governments and multinational agencies to take evidence based decisions and deliver impact on the ground.

Employment:

2012 – present	<i>Theme leader climate change</i> at the International Centre for Tropical Agriculture (CIAT), Vietnam
2010 – 2012	Central America and Caribbean coordinator of the Decision Analysis and Policy (DAPA) Program, International Centre for Tropical Agriculture (CIAT), Colombia
2008 – 2010	Scientist, Decision Analysis and Policy (DAPA) Program, International Centre for Tropical Agriculture (CIAT), Colombia
2005 - 2008	<i>Research Assistant</i> at the Rheinische Friedrich-Wilhelms-Universität Bonn, Germany, Leader of specialty coffee and cacao projects

Education:

- Ph.D. in Tropical Agriculture (summa cum laude), Rheinische Friedrich-Wilhelms-Universität Bonn, Germany (2007)
- M.Sc. in Geography, University of Bern, Switzerland (2003)

Selected Recent Peer-reviewed publications:

- Bunn C, Läderach P, Ovalle Rivera O, Kirschke D (2014) A bitter cup: climate change profile of global production of Arabica and Robusta coffee. *Climatic Change* (2015) 129:89–101.
- Díaz Nieto J, Fisher M, Cook S, Läderach P, Lundy M (2012) Weather Indices for Designing Micro-Insurance Products for Small-Holder Farmers in the Tropics. *PLoS ONE* 7(6): e38281.
- Díaz J, Cook S, Läderach P, Fisher M, Jones PG (2010) Rainfall index insurance to help smallholder farmers manage drought risk. *Climate and Development* 2 (2010) 233–247.
- Gourджи S, Läderach P, Martinez Valle A, Zelaya Martinez C, Lobell DB (2014) Historical climate trends, deforestation, and maize and bean yields in Nicaragua. *Agricultural and Forest Meteorology* 200 (2015) 270–281.
- Jha S, Bacon C.M, Philpott S.M, Mendez V.E, Läderach P, Rice R (2014) Shade Coffee: Update on a Disappearing Refuge for Biodiversity. *64 (5)* 416-428.

Other Evidence of Leadership, large-program management and delivery:

- Over the last four years Peter has led the climate change theme in CIAT under CCAFS with a total budget of 8-10 MIO USD/year. With his team he managed to position CIAT in CCAFS as the best performing center.
- Peter's research helped to shape IFAD investments of >100 MIO USD. He and his team specifically supported the project design documents of IFAD/ASAP grants across the globe.
- Peter has been publishing widely in high impact factor journal producing >5 peer-reviewed papers per year, for which he also received a recognition from CCAFS in 2014.

Role in CCAFS: CIAT Contact Point for CCAFS

Name: Miguel ROBLES

Current position and affiliation: Research Fellow, Markets, Trade and Institutions Division International Food Policy Research Institute (IFPRI)

Profile: Dr. Robles is a Research Fellow at the International Food Policy Research Institute (IFPRI) in the Markets, Trade and Institutions Divisions. At IFPRI he has conducted research on several topics including, most recently, a new approach to provide weather index-based insurance in Africa, Asia and Latin America; the behavior of international agricultural commodity markets; price transmission estimations from international markets to domestic food markets in Latin America and Asia; analysis of futures markets and the role of speculation; analysis on the welfare impact of changing food prices in Latin America and Asia; rural employment strategies in developing countries; and general equilibrium modeling of rural-urban linkages. Dr. Robles' work on weather insurance has been recognized internationally and was awarded at the Marketplace on Innovative Financial Solutions for Development. Prior to joining IFPRI he worked as a Research Associate at the Group for the Analysis of Development and participated in several research projects with UNDP, IADB, FAO, World Bank, and PAHO. He holds a PhD in Economics from the University of California Los Angeles UCLA where he specialized in Macroeconomics and Asset Pricing.

Employment:

2009– Present	<i>Research Fellow</i> , Markets, Trade and Institutions Division International Food Policy Research Institute (IFPRI), Washington, D.C.
2006 - 2009	<i>Postdoctoral Fellow</i> , Markets, Trade and Institutions Division International Food Policy Research Institute (IFPRI), Washington, D.C.
2005 – 2007	<i>Consultant</i> , Canadian Executing Agency, Lima Peru
2000 – 2002	<i>Associate Researcher</i> , Group for the Analysis of Development – GRADE, Lima - Peru

Education:

- Ph.D. Economics, University of California, Los Angeles (2008)
- M.A. Economics, University of California, Los Angeles (2005)

Selected Recent Peer-reviewed publications:

- Ceballos, F; Hernandez, M. A.; Minot, N; and Robles, M. (2016) Transmission of Food Price Volatility from International to Domestic Markets: Evidence from Africa, Latin America, and South Asia. Chapter in Food Price Volatility and its Implications for Food Security and Policy.
- Gardebreek, C., Hernandez, M. A. and Robles, M. (2015), Market interdependence and volatility transmission among major crops. *Agricultural Economics*.
- Hill, R, Robles M. and Ceballos F. (2015), Demand for a Simple Weather Insurance Product in India: Theory and Evidence. Forthcoming: *American Journal of Agricultural Economics*.
- Ceballos, Francisco and Robles, Miguel (2014). Insurance opportunities against weather risks for the rural poor. In *Resilience for food and nutrition security*. Eds. Fan, Shenggen; Pandya-Lorch, Rajul and Yosef, Sivan. Chapter 10. Pp. 83-90. Washington, D.C.: International Food Policy Research Institute (IFPRI).
- Hill, Ruth Vargas; Robles, Miguel and Ceballos, Francisco (2013). Demand for weather hedges in India: An empirical exploration of theoretical predictions. IFPRI Discussion Paper 1279. Washington, D.C.: International Food Policy Research Institute (IFPRI).

Other Evidence of Leadership, large-program management and delivery:

- 2013 – Present Commercial implementation of index-based insurance in Uruguay. \$600K Inter-American Development Bank grant (<http://segurohorticolauy.com>)
- 2014 - Present Cluster Leader: Insurance for the poor Policies, Institutions and Markets (PIM) - CGIAR Research Program.
- 2012 – 2014 PI Weather index-based project in India, 3ie Grant (US\$ 600K). India

Role in CCAFS: Lead research on the interplay between agricultural insurance and climate smart technologies

Name: Elisabeth SIMELTON

Current position and affiliation: Climate Change Scientist, World Agroforestry Centre (ICRAF).

Affiliations: University of Leeds UK, Linköping University Sweden, Vietnam National University of Agriculture

Profile: Dr. Simelton is ICRAF Vietnam's focal point on adaptation and CCAFS. She manages two CCAFS-funded projects and leads the CCAFS climate-smart village My Loi in central Vietnam. Her research interests include designing participatory methods for focus group discussions on climate impacts, extension methods, climate-impact and land-use change assessments. Her previous research includes Payment for Ecosystem Services, multifunctional land uses, on-farm agroforestry experiments as well as policy reviews. Her work experience includes Southeast Asia, Russian and Southern Africa. As a geographer she sees how the landscape is connected and she how important it is to approach environmental management holistically. Agroforestry and ICRAF offer her the chance to work with this approach to find the most effective solutions for problems such as rural poverty, ecosystem-based adaptation and climate-smart agriculture.

Employment:

2010 – present	<i>Climate Change Scientist, World Agroforestry Centre (ICRAF), Hanoi, Vietnam</i>
2007 - 2010	<i>Post-Doc, QUEST project, University of Leeds, UK</i>
1998 – 2000	<i>Agriculture Extension Expert, UNDP, Hanoi, Vietnam</i>
1988 – 1992	<i>Settlor of Agriculture Insurance claims, Agria, Stockholm, Sweden</i>

Education:

- PhD Geography, Goteborg University, Sweden (2007)
- MSc Geography, Goteborg University, Sweden (2001)

Selected Recent Peer-reviewed publications:

- Simelton, E, D Catacutan, T.C. Dao, B.V. Dam, TD Le 2016. Factors constraining and enabling agroforestry adoption in Viet Nam: a multi-level policy analysis. *Agroforestry Systems* 90 (1) 1-19.
- Simelton, E., B.V. Dam. 2014. Farmers in NE Viet Nam rank values of ecosystems from seven land uses. *Ecosystem Services* 9, 133-138.
- Lasco, R.D., R.J.P. Delfino, D.C. Catacutan, E. Simelton, D.M. Wilson. 2014. Climate risk adaptation by smallholder farmers: the roles of trees and agroforestry. *Current Opinion in Environmental Sustainability* 6, 83-88.
- Simelton, E., V.B. Dam, R. Finlayson, R. Lasco. 2013. The talking toolkit: how smallholding farmers and local governments can together adapt to climate change. World Agroforestry Centre (ICRAF), Ha Noi, Vietnam.
- Zhang, T., E. Simelton, Y. Huang, Y. Shi. 2013. A Bayesian assessment of the current irrigation water supplies capacity under projected droughts for the 2030s in China. *Agricultural and forest meteorology* 178, 56-65.

Other Evidence of Leadership, large-program management and delivery:

- Project leader for Vietnam in three CCAFS-funded projects, out of which one of the project sites was selected a CCAFS climate-smart village.
- PI or co-PI of several successful grants for ICRAF Vietnam, including funding from ACIAR, USAID, IFAD, CCAFS.

Role in CCAFS: Project Leader

Name: Helen GREATREX

Current position and affiliation: Associate Research Scientist, International Research Institute for Climate and Society (IRI), Colombia University, New York

Profile: Dr. Greatrex is an interdisciplinary research scientist with a background in agro-meteorology and in decision making under climate uncertainty. Her main focus is to research index insurance for developing countries, particularly how different sources of information might be used in insurance design and evaluation (for example from remote sensing data, model outputs, farmer/local expert experience, and ground measurements). Her particular area of expertise is on the use of satellite rainfall within insurance design and validation, plus on the program and policy aspects of insurance necessary for scaling. Dr. Greatrex also has a focus on how end-users use climate information, from working on adaptation with policy makers in East Africa, to working alongside sociologists to assess how women interact with index insurance in Ghana. Finally, Dr. Greatrex has an operational role within IRI's Financial Instruments Sector Team, which brings insurance to populations believed to be unreachable, due to poverty or technical issues. The FIS team have worked in over a dozen countries on hundreds of index contracts with many tens of thousands of policies purchased by farmers.

