



RESEARCH PROGRAM ON  
**Climate Change,  
Agriculture and  
Food Security**



# 2013 Business Plan

## TABLE OF CONTENTS

1. Overview .....	3
2. Theme 1: Adaptation to Progressive Climate Change .....	7
3. Theme 2: Adaptation through Managing Climate Risk.....	14
4. Theme 3: Pro-poor Climate Change Mitigation .....	20
5. Theme 4: Integration for Decision Making .....	26
6. East Africa Region .....	34
7. West Africa Region.....	38
8. South Asia Region .....	42
9. New Regions .....	45
10. Global partnerships, engagement and communications.....	46
11. Capacity enhancement .....	48
12. Social differentiation and gender .....	50
13. Priority Setting, Monitoring & Evaluation .....	51
14. Administration, coordination and management .....	53
15. Organizational chart.....	54
16. Summary budget 2013 - (Expressed in USD thousands).....	55

## 1. Overview

### Background

2013 will be Year 3 of the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). The 2013 business plan lays out the key activities in 2013, situated

within the larger strategic framework of CCAFS. The key aspect missing from this year's business plan, but which may result in a change of activities, relates to the proposed Consortium Performance Management System (and the to-be-developed Intermediate Development Outcomes, to which all CGIAR Research Programs (CRPs) must be aligned). Last year's business plan was based on the budget in the Program Plan. This proved much too optimistic and many cuts had to be made. The budget in this Business Plan is thus based on a 10% decrease scenario on Window 1 and Window 2 funds.

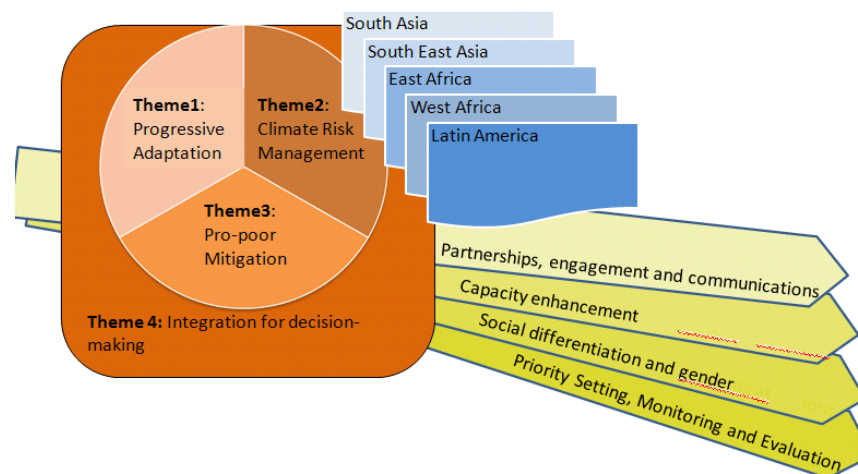


Figure 1. The elements of CCAFS covered in the Business Plan.

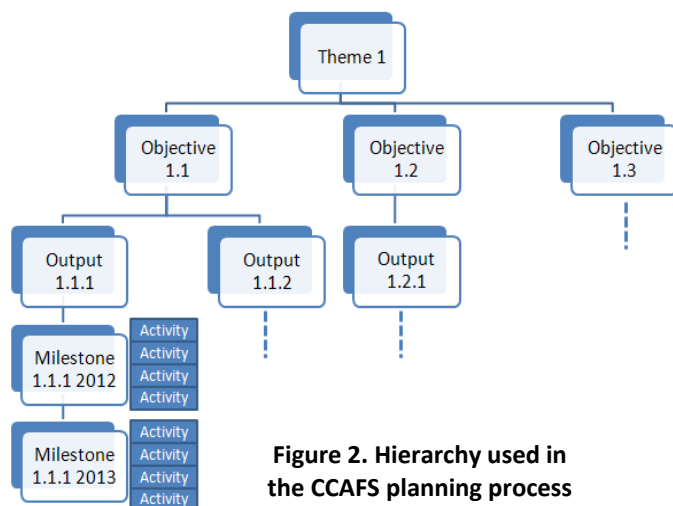


Figure 2. Hierarchy used in the CCAFS planning process

CCAFS consists of four Themes (Figure 1). While the Themes are global in character, there is a concentration of effort in targeted regions. Two regions were added in 2012, giving five regions in all. In addition to the thematic and regional work, a series of cross-cutting issues are addressed in the business plan, as shown in Figure 1.

The hierarchy used in the CCAFS planning process (Objective, Output, Milestone, Activity) is based on the currently discussed model for the CGIAR in the "One Common System". Each Theme has three Objectives (and an associated proposed Outcome) (Figure 2). Each Objective consists of a number of Outputs – products derived from work over a number of years. Progress towards the Output is measured by annual Milestones. Milestones average about \$1 million (in a particular year), inclusive of all costs including indirect (the range is from \$500.000 to \$2 million). The unit below Milestone is "Activities". Activities average about \$250.000/annum (range from about

\$150.000 to \$400.000). Centers have “Center Activity Plans” and an associated budget. Theme Leaders and Regional Program Leaders also have budgets. In the Business Plan, only the 2012 Milestones are presented, with Center Activity Plans in the annex to the Business Plan.