Employment:

2016 – present	<i>Associate Research Scientist, IRI</i>
2013 – 2016	<i>Post-doctoral Scholar, IRI</i>
2012 – 2013	<i>Adaptation Consultant, Global Climate Adaptation Partnership (GCAP)</i>
2011 – 2012	<i>Climate data consultant, Statistical Services Centre, University of Reading</i>

Education:

- PhD, “The application of seasonal rainfall forecasts and satellite rainfall estimates to seasonal crop yield forecasting for Africa”, Department of Meteorology, University of Reading, UK (2012)
- Post-graduate Diploma, Distinction, “Atmosphere, Ocean and Climate”, Department of Meteorology, University of Reading, UK (2007)

Selected Recent Peer-reviewed publications:

- Greatrex H., Hansen J.W., Garvin S., Diro R., Blakeley S., Le Guen M., Rao K.N., Osgood, D.E., 2015. Scaling up index insurance for smallholder farmers: Recent evidence and insights. CCAFS Report No. 14 Copenhagen: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).
- Black E, Tarnavsky E., Greatrex H., Maidment R.I., Mookerjee A., Quaife T., Price J., 2015 Exploiting Satellite-Based Rainfall for Weather Index Insurance: The Challenges of Spatial and Temporal Aggregation, In Proceedings of the 1st Int. Electron. Conf. Remote Sens., 22 June–5 July 2015; Sciforum Electronic Conference Series, Vol. 1, 2015.
- Greatrex, H., Grimes, D.I.F., Wheeler, T., 2015, Advances in the stochastic modeling of satellite-derived rainfall estimates using a sparse calibration dataset, Journal of Hydrometeorology 15 (5), 1810-1831.
- Stanimirova R., Greatrex H., Diro R., McCarney G., Sharoff J., Mann B., Louis D’Agostino A., Rogers-Martinez M., Blakeley S., Small C., Ceccato P., Dinku T., Osgood D.E., 2013, Using Satellites to Make Index Insurance Scalable, Final IRI Report to the ILO Micro-Insurance Innovation Facility.
- Maidment R.I., Grimes D.I.F., Allan R.P., Greatrex H., Rojas O., Leo O., Evaluation of satellite-based and model re-analysis rainfall estimates for Uganda, Meteorological Applications 20 (3), 308-317.

Other Evidence of Leadership, large-program management and delivery:

- 2015-Present: Activity Lead on the CCAFS Flagship project: Capacitating African Small-holders on Climate Advisories and Insurance Development (CASCAID).
- 2015-Present: Activity Lead on the CCAFS Flagship 2 project: Developing index insurance for drought prone maize and bean farming systems.
- 2012: GCAP Technical project manager on “Ethiopia’s Climate-Resilient Green Economy - Climate Resilience Strategy for Agriculture”.

Role in CCAFS: Activity lead on two CCAFS Flagship 4 projects. Point of contact for CCAFS research on index insurance

Name: Hung NGUYEN-VIET

Current position and affiliation: Senior scientist, Country representative for Vietnam, International Livestock Research Institute (ILRI), Hanoi, Vietnam

Profile: Biologist and environmental scientist by training, Hung Nguyen is a senior scientist with research focuses on the link between health and agriculture, food safety, infectious and zoonotic diseases using integrative approaches such as One Health and Ecohealth. His research emphasis is the use of risk assessment for food safety management, water and wastewater reuse in agriculture in Southeast Asia. He has extensive experience in coordinating interdisciplinary research in both Southeast Asia and West Africa.

Employment:

2014 – present	<i>Senior scientist</i> , Country representative for Vietnam, ILRI, Hanoi, Vietnam
2009 – 2014	<i>Researcher</i> , CENPHER, Hanoi School of Public Health, Vietnam
2007 – 2014	<i>Postdoc and Project Leader</i> , Swiss Tropical and Public health Institute, Basel, Switzerland
2004 – 2006	<i>Lecturer</i> , Universite de Franche-Comte, Besancon, France

Education:

- Ph.D. Life and Environmental Sciences, with Distinction, University of Franche-Comté, France (2005)
- M.Sc. Environment, Health, Society (major in Ecotoxicology and Epidemiology), University of Franche-Comté, France (2001)

Selected Recent Peer-reviewed publications:

- Hung Nguyen-Viet, Siobhan Doria, Dinh Xuan Tung, Hein Mallee, Bruce A Wilcox and Delia Grace. Ecohealth research in Southeast Asia: past, present and the way forward. *Infectious Diseases of Poverty*. 2015 4:5.
- Lam, S., Nguyen-Viet, H., Tuyet-Hanh, T.T., Nguyen-Mai, H., Harper, S. Evidence for public health risks of wastewater and excreta management practices in Southeast Asia: A scoping review. *Int. J. Environ. Res. Public Health*. 12(10): 12863–12885.
- Yapo RI, Kone B, Bonfoh B, Cisse G, Zinsstag J, Nguyen-Viet H: Quantitative microbial risk assessment related to urban wastewater and lagoon water reuse in Abidjan, Cote d'Ivoire. *J Water Health* 2014, 12:301-309.
- Pham-Duc P, Nguyen-Viet H, Hattendorf J, Cam PD, Zurbrugg C, Zinsstag J, Odermatt P: Diarrhoeal diseases among adult population in an agricultural community Hanam province, Vietnam, with high wastewater and excreta re-use. *BMC Public Health* 2014, 14:978.
- Nguyen V, Nguyen-Viet H, Pham-Duc P, Wiese M: Scenario planning for community development in Vietnam: a new tool for integrated health approaches? *Glob Health Action* 2014, 7:24482.

Other Evidence of Leadership, large-program management and delivery:

- Represents ILRI in Vietnam.
- Co-founder and previously leader of the Center for Public Health and Ecosystem Research at the Hanoi School of Public Health
- Leading the Ecohealth regional program “Field Building Leadership Initiative” 2012-2016 and the past Swiss NCCR North-South international project on “Environmental sanitation and Health” in South East Asia and West Africa 2009-2013.
- Mobilised > \$3 million project grants.

Role in CCAFS: Project leader

3.8 Open Access (OA) and Open Data (OD) Management

Planning for and implementing OA/OD

In accordance with the [CGIAR Open Access and Data Management Policy \(OADM\)](#), CCAFS is mandated to produce international public goods and ensure that they are open via FAIR principles – that is, they are Findable, Accessible, Interoperable and Re-usable to enhance innovation, impact, and uptake. CCAFS has developed its [Data Management Strategy \(DMS\)](#) to enable the program to fulfill its obligations with respect to making information and data products supporting documentation from its research globally available.

CCAFS aims to providing a “one-stop-shop” for its information and data products generated and expects to attract data contributions from scientists working in related areas even if not directly funded by CCAFS. With development outcomes in mind, the program will increase accessibility, visibility and usability of scientific outputs by a global community.

Goal

The goal of CCAFS Data Management Strategy (DMS) is for CCAFS information and data products to be available for long-term use by partners and the scientific community.

Guiding principles

In defining the DMS, we have adopted the following principles:

- It adheres to internationally recognized standards such as FAIR principles, Dublin Core metadata standards and interoperability protocols.
- It has to be easy to implement and any burden to researchers that is generated from its implementation must be balanced by the benefits that the researcher will get from making information and data products available, and by the support that CCAFS will provide.
- It should not affect the autonomy of scientists to carry out their research; the strategy ensures the independence and creativity of scientists in the collection of data that is relevant to the research objectives.
- Ethical use and sharing of personal and private data, and visibility and credits to data generators need to be ensured, like accessibility and adherence to international standards for data storage.

Objectives

Overall, CCAFS DMS guides the creation of an enabling environment where scientists and partners produce and share high quality data outputs, while at the same time enables a variety of data management procedures and practices at project level. Through creating “portals” specifically designed for common types of datasets scientists can publish their data. CCAFS supports scientists and CGIAR Centres to produce well-managed and documented information and data products that are easy to use long-term.

Critical issues and anticipated challenges

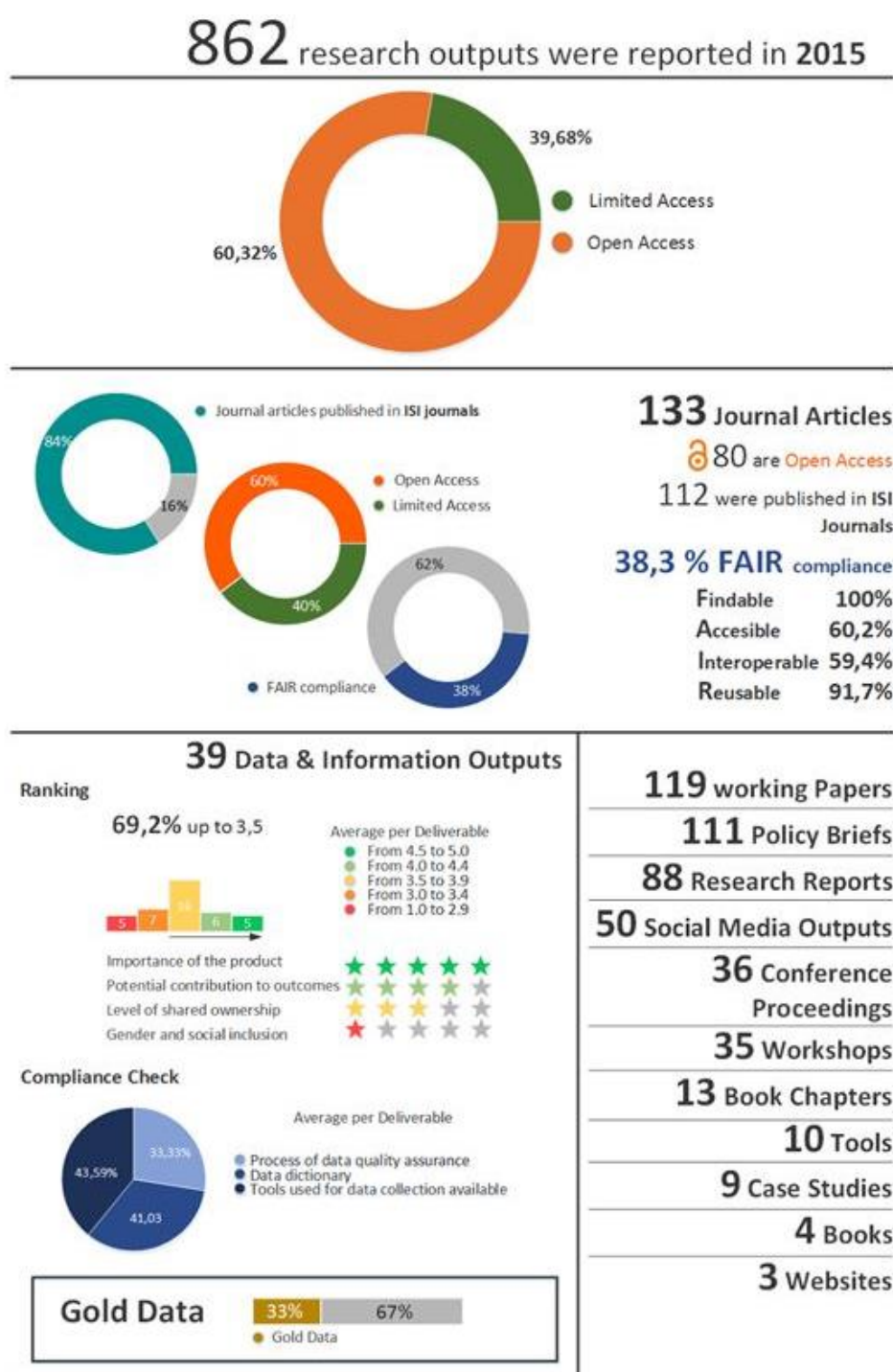
Issues that are critical to the implementation of CCAFS DMS include:

- Establishing a process - A clear process for data sharing and management must be established, from legal agreements through to operating and reporting principles. This conveyor belt is implemented by CCAFS through an online ICT planning and reporting system that identifies the information and data products that are being generated, and ensures that products are made publicly available within the timeframes agreed upon with partners.
- Supporting compliance - Support and encourage the design and implementation of data management plans and repositories that enable projects to comply with the CGIAR OADM Policy.
- Enabling a data culture - Implementing this strategy requires a significant cultural shift among program

participants. Appropriate incentives and penalties should be established to promote data sharing. Metrics on data sharing from each program participant should be used as a criterion for performance evaluation and rewards or penalties.

- Among the conditions to facilitate the establishment of a more conducive data culture CCAFS will:
 - Support program partners in the process of submitting data to suitable repositories;
 - Work with existing CCAFS repositories to enable interoperability;
 - Highlight benefits to researchers to be derived from data sharing such as increased visibility, potential for increased collaboration and publication, and reputation; and
 - Make available statistics about data downloading and use for evaluation, program planning, informing the CCAFS research agenda and promoting our scientific partners.

The infographic below shows some examples of successful OA/OD implementation from Phase I:



Annex Figure 2. Examples of OA/OD implementation

Technical considerations and operations

Scope

CCAFS DMS looks at making “Data+” available in public archives while research outputs such as papers and publications resulting from analysis of primary data are shared through alternative portals.

In the CCAFS DMS we use the term “Data+” to indicate the actual data generated by the research process once it has been cleaned and is considered of good quality, and the documentation that will enable the use of these datasets in the future. This includes but is not restricted to documents about the methodology for data generation/collection, computer programs used for data processing, quality assessment, and any metadata that helps building a description of the context in which the data has been originated.

CCAFS considers it a priority to support researchers to promote good data management. CCAFS has established mechanisms and processes to work closely with project leaders and center contact points in order to ensure data quality, long-term preservation and alignment with the CG Core Metadata Schema. While data management will happen at project level, CCAFS has built a team of experts who will provide ongoing support to project leaders to follow data management best practices. An example of this is the CCAFS Data Management Support Pack developed in collaboration with the Statistical Services Centre, University of Reading. The Support Pack is designed to help our research community produce high quality, reusable and open data from our research activities. It consists of documents, templates and videos covering the different aspects of data management and ranging from the overarching concepts and strategies through to the day-to-day activities. For each of the videos in the pack we have included a transcript of the narrative. CCAFS also has plans to implement interoperability protocols at data level (e.g. API, SWORD) and is in the process of assessing which protocol to adopt.

The operational objectives of CCAFS DMS are:

1. Guide CCAFS in designing and implementing support mechanisms to reach the goal of the DMS;
2. Make available high quality Data+ to potential users now and well into the future;
3. Encourage appropriate levels of standardization, adoption of international standards and harmonization so that data from separate research activities can be brought together to enrich our understanding of processes, outcomes and impacts in the areas of the world where CCAFS works;
4. Procedures for maintenance and backup includes long-term preservation of data in standardized accessible data formats, converting formats when needed due to software upgrades or changes, safe-keeping of data in a secure environment with the ability to control access where required. In addition, CCAFS follows regular data back-ups, to ensure that information products are maintained, curated, and archived “into perpetuity”.
5. Promote the production of FAIR outputs:
 - a. **Findable:** Data and metadata should be richly described to enable attribute-based search;
 - b. **Accessible:** Data and metadata should be retrievable in a variety of formats that are sensible to humans and machines using persistent identifiers;
 - c. **Interoperable:** The description of metadata elements should follow community guidelines that use an open, well defined vocabulary; and
 - d. **Reusable:** The description of essential, recommended, and optional metadata elements should be machine processable and verifiable, use should be easy and data should be citable to sustain data sharing and recognize the value of data.

Supporting mechanisms

Supporting mechanisms will be necessary for the implementation of this strategy. These include:

1. Through the Data Management Support Pack, CCAFS provides guidelines for making data available in such a

way as to respect the trust that information providers have placed in CCAFS scientists;

2. Creating, maintaining and supporting portals that make data publication easy when CCAFS considers it necessary (see Annex Table 9);
3. The Program Participant Agreements (PPA) established with CGIAR Centres and other partners stipulate that data is to be made freely available and set up the timeframes for data publishing by scientists involved in CCAFS research activities:

"The Contracted Party agrees to publicly share any data and/or models generated as a result of activities under this Agreement through CCAFS's data portals as soon as practically possible, but no later than twelve (12) months of generation for meta data and twenty four (24) months for other data and/or models. Such data portals include, but are not limited to, the CCAFS agricultural trial data repository (www.agtrials.org), the Adaptation and Mitigation Knowledge Network (www.amkn.org), the CCAFS climate data portal (www.ccafs-climate.org), the CCAFS Research Data on Dataverse (dataverse.harvard.edu/dataverse/CCAFSbaseline) and the repository of Agricultural Research Outputs (<https://cgspace.cgiar.org/>). Access to the data should be fully granted to the CCAFS Knowledge and Data Sharing unit at CIAT."

Annex Table 9. Identification of repository or platform housing information products for indicative datatypes

Indicative Data type	Repository or Platform		Interoperability Protocol ^(*)
	Name/s	URL/s	
Climate data (incl. downscaled GCM data - condensed and disaggregated spatial data, useful documents and links).	CCAFS Climate	http://ccafs-climate.org/	OAI-PMH implemented
Agricultural trials (database on the performance of agricultural technologies at sites across the developing world)	AgTrials	http://agtrials.org/	OAI-PMH implemented
Climate projection models (to identify sites whose current climate realities are similar to the possible future climates of a reference location)	CCAFS Analogues	http://www.ccafs-analogues.org/	OAI-PMH to be implemented
Socioeconomic (incl. CCAFS village baseline study, CCAFS organizational baseline study, gender household survey, etc)	CCAFS Dataverse	https://dataverse.harvard.edu/dataverse/CCAFSbaseline	OAI-PMH / SWORD implemented
Agricultural Crops (incl. environmental classifications and stress patterns of growing environments for agricultural crops)	TPEI	http://www.ccafs-tpe.org/tpe/	OAI-PMH to be implemented
Publications, Data & Tools (incl. reports, journal articles, working papers, datasets, tools, etc.)	CGSpace	https://cgspace.cgiar.org/handle/10568/3530	OAI-PMH / SWORD implemented
One-Stop-Shop (incl. all information products)	CCAFS Website	https://ccafs.cgiar.org/	OAI-PMH to be implemented
Data information outputs reported by CCAFS researchers	CCAFS Planning & Reporting	https://activities.ccafs.cgiar.org/	OAI-PMH implemented

^(*) Thus far, interoperability protocols are being implemented at metadata level and are envisioned for CCAFS Phase II to be implemented at data level.

Coordination and decision making

The development and implementation of the CCAFS DMS is coordinated by the CCAFS Knowledge and Data Sharing team at CIAT. Decisions are closely coordinated with the CCAFS PMC as well as the monitoring, evaluation and

learning team (MEL). Strategies and other key decisions go to ISC for approval. To ensure the adherence to common standards CCAFS collaborates closely with the Knowledge and Data Management teams of CIAT, System Office, CGIAR Centres and key partners (e.g. University of Reading).

Strategic elements of coordination and decision making

In order to achieve the objectives set out above, at the program level CCAFS will:

- Discuss, define and adopt the CGIAR OPDM;
- Ensure the CCAFS DMS and the CCAFS Intellectual Asset Management Policy are aligned;
- Negotiate and coordinate actions with the System Office of CGIAR , as well as with CGIAR Centres that are part of CCAFS;
- Include the required elements of these policies into the contracts established with Participating Centres – e.g. CCAFS Program Participant Agreements (PPAs);
- An implementation plan needs to be put in place;
- Support and resource mechanisms to receive and archive data;
- Provide resources (e.g. guidelines, webinars, and manuals) to help strengthen the capacities of CCAFS staff, CGIAR Centres and partners in implementing open access open data standards.

In order to fulfil Participating Centre contractual obligations under the PPA agreements, CCAFS expects that the CGIAR Centres will do the following:

- Allocate sufficient resources to allow for the implementation of the CCAFS DMS;
- Utilize and help build the CCAFS DMS Support Pack as key mechanism for the implementation of the CCAFS DMS;
- Ensure their information and data products comply with the CGIAR OADM Policy.

Promoting CCAFS DMS Implementation

CCAFS will develop and implement an internal communications strategy that deals with a spectrum of users and activities, including:

- Training Open Access Ambassadors from CCAFS Flagships, regions and Centres: these will be focal points for ensuring that projects within their unit are complying with OADM guidelines and are also responsible for coordinating submissions to CGSpace and ensuring correct reporting within CCAFS portals. This group will act as a community of practice to share knowledge, lessons, and questions, and enable discussions on open access and open data with the wider network of CCAFS scientists.
- Presence on CCAFS intranet and website of open access guidelines, tips and tools: the intranet will have a section where the DMS implementation plan is summarized and essential links are provided. It will also link to an updated list of CIAT publications.
- Annual statistics report of CCAFS information and data products: this report, produced in January of each year, will include metrics of the top publications, analytics of websites, platforms and databases, and other insights. This will allow scientists to monitor use and uptake of their products, and guide decisions on value for money.
- Content from CCAFS repositories automatically fed to CCAFS website to showcase information and data products and raise awareness of the repository and its uses.
- Communications staff share new products and publications via social media and other channels in order to enhance dissemination and generate enthusiasm for information and data products.
- Participate in a CIAT-led community of practice of data managers and focal points for data management. Also participate in CGIAR-wide communities of practices on Knowledge Management, Open Access Implementation Working Group and Data Management Task Force.
- Inclusion of Open Access and Open Data targets in internal performance management indicators, to monitor progress on targets.
- Develop awareness amongst key CCAFS people of CCAFS policies and guidelines.

Narrative for required resources

CCAFS has dedicated resources and capacities for the implementation of the CGIAR OADM within CCAFS. These are brought in by the CCAFS knowledge and data sharing coordinator and a small team consisting of a data manager, two web developers (back-end) and an interface/ interoperability (front-end) expert facilitating the conceptual, operational and technical infrastructure. The team is supported by the communications and knowledge management unit, as well as the MEL team platforms. Moreover, CCAFS relies on data management staff in the CGIAR Centres, especially with respect to quality assurance, data curation, data standards and capacity building.

In addition to human resources, IT infrastructure is key to achieve good data management. The IT infrastructure that CCAFS has put in place and relies on is made up of a mix of data servers and cloud space.

CCAFS recognizes the need to establish an enabling environment where scientists and partners produce and share high quality data outputs, while at the same time making information and data products available for long-term use by partners and the scientific community

The implementation of CCAFS's DMS relies on all CCAFS units and requires, as mentioned above, a team with appropriate experience and skills. CCAFS will build as much as possible on CGIAR Centres' and partners' existing open access and open data policies and data quality assurance systems that are already in place, and is developing partnerships for this purpose.

Approximately 1% of each Flagship Program budget is allocated to the implementation of OADM. In addition, USD 250,000 is allocated to the CCAFS Knowledge and Data Sharing team under the Management and Support Costs budget line (see budget narrative for all budget details). Furthermore, the team expects to raise bilateral funds for special projects.

Annex Table 10. OA/OD Estimated Budget

Human, technical and other resources	Annual amount 2016 – 2017 (transition period)	Annual amount 2018+ (after 2 nd round of CRPs in effect)	Explanatory notes
Technology			
Data Repository	2,500	2,000	Above mentioned Repositories
Publications Repository	10,000	12,000	CGSpace annual support and maintenance fee
Hardware/storage (cloud etc)	1,000	1,500	Server Upgradation and Cloud - (AWS instances) (Server + Backup)
Bandwidth	-	-	Covered under staff costs
Programming/development	-	-	Covered under staff costs
Annual maintenance fees	2,000	2,000	Shared with CIAT
Website development related to repositories	-	-	Covered under staff costs

Operations and Travel	10,000	10,000	Operations and Travel
Staffing			
Staff salaries – Open Data Data Management - Data Quality/Curation - Staff salaries – Open Access publications - Information management - Staff salaries – IT (in support of OA-OD)	375,000	325,000	(*) Knowledge and Data Sharing Coordinator – 1 FTE Knowledge Manager/Communications - 0.25 FTE Technical Manager – 1 FTE Data Manager - 0.5 FTE Interface/ interoperability (front- end) expert - 1 FTE Web developers (back-end) - 2 FTE
Staff salaries – IP/Legal (in support of OA-OD)	-	-	4% FTE (10 working days per year). Of this we could allocate 2.5 days per year to specific OA/IP issues
	-	-	(*)
Membership Fees			
Altmetrics provider(s)	-	-	Altmetrics membership is provided through CGspace membership - costs are built into CGspace allocation
ORCID (unique researcher IDs)			
Publisher-based institutional memberships			<indicate which – ex: PLOS Institutional Account, Springer OA Membership>
<Other>	50	50	Permanent Identifier Prefix - Handle
Other Expenses			
TOTAL	400,550	352,550	

(*) Costs are complemented by CG centers capacity and projects.

3.9 Intellectual Asset Management (IA Management)

1. Preamble

The vision of the CGIAR is to reduce poverty and hunger, improve human health and nutrition, and enhance ecosystem resilience through high-quality international agricultural research, partnership and leadership. In furtherance of this CGIAR Vision, in March 2012, the CGIAR Consortium and Centres approved and adopted [a set of ten principles regarding the management of intellectual assets \(IA's\)](#) with the aim of providing common governance and management of IA's produced, acquired or disseminated by Centres and the CGIAR Research Programs. CCAFS follows the IA management policy of the Lead Centre CIAT.

2. CCAFS's Intellectual Assets

- a) CCAFS IA's include knowledge, databases, publications and other information products.
- b) Whereas several CGIAR Centres report substantial Outcomes related to the development, dissemination, adoption and impact of climate change resilient germplasm through CCAFS's reporting mechanisms, the IA's associated with such improved germplasm, plant variety rights, patents, industrial design rights and trademarks fall under the management responsibility of individual CGIAR Centres.

3. Rationale

CCAFS policy for the management of IA's is strategically designed to ensure that CCAFS and its partners are in compliance with:

- a) The CGIAR Principles on the Management of Intellectual Assets and the Implementation Guidelines which deal with the dissemination of intellectual assets for maximizing global accessibility and impact.
- b) Fundamental Rights as stated in the Universal Declaration on Human Rights and other relevant international treaties, and
- c) All applicable International Treaties, supranational and national laws related to Intellectual Property.

4. CGIAR Thematic Principles of IA Management

A. *International Public Goods:*

CCAFS regards the results of its research and development activities as international public goods and is committed to their widespread diffusion and use to achieve the maximum possible access, scale and scope of impact in order to benefit the poor, particularly farmers in developing countries. However, in exceptional circumstances, where necessary to enhance the scope and scale of impact, CCAFS may consider alternative arrangements (see section 5).

B. *Partnerships:*

CCAFS undertakes its work with a wide range of research, development and dissemination partners, recognizing that such partnerships are:

- i. Critical to ensuring both the development of and access to the best knowledge and innovation, harnessing efficiencies in product development, and achieving maximum impact through effective delivery and deployment.
- ii. Furthermore CCAFS recognizes that such partnerships may require incentives that must be innovatively designed, carefully managed and diligently monitored.

C. *Farmers' Rights:*

CCAFS values the traditional and local knowledge of farmers and sees it as a starting point for discussions about climate change adaptation and mitigation. CCAFS recognizes that issues related to traditional knowledge may arise through interactions with communities and farmer groups, when undertaking surveys and socio-economic work.

- i. CCAFS seeks to be respectful of by national regulations on farmers' rights and the principle of prior informed consent when working with farmers and other stakeholders.
- ii. Publications referring to traditional knowledge will give appropriate credit to the providers of such knowledge and disclose the source of such knowledge whilst maintaining confidentiality when appropriate. While household information collected from farmers may be included in open-access databases, care is taken to exclude sensitive data to keep it anonymous.
- iii. Project leaders are expected to comply with their home institution's policies and procedures for Behavioural Ethics in relation to working with human subjects. If no such policy is in place, the CIAT Policy for the Protection of Human Subjects of Research will apply. If needed training will be undertaken to support project leaders' in adhering to this policy.

D. *Sound Management of Intellectual Assets and Intellectual Property Rights:*

CCAFS place high priority on the sound management of its IA's and IP's. To ensure that such sound management receives focused attention and adequate funding:

- i. CCAFS Program Management Committee has specifically delegated IA and IP oversight and management to CIAT's General Counsel (IP focal point) with background in intellectual property and legal matters related to data and information products development and deployment. 8% FTE is budgeted for this function. The IP focal point will chair an IP Management Committee to support the CRP and to coordinate IA management across the CRP and will work closely with the Global Communications and Knowledge Manager and the Data and Knowledge Sharing Coordinator on implementation (approx. 4% FTE each).
- ii. All partners will be subject to CIAT's policies on IAs and Open Access as part of contractual agreements. Partners will be made aware of these conditions, and compliance will be monitored through the CCAFS Planning & Reporting (MARLO) system. Training and support to partners will be available if needed.
- iii. CRP-level implementation guidelines will be developed to clearly outline specific responsibilities and procedures for IA management in the project lifecycle. This guidelines further ensure compliance with the CGIAR IA Principles by:
 - 1) Clarifying that all CRP partners have a non-exclusive, irrevocable license to use the outputs of their research under the CRP, unless special arrangements have been entered into and approved by the Program Management Committee;
 - 2) Ensuring abidance with rules placed on the partnership;
 - 3) Creating awareness of the partners' responsibility to follow legal requirements concerning traditional knowledge and partners pay attention to informed consent principles, including following behavioural ethics policies;
 - 4) Including confidentiality clauses where appropriate;
 - 5) Seeking to be respectful of national regulations concerning farmers' rights.
- iv. Engagement with private sector partners will ensure alignment of interests and clarity regarding IP ownership and licensing, as and where applicable under the CGIAR IA Principles.
- v. Through this delegation, CCAFS will manage its IA and IP Rights with integrity, fairness, equity, responsibility and accountability. CCAFS shall use its best endeavors to engage in IP Rights due diligence for the activities that it carries out and, in particular, to secure where appropriate IP Rights that are necessary for the development and delivery of products and / or services without infringing third party IP Rights.
- vi. Financial resources needed for these tasks are budgeted from the management and governance allocation to CIAT. This includes staff time and costs related to building staff capacity and supporting

Open Access. This allocation is equivalent to approximately USD 9000 or approx. 0.015% of the annual overall budget. This does not include time/effort spent by Centers or Program Partners on implementation.

E. **Maximizing Global Accessibility and Impact:**

CCAFS endeavours at all times to maximize the global access and impact of its IA's. Hence:

- i. In furtherance of the CGIAR Vision, all products produced by CCAFS are, wherever possible, disseminated using open access principles, with clear branding to recognize those responsible for producing the IA.
- ii. In the cases where particular copyrights apply, CCAFS abides by the relevant copyright rules.
- iii. When working with private sector entities, CCAFS clarifies that it is committed to open access on knowledge products and abides by any rules that are placed on the partnership.

Annex Table 11. Key dissemination pathways for maximizing global impact

Type of Intellectual Asset	Dissemination pathway	IP + Legal contributions
Data & Information Products (databases, publications, multimedia, reports, training materials, software, algorithms, maps)	<ul style="list-style-type: none"> Multi-lingual Open Access repositories Adapted information dissemination channels to specific target groups e.g. farmers Licensing 	<ul style="list-style-type: none"> Development of global licenses for dissemination as 'International Public Goods' Legal advice on: <ul style="list-style-type: none"> access to third party technologies/ data/software/information; agreements to publish information products through publishers and/or scientific journals; freedom to operate opinions; and legal support for the development of CCAFS IA management strategies to achieve a higher impact (including responsible open access and possible incentives to engage private sector partners)
Know how (protocols, how to guides, best practices)	<ul style="list-style-type: none"> OA repositories, Partnership approaches and capacity development NARs Extension specialists Partners & collaborators 	<p>Legal advice on:</p> <ul style="list-style-type: none"> legal support for the development of IA management strategies to achieve a higher impact (including responsible open access and possible incentives to engage private sector partners); development of global licenses for that purpose; access to third party know how; and management of confidential/ proprietary information;

F. **Implementation:**

To ensure compliance with IA principles and their implementation, CCAFS will:

- i. Follow up on partners' compliance with agreements and contracts thus ensuring that all agreements and contracts, including confidentiality, partnership, comply with IA Principles;
- ii. Maintain a regularly updated IP portfolio which, in CCAFS's case, are lists of publications and databases;
- iii. Seek that partners pay attention to prior informed consent principles;

- iv. Strive to have traditional knowledge is appropriately acknowledged; and
- v. Ensure that information subject to confidentiality obligations from CCAFS is appropriately observed.

G. Reporting:

CCAFS recognizes that the CGIAR Consortium attaches great importance to the sound management of its IA's. Accordingly:

- i. Each year, CCAFS's Program Management Committee will provide a written assurance to the CGIAR consortium that CCAFS has, during the preceding year, complied with these CGIAR Intellectual Asset Principles, in particular with regard to the Sound Management of Intellectual Assets.
- ii. Each year, CCAFS will provide a report to the Consortium, acceptable to the Consortium, regarding the implementation of these CGIAR IA Principles during the preceding year.

5. Exceptions

On occasion, to enhance the scale and scope of impact, CCAFS may wish to enter into agreements that restrict the accessibility of partner outputs. For example, projects that engage with private sector partners could give limited priority access to the partner, to incentivize their engagement. Or, the acquisition and use of the Third Party Intellectual Assets that restrict the global accessibility of the products and / or services resulting from the use of such Intellectual Assets. CCAFS will only enter such agreements provided that the requirements set forth in the CGIAR IA Principles for these types of agreements are met, and permission to do so has been given by the CCAFS Program Management Committee which must be assured that:

- i. To the best of CCAFS's knowledge, it is unable to acquire equivalent Intellectual Assets from other sources under no or less restrictive conditions.
- ii. The products and / or services that are intended to result from the use of such third party Intellectual Assets will further the CGIAR Vision in the countries where they can be made available.
- iii. To the best of CCAFS' efforts, ensure that such limited priority access or third party Intellectual Assets are only used in relation to, or incorporated into, the intended products.

3.10 Other Annexes

3.10.1 Communications Strategy

Background

Strategic communications offers a set of powerful tools and approaches that can contribute to CCAFS outcomes and CGIAR's SRF, and generate positive change. The CCAFS communications strategy for Phase II builds on more than five years of successful communications in Phase I. In Phase II, communications activities continue to strongly align with the program's impact pathways, and employ a suite of well-established tools and approaches to deliver tailored messages to program partners and next users. A systematic effort to monitor and evaluate communications activities will continue, to ensure that Phase II communications benefits from previous successes and lessons learned, and continues to learn and adjust as the program evolves.

Overall program objective

The overall goal of CCAFS is to catalyse positive change towards climate-smart agriculture, food systems and landscapes, and thereby contribute to CGIAR's System Level Objectives (SLOs) on poverty alleviation, food and nutritional security, and natural resources.

Communications objectives

These overall objectives will guide all program communications, and are designed to be measurable, to facilitate monitoring and evaluation.

- Increase uptake of CCAFS outputs by next users and expedite impacts
- Promote CCAFS science and build awareness and understanding of current knowledge on climate change, agriculture and food security among key next user groups
- Inform global and national policies and initiatives on climate change, agriculture and food security
- Secure commitment of donors, investors and partners to delivering climate-smart agriculture (CSA) using CCAFS knowledge
- Strengthen relationships with strategic partners and funders
- Encourage learning and sharing of information to improve impact of communications and collaboration among CCAFS FPs, the program's researchers, the wider CGIAR community, and other program partners
- Contribute to closing gender gaps through gender-sensitive communication and strong communication about the program's gender and social inclusion activities
- Position CCAFS as a key player in global agriculture and climate change
- Demonstrate accountability by building awareness of the program's progress, results and successes, including achievement of the SRF 2022 targets
- Make all CCAFS knowledge available and accessible, in line with CGIAR frameworks on Open Access (see Annex 3.8 on Open Access Management) and Intellectual Assets (Annex 3.9 on Intellectual Asset Management)

Target audiences / Next users

CCAFS strategic communication targets an audience that can be referred to as next users, i.e. individuals or groups who access and use CCAFS knowledge products directly, who can create an environment that produces subsequent impact for the program's beneficiaries. This also includes decision makers who make necessary changes to achieve outcomes. Next users help to bring ideas and tools to scale and into new arenas,¹ and are fully aligned with program partners (see Partnership Strategy for a complete list). This includes linkages with alliances and networks that can help achieve outcome targets. Where appropriate, some communications are targeted at end users, such as farmers.

- **Research partners:** Researchers from CGIAR Centres and other CRPs, and partner institutes, working within CCAFS or on CCAFS-related topics (e.g. CSIRO, Oxford, Colombia IRI, CIRAD, CORAF)
- **Public sector, inter-governmental and policy makers:** Global, regional, national and local policy makers and agencies working on climate change, agriculture and food security (e.g. FAO, IFAD, World Bank, governments of Cambodia, Colombia, Kenya, Nigeria, Uganda).
- **Non-governmental development organizations:** Including international organizations, NGOs and farmers' organizations that work on the ground to scale out climate-smart technologies in practices (e.g. CTA, CARE and PAFO).
- **Private sector:** Companies and advocacy associations that seek to implement and scale up initiatives that improve resilience and reduce climate impacts in agri-food supply chains (e.g. Agriculture Insurance Company of India, World Business Council on Sustainable Development).
- **Program donors and investors:** including current and potential funders, from multilateral and bilateral aid agencies and foundations. (e.g. DFID, EU, USAID).

In addition **press and media** are seen as an important intermediary that can help CCAFS knowledge reach many of the above target groups, at the national and international levels. Engagement with media is further outlined in the 'Main activities' section below.

Strategic approach

Communication for behavior change

CCAFS communications goes beyond information dissemination. Rather, the aim is that knowledge from CCAFS information can help shape attitudes, and thus contribute to the behavioural changes needed to deliver impact.

¹ Adapted from Jost C, Alvarez S and T Schuetz. 2014. CCAFS Theory of Change Facilitation Guide. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). <http://hdl.handle.net/10568/41674>

Many intervening variables play a role in whether messages bring about intended behaviour changes, such as the level to which recipients recognize a problem situation, perceive constraints to behavioural change, as well as the extent to which they feel ‘involved’ personally in the issues and decision-making processes. An important component of this work is listening to and understanding the knowledge needs of next users in order to shape appropriate communications interventions. Phase II will build on lessons learned in Phase I regarding the best approaches for engaging with next users in different contexts. For example, in CCAFS target countries, face-to-face meetings and learning events have proven to be essential approaches to reach national level decision makers.

Key messages

Research results will be repackaged for different audiences, and key messages tailored for relevant target next user groups as a means to promote specific information products and inform actions that can lead to outcomes. This will be achieved through messages that address the intended changes in knowledge, skills, attitudes and practices that will help the next user deliver program outcomes. Key messages will be formulated jointly by communications specialists and scientists, in consultation with partners, to ensure they are relevant, appropriate, and compelling.

Delivering communications

Experience in Phase I showed the benefits of strong program-level communication, coupled with Flagship-level communication contextualized in the regions. Both program level and Flagship level communications will be organized under the LP on Partnerships. Together, CCAFS communicators will form a community of practice to share knowledge and approaches, plan and deliver joint activities, and monitor and evaluate said activities.

At the **program level**, communications will contribute to engagement with global climate partnerships and policy processes with a goal of scaling up Climate-Smart Agriculture. Program level communications will also focus on marketing, synthesis and dissemination of results, and facilitating learning, sharing, monitoring and evaluation of communications across the program. A small team at the Global Office on Partnerships for Scaling Up CSA will lead program communication, under the leadership of a Global Communications and Knowledge Manager.

At the **Flagship level**, communications activities will be primarily designed to contribute to delivery of outcomes through engagement with key stakeholders in sites, regions, at the national level, as well as in relevant communities of practice (for example related to low-emissions agriculture, or index-based insurance). A key outcome is scaling out climate-smart policies and approaches in CCAFS countries. Flagship level communications will be delivered through the Regional Program Offices, led by a regional communications specialist.

Communications in the CCAFS program is a shared responsibility among communication specialists, scientists and research partners working in the FPs, regions, and projects. This includes staff in all CGIAR Centres that participate in the program. Where possible, the program and FP teams will continue to work closely with partners to deliver joint communications and outreach activities where appropriate, in order to leverage networks, skills, and other expertise. Strong coordination with the lead Centre (CIAT) communications units, the CGIAR Consortium Office, other CRPs and CGIAR networks (e.g., gender network) will continue. Phase II will also see strengthened use of cross-CGIAR Centre tools and platforms such as CGspace, the [Thrive blog](#), and collaboration at strategic events.

Main activities

At the **program level**, the main activities to continue in Phase II include:

- (1) Support **global policy engagement** through high-level outreach and dialogue, including policy briefings, major events with partners², learning events and webinars, discussion blogs and media engagement.
- (2) Make **CCAFS solutions and resources openly and prominently accessible** through online platforms and portals, including: [global website](#) and [blog](#);³ web portals such as [Big Facts](#)⁴ and the [CSA guide](#); open access publications

² Linked to global fora (e.g. UNFCCC, GFIA, GACSA meetings)

³ CCAFS website receives over 750,000 unique pageviews per year

⁴ The site receives 55,000 unique pageviews per year

repository ([CGSpace](#)⁵), social media channels⁶; e-bulletins and newsletters⁷; photo sharing via [Flickr](#)⁸; and presentation sharing via [slideshare](#)⁹

- (3) **Demonstrate program results** through regular monitoring and evaluation of communications activities, development of outcome cases and annual reports, and media outreach
- (4) Ensure **consistent program visibility** and help key partners do the same, using the CCAFS branding toolkit
- (5) Facilitate **knowledge sharing and collaboration** within the program, with CGIAR Centres, and with external partners. Facilitate a network of communications specialists working in FPs and projects to ensure learning and sharing of best practices, strategic planning and collaboration; and effective use of CCAFS communications tools and processes. This will be supported through tools such as Sharepoint 365, video conferencing, webinars, and face-to-face workshops.
- (6) Contribute to **Flagship level** communications through joint initiatives and strategic advice, where an activity can contribute to global and Flagship outcomes. For example in 2015, a media field trip to CCAFS sites in Kaffrine Senegal helped share a successful climate services program via national and international media, in the lead up to the UN climate talks in Paris.

At the **Flagship level** the main activities to continue in Phase II include

- (1) Facilitate **engagement activities, dialogue, and outreach campaigns** tailored for stakeholders in regions, in collaboration with project partners. This can include organizing field visits to CSVs, to share climate-smart agriculture technologies and practices and participatory approaches in action;¹⁰ trainings for local journalists to effectively report on CCAFS issues; and partnering with TV or rural radio stations to disseminate knowledge to farmers
- (2) Produce **knowledge products relevant to next users**, including briefing notes, materials in local languages, training manuals, decision-making tools, and media materials
- (3) Support country **Site Integration** through sharing knowledge, tools and resources, and collaborative efforts with CGIAR Centres and partners working in sites.
- (4) **Contribute to program communications** through campaigns based on globally relevant messages and cases; and contribution to program-level visibility through outcome and donor reporting.
- (5) Support **learning and sharing** within CCAFS and with partners. Participate actively in the network of CCAFS communicators to ensure maximum impact through collaboration, knowledge sharing, and regular monitoring and evaluation of communications activities

Monitoring, evaluating and learning

Systematic MEL goes hand in hand with an impact pathways approach to planning communications. In Phase I, CCAFS communicators committed to undertake more systematic monitoring and evaluation of communications activities, to support internal learning, improve strategic communication, and contribute to overall program MEL. In Phase II, communicators will continue to produce regular reports back from campaigns and activities, to measure success based on quantitative and qualitative indicators determined during the planning phase. These shall be regularly shared with the wider CCAFS network, as well as with external groups (such as evaluators) where appropriate.

⁵ More than half a million publications have been downloaded from the CCAFS CGSpace collection in CCAFS Phase I.

⁶ CCAFS Twitter, Facebook, LinkedIn, Google+, Youtube channels collectively have over 50,000 followers and annually generate about 35,000 visits to the website.

⁷ CCAFS e-bulletins have 20,000 subscribers

⁸ CCAFS shares more than 7500 photos from research sites and activities, all licensed for public use under creative commons, increasing program visibility

⁹ CCAFS shares more than 700 presentations, viewed over 160,000 times per year.

¹⁰ CCAFS has successful experience bringing farmers, scientists, government officials, business leaders and journalists to learn about CSVs. See for example Meadu V, Zougmore R, Touré SF. 2015. Climate Services in Senegal: Media training and field trip report. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). <http://hdl.handle.net/10568/72418>

Budget

As communications is a shared responsibility by all program partners, budgets and staff time will be allocated from a variety of sources:

Program communication will be led by a Global Communications and Knowledge Manager based at the Global Office on Partnerships for Scaling Up CSA. To deliver the outlined activities, the annual budget for program communication will be funded through equal contributions from the management and governance allocation to CIAT and from each of the four FPs. This may be supplemented by an uplift budget from partners for specific activities, for example a big event with intergovernmental partners such as World Bank, IFAD, FAO and major Window 2 donors. This budget also covers salaries for staff in the Global Office on Partnerships for Scaling Up CSA to deliver on broader engagement and partnership activities, as outlined in other parts of the full proposal. As well, options will be considered to engage staff whose positions are externally supported, for example through international development volunteer programs.

At the **Flagship level**, Regional Program Leaders will engage a communications specialist to deliver activities in the region, and allocate funds for delivery of communications products and initiatives.

Ultimately, **collective action and collaboration** will be essential to deliver impactful communications in Phase II. Therefore, it is expected that CCAFS project leaders designate staff with responsibility for communications, and earmark funds for communications products and initiatives as part of their overall budgeting. Project funds may be allocated to a CGIAR Centre's central communications team, or a scientist working on the project can act as a designated focal point for communications. In all cases, it is expected that project staff collaborate with a communications specialist from CCAFS or from a Centre to deliver coordinated and strategic activities.

3.10.2 References

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3.10.3 Acronyms and Abbreviations

A4NH – CGIAR Research Program on Agriculture for Nutrition and Health
 ACCRA – The Africa Climate Change Resilience Alliance
 ACF – Action Against Hunger (Action Contre la Faim)
 ACPC – African Climate Policy Centre
 ACRE – Agriculture and Climate Risk Enterprise
 ACSAA – Africa Climate-Smart Agriculture Alliance
 AEZ – Agro-ecosystem zones
 AfDB – African Development Bank
 AFOLU – Agriculture, Forestry and Other Land Use
 AFS CRPs/AFS – CGIAR Research Program on Fish Agri-Food Systems
 AFS-CRPs – Agri-food systems CGIAR research programs
 AgMIP – Agricultural Model Inter-comparison and Improvement project
 AGN – African Group of Negotiators
 AGNES – African Group of Negotiators Expert Support
 AGRHYMET – Centre Regional de Formation et d'Application en Agrométéorologie et Hydrologie Opérationnelle
 AGRONET – National Agricultural Information and Communication Network
 ANU – Australian National University
 APAARI – Asia-Pacific Association of Agricultural Research Institutions
 APAN – Asia Pacific Adaptation Network
 AR4 – IPCC Fourth Assessment Report
 AR5 – IPCC Fifth Assessment Report
 ARI – Agricultural research institute
 ASARECA – Association for Strengthening Agricultural Research in Eastern and Central Africa
 ASEAN – Association of Southeast Asian Nations
 ASEAN CRN – Association of Southeast Asian Nations Climate Resilience Network
 BAU Scenario – Business as Usual Scenario
 BNI – biological nitrification inhibition
 C – Celsius
 CAADP – Comprehensive Africa Agriculture Development Programme
 CAC – Central America Agricultural Council
 CAfr – Central Africa
 CapDev – Capacity Development
 CARE – Cooperative for Assistance and Relief Everywhere
 CATIE – Centro Agronómico Tropical de Investigación y Enseñanza
 CC – climate change
 CCAC – Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants
 CCAFS – CGIAR Research Program on Climate Change, Agriculture and Food Security
 CCEE - CRP-Commissioned External Evaluation
 CECOCAFEN – Central Association of Northern Coffee Cooperatives, Latin America
 CH₄ – Methane
 CIAT – International Centre for Tropical Agriculture
 CIFOR – Centre for International Forestry Research
 CIMMYT – The International Maize and Wheat Improvement Centre
 CIMSANS – Centre for Integrated Modeling of Sustainable Agriculture & Nutrition Security
 CIRAD – Centre de Coopération Internationale en Recherche Agronomique pour le Développement
 CLIFF – Climate, Food and Farming Network (research network of F3)
 ClimDev-Africa - The Climate for Development in Africa
 CO₂e/yr – carbon dioxide equivalent per year
 CoA – cluster of activities
 COMESA – Common Market for Eastern and Southern Africa
 COP – Conference of Parties
 CORAF – Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricoles

CORFOGA – Corporación Ganadera (Livestock Corporation), Colombia
 CRP – CGIAR Research Program
 CSA – Climate-smart agriculture
 CSAP – Climate-Smart Agriculture Programme
 CSIRO – Commonwealth Scientific and Industrial Research Organization
 CSO – Civil Society Organization
 CSV – Climate-smart village
 CTA – Technical Centre for Agricultural and Rural Cooperation
 CTCN – Climate Technology Centre and Network
 DCLAS - Dryland Cereals and Legumes Agri-food Systems
 DfID – Department for International Development, United Kingdom
 DG – Director general
 DIW – German Institute for Economic Research
 DMS – Data Management Strategy
 EA – East Africa
 EAFF - East Africa Farmers Federation
 ECI – Environmental Change Institute at the University of Oxford
 ECLAC - Economic Commission for Latin America and the Caribbean
 ECOWAS – Economic Community of West African States
 EDF – Environmental Defense Fund
 EIGE – European Institute for Gender Equality
 ENACTS – Enhancing National Climate Services initiative
 ENSO – El Niño–Southern Oscillation
 EPIA – Ex-post impact assessment
 ESG – Environmental, social and governance
 EU – European Union
 EX-ACT – The Ex-Ante Carbon-balance Tool
 FAIR – Findable, Accessible, Interoperable, Re-usable
 FANRPAN – Food, Agriculture and Natural Resources Policy Analysis Network
 FAO – Food and Agriculture Organization of the United Nations
 FAOSTAT – The Food and Agriculture Organization Corporate Statistical Database
 FEDEARROZ – Federación Nacional de Arroceros (National Federation of Rice Growers), Colombia
 FEDEGAN – Federación Colombiana de Ganaderos (Colombian Cattle Ranchers’ Federation)
 FENALCE – National federation of cereal growers, Colombia
 FEWSNET – Famine Early Warning Systems Network
 FIPAH – Fundación para la Investigación Participativa con Agricultores de Honduras
 FISH – CGIAR Research Program on Fish Agri-Food Systems
 FLW – Food Loss and Waste
 FPL – Flagship Leader
 FLAR – Latin American Reserve Fund
 FONGS – Federation of NGOs of Senegal
 FONGS – Federation of Non-Governmental Organizations in Senegal
 FP – Flagship Program (of CCAFS)
 FP1 – Flagship Program 1 (of CCAFS)
 FP2 – Flagship Program 2 (of CCAFS)
 FP3 – Flagship Program 3 (of CCAFS)
 FP4 – Flagship Program 4 (of CCAFS)
 FRI – Farm Radio International
 FTA – CGIAR Research Program on Forests, Trees and Agroforestry
 FTE – Full time equivalent
 GACSA – Global Alliance for Climate-Smart Agriculture
 GCARD – Global Conference on Agricultural Research for Development
 GCF – Green Climate Fund
 GCM – General Circulation Model
 GFAR – Global Forum on Agricultural Research

GFCS – Global Framework for Climate Services
 GFDRR – Global Facility for Disaster Reduction and Recovery
 GHG – Greenhouse gas
 GIZ - German Corporation for International Cooperation
 GLOBIOM – IIASA's Global Biosphere Management Model
 GLOPAN - Global Panel on Agriculture and Food Systems for Nutrition
 GRA – Global Research Alliance on Agricultural Greenhouse Gases
 GRSB -The Global Roundtable for Sustainable Beef
 GSI – Gender and social inclusion
 Gt – gigatonne
 GTPS: Brazilian Roundtable on Sustainable Livestock
 H – hypothesis
 ha – hectare
 HEIG-VD – La Haute Ecole d'Ingénierie et de Gestion du Canton de Vaud
 HLPE – The High Level Panel of Experts on Food Security and Nutrition
 ICRP – Integrative CGIAR Research Program
 IA – Intellectual Assets
 IADB – Inter-American Development Bank
 IAE – Institute for Agricultural Environment, Vietnam
 ICAR – International Committee for Animal Recording
 ICPAC – Intergovernmental Authority on Development (IGAD) Climate Prediction and Applications Centre
 ICRAF – World Agroforestry Centre
 ICRISAT – International Crops Research Institute for the Semi-Arid Tropics
 ICT – Information and communication technology
 IDO – Intermediate Development Outcome
 IDS – Institute of Development Studies
 IEA – Independent Evaluation Arrangement
 IFAD – International Fund for Agricultural Development
 IFAD-ASAP – The International Fund for Agricultural Development's Adaptation for Smallholder Agriculture Program
 IFC – International Finance Corporation
 IFPRI – International Food Policy Research Institute
 IGAD – Inter-Governmental Authority for Development
 IIASA – International Institute for Applied Systems Analysis
 IICA - Inter-American Institute for Cooperation on Agriculture
 IIED – International Institute for Environment and Development
 IIRR – International Institute of Rural Reconstruction
 IISD – International Institute for Sustainable Development
 IITA – International Institute of Tropical Agriculture
 IITM - Indian Institute of Tropical Meteorology
 ILRI – International Livestock Research Institute
 IMAGE – Integrated Model to Assess the Global Environment
 IMPACT – International Model for Policy Analysis of Agricultural Commodities and Trade
 INDC – Intended nationally determined contribution
 INERA - Institute de l'Environnement et de Recherches Agricoles de Burkina Faso
 INRA – French National Institute for Agricultural Research
 INTA – Instituto de Innovación y Transferencia de Tecnología Agropecuaria (Institute for Innovation and Transfer of Agricultural Technology), Costa Rica
 IPCC – Intergovernmental Panel on Climate Change
 IPG – International public good
 IPOP – The Indonesian Palm Oil Pledge
 IRI – International Research Institute for Climate and Society
 IRRI – International Rice Research Institute
 ISC – Independent Steering Committee
 ISI – International Scientific Indexing
 ISI-MIP – Inter-Sectoral Impact Model Intercomparison Project

ISP – Independent Science Panel of CCAFS (Phase I)
 ISPC – Independent Science and Partnership Council
 ISPO – Indonesian Sustainable Palm Oil
 ISRA – Institut Sénégalais de Recherches Agricoles
 IWMI – The International Water Management Institute
 L&F – CGIAR Research Program on Livestock and Fish
 LAM – Latin America
 LAMNET – Latin America Greenhouse Gas Mitigation Network
 LAPA – Local Adaptation Plans of Action
 LED – Low emissions development
 LEDS – Low emissions development strategy
 LEDSGP – Low Emission Development Strategies Global Partnership
 Leeds – University of Leeds
 LEI – The leading institute for social-economic research of Wageningen University and Research Center
 LP – Learning Platform
 LIVESTOCK – CGIAR Research Program on Livestock
 MAGNET – Model description of Agricultural economy
 MAIZE – the CGIAR Research Program on Maize
 MARLO – the CCAFS planning and reporting system
 MEL – Monitoring, Evaluation and Learning
 MICCA – Mitigation of Climate Change in Agriculture Program
 MoALF – Ministry of Agriculture, Livestock and Fisheries, Kenya
 MOT – Mitigation Options Tool
 MRV – Monitoring, reporting and verification
 Mt – Metric tonnes
 N₂O – Nitrous oxide
 NAFSIP – National agriculture and food security implementation plan
 NAIP – National Agricultural Investment Plan
 NAMA – Nationally Appropriate Mitigation Action
 NAPA – National Adaptation Programmes of Action
 NAPs – National adaptation plans
 NARES – National Agricultural Research and Extension Systems
 NARS – National Agricultural Research System
 NEPAD – New Partnership for Africa's Development
 NERC – National Environmental Research Council
 NGO – non-governmental organization
 NMS – National Meteorological Services
 NUI – National University of Ireland
 OA – Open Access
 OADMP – Open Access and Data Management Policy
 OAI-PMH – Open Archives Initiative Protocol for Metadata Harvesting
 OD – Open Data
 ODA – official development assistance
 ODI – Overseas Development Institute
 P&R – the CCAFS planning and reporting system
 PAC – Partnership Advisory Committee
 PAFO – Pan African Farmers' Organisation
 PAR – Participatory action research
 PICSA – Participatory Integrated Climate Services for Agriculture
 PIK – Potsdam Institute for Climate Impact Research
 PIM – CGIAR Research Program on Policies, Institutions, and Markets
 PMC – CCAFS program management committee
 PMU – Program Management Unit
 POWB – Program of Work and Budget
 PPCR – Pilot Program for Climate Resistance

Prolinnova – PROMoting Local INNOVAtion in ecologically-oriented agriculture and NRM
 QUT – Queensland University of Technology
 R4D – Research for development
 RAFS – Retirement Assistance for Farmers Scheme
 RBM – Results-based management
 RCP – Representative concentration pathway
 Reading – University of Reading Walker Institute
 RHO – Risks Household-Options
 RICE - CGIAR Research Program on Rice
 RIMES – Regional Integrated Multi-Hazard Early Warning System for Africa and Asia
 RPL – CCAFS Regional program leader
 RSPO – Roundtable on Sustainable Palm Oil
 RTB – CGIAR Research Program on Roots, Tubers and Bananas
 SA – South Asia
 SAfr – Southern Africa
 SACAU – Southern African Confederation of Agricultural Unions.
 SAI-Platform – Sustainable Agriculture Initiative Platform
 SAMPLES – Standard Assessment of Agricultural Mitigation Potential and Livelihoods Program
 SAN – Sustainable Agriculture Network
 SBSTA – Subsidiary Body for Scientific and Technological Advice
 SDG – Sustainable Development Goal
 SEA – Southeast Asia
 SEARCA – Southeast Asian Regional Center for Graduate Study and Research in Agriculture
 SECAC – Executive Secretariat of the Central American Agricultural Council
 SHAMBA – The Small-Holder Agriculture Mitigation Benefit Assessment
 SLO – System-Level Outcomes
 SMS – Short Message Service
 SPIA – Standing Panel on Impact Assessment of CGIAR
 SRF – Strategic results framework of CGIAR
 SSA – Sub-Saharan Africa
 SSP – Shared socio-economic pathway
 SuPER – sustainability, productivity (including profitability), equity and resilience
 SUSFANS – Sustainable Food And Nutrition Security
 SwissRe – Swiss Reinsurance Company Ltd.
 TFA 2020 – Tropical Forest Alliance 2020
 TNC – The Nature Conservancy
 ToC – Theory of change
 TRANSMANGO – Assessment of the impact of drivers of change on Europe's food and nutrition security
 TSBF – Tropical Soil Biology and Fertility Institute
 U Vermont – University of Vermont
 UCI – University for International Cooperation
 UN – United Nations
 UN-REDD – United Nations collaborative initiative on Reducing Emissions from Deforestation and Forest Degradation
 UNFCCC – United Nations Framework Convention on Climate Change
 URAC – Union des Radios Associatives et Communautaires du Sénégal
 US – United States of America
 USAID – United States Agency for International Development
 USD – United States dollar
 WA – West Africa
 WB – World Bank
 WBCSD – World Business Council for Sustainable Development
 WBG – The World Bank Group
 WEDO – Women's Environment and Development Organization
 WEF – World Economic Forum

WFP – World Food Program
 WFO - World Farmers' Organisation
 WHEAT – The CGIAR Research Program on Wheat
 WHO – World Health Organization
 WISAT – Women in Global Science and Technology
 WLE – CGIAR Research Program on Water, Land and Ecosystems
 WMO – World Meteorological Organization
 WRI – World Resources Institute
 WUR - Wageningen University
 WWF – World Wide Fund for Nature
 YPARD – Young Professionals for Agricultural Development

3.10.4 List of CCAFS Journal articles from Phase I (2011-2015)

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3.10.5 CCAFS response to Accountability Matrix – Caveats to address during development of CRP2 full proposals

Annex Table 12. Caveats expressed by the Joint Consortium Board/Centers/Fund Council Working Group, in its Memorandum to the Fund Council to express support for a 'green light' to move to full proposal development, dated 30 November 2015

No	Item to address	Relevant CRP(s)	Summary of how the matters has been adequately addressed
1	Greater attention to discerning the role of regionally focused yield-gap closing/ sustainable intensification research in the system, as distinct from and a complement to global public goods research in areas such as crop breeding, livestock health, food policy, and others.	AFS programs; genetic gain platform)	n/a
2	More clearly articulating the strength of the arguments for maintaining genebanks and genetic gain as two separate platforms rather than an integrated effort ¹¹	Genebank; Genetic gain platforms	n/a
3	Crosschecking that consolidation at the cluster of activities or flagship level has not delivered unintended adverse consequences such as removing clarity for key research priorities and/or increasing transaction costs	All	CCAFS has not added or deleted Flagship Projects or significantly changed their focus. A small number of Clusters of Activities have been consolidated as a result of the budget cut. But one of the reasons for consolidation is to reduce transactions costs for partners; for example the climate foresight work to inform breeding in AFS-CRPs has been combined within the Learning Platform on <i>Ex-ante evaluation and decision support for climate-smart options</i> , which often engages the same set of partners.
4	Providing a clearer understanding of National Partners' requirements, and how the scientific and financial program elements support them	All	In the 21 target countries for CCAFS Phase 2, CCAFS has aligned its priorities with national priorities both through direct consultation and engagement, either via dedicated science-policy learning platforms established in Phase I or via liaison with key ministries and NARES, and through alignment with the key national policies and action plans on climate and agriculture (INDCs in 2015, but also NAPs, NAPAs and NAMAs). The strong partnerships that CCAFS has built with national policy partners will serve to provide an internal learning and feedback mechanism so that priorities can be regularly revised to meeting changing national priorities. CCAFS Learning Platform 6 on <i>Partnerships and capacity for scaling CSA</i> hosts national climate change science-policy platforms in 12 of the 21 countries (e.g. Μαλι , Υγανδα). CCAFS does not have a budget target for national partners, but does set a budget target of 25-30% to non-CGIAR partners. National partners are explicitly targeted for capacity development, particularly to build sustainable skills and capacity in climate-related science, data collection and reporting.
5	Setting out more clearly the interconnection and resources available for the proposed Communities of Practice in gender/youth and capacity development, with particular attention to ensuring engagement of partners in the respective Communities of Practice. Specifically, ensuring	All	Two Learning Platforms are proposed for gender/youth and for capacity development. The Gender ToC interfaces with Flagship ToCs and each Flagship will deliver on one of the change hypotheses in the Gender ToC. In addition, each Flagship has outcome indicators that include gender dimensions. Gender is

¹¹ There were a number of different views expressed during working group deliberations on this topic. Whilst there was no fundamental opposition to separate platforms, there was a call for making a much stronger case as to why they should be separate.

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No	Item to address	Relevant CRP(s)	Summary of how the matters has been adequately addressed
	that the proposed communities of practice operate in a way that will result in meaningful progress towards sustainable engagement and impact		effectively mainstreamed in all Flagships, but when put together, under the leadership of the Gender and Social Inclusion Research Leader, has a body of research questions and partnerships designed to make significant progress. The Learning Platform on Partnerships and Capacity for Scaling CSA takes CCAFS capacity development work to a new level. This works across all Flagships and brings together all the engagement work of CCAFS, linked to the ToCs. Concrete research outputs on the role of capacity development, amongst other topics related to scaling up, will underpin facilitating outcomes.
6	Reducing as many transaction costs as possible, particularly regarding management burden	All	CCAFS has reduced its management costs to 4%, which includes all staff in the Program Management Unit, governance and management costs (including meetings, travel) of the ISC, communications and events operational costs and MEL operational costs, data management operational costs and the management fee to the lead center, which covers financial and legal services. CCAFS and all CRPs have put considerable effort into Site Integration and coordination mechanisms to reduce transaction costs. The ICRPs have agreed to develop a common “Planning and reporting” system.
7	Providing greater emphasis on soils, animal genetic conservation and the potential impact of big data across the portfolio, not limited to genetic gain	WLE, all AFS, Livestock, Big Data platform	n/a

Annex Table 13. Caveats expressed by the ISPC, dated 9 December 2015

ISPC comments on the portfolio (a paraphrase of a longer document)

No	Item to address	Relevant CRP(s)	Centers’ summary of how the matters has been adequately addressed
Portfolio level			
8	Seek explicit prioritization within CRPs (and also between CRPs); balancing research on ‘upstream’ science with research on how to scale out and up relevant new knowledge and technologies (while leaving the delivery of impact at scale to organizations with that remit)	All	CCAFS has used explicit priority setting approaches in Phase 1 and in the formulation of the Phase 2 proposal. Priority setting for the science and impact pathway agendas has been done with partners at the flagship project (FP) level. The four FP narratives explain the resulting balance among upstream research, downstream research and scaling up and out, specifically in the impact pathways, theories of change and science sections. CCAFS has developed a more nuanced focus on areas of comparative advantage. For example, FP4 has moved from the broad scope of climate risk management towards specific types of interventions for which the CRP has the clearest niche relative to other providers (e.g. climate information services and insurance products). Geographic priority setting is based on a mix of modelling approaches, formalized scoring systems with stakeholders and regional consultations. The CCAFS Independent Steering Committee (ISC) will oversee continued priority setting during Phase 2 as a key responsibility in its ToR. Priority setting is also an important topic of research for CCAFS (prioritization of best-bet interventions under climate change) particularly in FP1.
9	Important to capture synergies between CRPs so that the System delivers	All (statement)	Annex 3.6 “Linkages with other CRPs and Site Integration” explains coordination

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No	Item to address	Relevant CRP(s)	Centers' summary of how the matters has been adequately addressed
	more than the sum of the CRPs (the One System One Portfolio mantra)	of portfolio synthesis required)	and capturing of synergies with other CRPs. The six Learning Platforms are a key mechanism for cross-CRP synergy.
10	Clearer explanations of what W1&2 funding will be used for	All	The format for the full proposal makes explicit the contribution of W1&W2 funds. The contribution of W1&2 funds to the outcomes and sub-IDs of CCAFS is given in Tables B and C of the Performance Indicator Matrix for each flagship project, and the budget narrative section clarifies the use of W1/W2. CCAFS has put considerable effort into maximizing the value for money from W1/W2 through careful prioritization and budget allocation, as described in the box in Section 4 of the budget narrative.
11	CRPs should not be expected to adhere to the 'prioritization' undertaken in a very short time-frame to produce the 'Refreshed' submission, but should hold serious discussion with their partners on which activities to prioritize according to the principles which were agreed at FC14	All	ΧΧΑΦΣ ηας δεπελοπεδ της προοριτιες γιθεν ιν της προποσαλ τηρουγη μυ λτιπλε ενγαγεμενς ωιτη κεψ στακεηολδερ γρουπς ινχλιδινγ πολιχψ-μακε ρς, πρωατε σεχτορ, φαρμερς οργανιζατιονς, ανδ φελλοω ρεσεαρχηερς, β οτη ΝΑΡΕΣ ανδ αχαδεμια. Εξαμπλες οφ ενγαγεμεντ ινχλυδε ρεγιοναλ πλαννινγ ωορκσηοπς ιν αλλ φιπε ρεγιονς, νατιοναλ ανδ ρεγιοναλ σχιενχε-πολιχψ π λατφορμς (ε.γ. Μαλι , Υγανδα , Ωεστ Αφριγα), νατιοναλ-λεπελ σκεναριο προχεσσες , ιντερνατιοναλ φορα , τηεματιχ ωορκσηοπς , ανδ πρωατε σεχτορ ινιτιατιβες . The CCAFS draft full proposal has been subject to two rounds of comments from 40 out of 41 strategic partners that span the research and implementation communities.
Platforms			
12	2 new platforms are proposed: Genebanks and Genetic gains. The ISPC is comfortable with the platform on Genebanks	Not applicable	n/a
13	Have concerns about the focus of the proposed Genetic Gains and what the creation of such a platform will mean for the AFS CRPs (and theories of change). The ISPC also found the title of 'Genetic gains' to be inappropriate as what is proposed is only part of the research required to deliver 'genetic gains'. The budget needs to be reviewed	Genetics Gain platform	n/a
14	Supports the concept of an initiative in Big Data and does not want to see this de-emphasized	Big Data platform	n/a
15	Identify where budget is placed for other arrangements to meet cross cutting system work originally considered through Expressions of Interest at the pre-proposal stage	All c.f. Guidance doc	The budget narrative document provides comprehensive details on financing of cross-cutting aspects.
AFS CRPs			
16	DCLAS: The rationale for DCLAS receiving a 'C' rating overall (from the ISPC) related to the breadth of species being considered; the funders are requested to indicate their priorities for this CRP	This addressed to funders not to CRPs	n/a
17	FTA has moved tenure and rights to PIM – although PIM don't mention that. FTA also wants to move the restoration work to WLE. Given the decreased budgets overall, these 2 CRPs may not accept these moves and	FTA, PIM, WLE	n/a

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No	Item to address	Relevant CRP(s)	Centers' summary of how the matters has been adequately addressed
	the topics may hence disappear. Clarity on the potential loss of these areas is required		
18	Livestock and FISH both wish to move some genetics research across to the new platform as may other CRPs, yet the budget sources for those moves are not clear	Livestock, Fish, Genetic Gain platform	n/a
19	Maize propose to move some bilateral projects out of the CRP due to budget cuts. What is an appropriate balance of W1/2 bilateral at the base funding scenario?	MAIZE	n/a
20	RAFS (and presumably other CRPs) proposes to reduce the number of targeted IDOs and sub-IDOs – and both RAFS and Wheat make reference to cutting back on capacity development due to budget cuts. Realistic adjustments to current funding and base scenario funding will need to be considered by CRPs and funders	RAFS, WHEAT.	n/a
Global Integrating Programs			
21	The ISPC is glad that PIM has agreed to take on the role of co-ordination of a System-wide platform or Community of Practice for gender work, although we hope that it will be possible to reinstate the original budget. It is hoped that down-rating gender from a Flagship to 'Cross-cutting work' does not reflect diminishing importance of gender	PIM re role of the flagship project on gender	n/a
22	A4NH and WLE seem to be following the ISPC recommendations (through additional steps for integration with CRPs through defined flagships, while the CCAFS Summary in Annex 2 suggests the budget cuts: 'need a totally new business model', the ISPC understands that only minor changes are now being proposed	A4NH, WLE, CCAFS, PIM	The Phase II Guidance document specified a USD 57 million budget, a 22% cut from what was in the pre-proposal. More significant was the W1/W2 decline, from USD 36 million in the pre-proposal to USD 21 million. The USD 21 million represents a more than 50% decline from the budget in 2015. The initial reaction on the W1/W2 decline was that some radical changes may be needed, but on further reflection, if fund-raising can be effective, then an overall cut of 22% is more manageable. In response to that cut, CCAFS has reduced target countries (but not regions), reduced the numbers of clusters of activities (CoAs) through combining them with others, and reduced the scope of some sub-topics through cutting projects in those sub-topics (a major planning exercise in 2014 identified projects and sub-topics in relation to regional impact pathways). The strategy for the uplift budget is to re-instate projects in sub-topics that have been removed due to the budget cut. CCAFS has not made significant structural changes, nor does it propose a "totally new business model".

Annex Table 14. Additional caveats expressed by the Fund Council during its ad hoc meeting on 11 December 2015

The Fund Council noted that its granting of a 'green light' to move to full proposal development was subject to the caveats noted by the Working Group and ISPC (in their written submission) and the Fund Council's request for enhanced focus on gender and capacity building. The Fund Council also specifically acknowledged that CGIAR is engaged in an incremental process and some concerns raised by Fund Council members will require additional time and attention before the new portfolio of CRPs is approved.

No	Item to address	Relevant CRP(s)	Summary of how the matters has been adequately addressed
23	Enhanced focus on gender and capacity building	All	In Phase 2 CCAFS plans to invest 20% of the overall budget (the amount allocated to gender across all budget categories) in gender/youth, a slight rise from what was allocated in Phase I. This covers the activities outlined in the gender strategy and the Flagship Programs, which allocate 17-21% to gender. The budget for capacity development is 18% of the overall CRP budget, some allocated through the partnership budget and the remainder accruing from CGIAR staff costs and operational expenses. Each Flagship Project allocates 17-21% to capacity development. Details of intended outcomes, outputs and activities are given in all FP narratives and in the annex (Annex 3.3 on gender, Annex 3.4 on youth and Annex 3.2 on capacity development).