### **Changes made to Objectives, Outputs, Milestones**

Unlike last year, no major changes are proposed at the Objective level. There have also been no changes in Outputs. There are changes at the Milestone level. The biggest changes related to Centers (and thus Theme leaders) overestimating what could be accomplished in 2012, and so a number of milestones have been extended into 2013 and subsequent milestones rescheduled. There was also some rewording, largely related to consolidating. We do, however, signal that the PMC wishes to rethink Theme 4 during 2013 given that the Theme Leader for Objective 4.3 has departed, many policy issues have been mainstreamed into Themes 1, 2 and 3, there has been a major expansion of activities related to gender and social differentiation, and to monitoring and evaluation. We propose to time the revisions of Theme 4 to coincide with the finalisation of “Intermediate Development Outcomes” (IDOs)<sup>1</sup>

### **Major issues that need to be tackled going forward**

In 2011 the CCAFS Independent Science Panel (ISP) called for extra attention and strengthening to a number of topics. We discuss these in some depth as they remain priority areas of investment and strengthening. These topics and the proposed follow up to evaluate progress on each of them is given in the table below.

Topics/research areas requiring strengthening	Proposed follow up
Adaptation strategies for agricultural and food systems into policy and institutional frameworks (Theme 1, Objective 3)	See below
Managing the whole food system (Theme 2, Objective 2)	
Climate Information services (Theme 2, Objective 3)	
Institutions and incentives for pro-poor mitigation (Theme 3, Objective 1)	
Participatory action research	Stocktaking in the last quarter of 2012 for feeding into the Science Meeting 2013
Process and tools needed to improve national level decisions	
Gender analysis	Stocktaking on the basis of the 2012 reports from Centers, Regions, Themes
Inter-center programs of work	Each Theme and Region reports on this aspect in the current business plan

<sup>1</sup> The development of IDOs is a consortium-led exercise that will move the CGIAR to a performance-based system. The IDOs need to link CRP outputs to the Strategic Results Framework (SRF) of the CGIAR.

There has been progress towards addressing the issues in the named Themes, in that various activities and partnerships have been initiated. For Theme 1, activities by Bioversity, CIAT and IWMI have been initiated and/or strengthened. In Theme 2, Objective 2 a food security information expert has been seconded from WFP to strengthen CCAFS work and partnerships at the interface of climate risk and food security management.. In Theme 2 Objective 3 a new scientist has been hired through ICRISAT, to strengthen and coordinate work on climate services for agriculture and food security across the program. In Theme 3 plans have been made to hire a new scientist at IFPRI but as yet the post has not been filled. IFPRI is using the funds instead to commission work on (1) a review of country readiness for NAMA finance and (2) refining earlier analysis of the scope of corporate social responsibility programs with mitigation elements and how to mainstream these. We recognise that for all these specific Theme activities, the process of strengthening them needs to continue.

Many participatory action research activities were initiated in 2012. Some of these are described in the sections for themes and regions. However, we recognise that much more needs to be done and that many of the current activities need better integration with others and/or strengthening. We plan to do a major stocktaking in the last quarter of 2012 of what is being conducted and will use that as input into Science Meeting of 2013.

We also have many activities in 2012 in relation to “processes and tools needed to improve national level decisions”. We will also do a stocktaking of these, for feeding into the Science Meeting of 2013.

Gender analysis has also seen many advances (as described in the section on “Gender and Social Differentiation” and within the sections for Themes and Regions). We plan to revisit discussion on next steps once the annual technical reports for 2012 are finalised from Centers, Regions and Themes.

There has been an upsurge in inter-center activities, but huge challenges remain. Some of the good initiatives are described in this business plan under Themes and Regions, but we still see many areas of weakness, lack of synergies and individualistic behaviour. We will continue to prioritise facilitating inter-center activities.

It is proposed that all of these topics become substantive agenda items in 2013 ISP meetings. Progress can be reported and follow up proposals prepared.

To the above list we want to add two further areas requiring substantial attention in 2013.

### ***Outcomes and performance-based management***

This topic relates to the proposed performance management system of the consortium and the development of “Intermediate Development Outcomes” (IDOs). By mid 2013 it is expected that CCAFS will have developed IDOs. In addition, we will have to develop “value propositions” for

each IDO – the cost to achieve each outcome, enabling an analysis and assessment of value for money provided by each of the CRPs in their contribution to the system. We are also likely to be part of a trial in relation to the Consortium’s 2014 Financing Plan. It is expected that CRP Leaders, and through them the partners that implement the CRPs, would negotiate with the Consortium both the minimum, or satisfactory levels of investments and outcomes for which they will be held accountable, as well as, where appropriate the rewards associated with outperformance. Given the emphasis on performance-based financing in this Business Plan we have used a performance-based method to allocate some of the 2013 resources (see budget section). In 2013 we plan to expand the system to include assessment of 2012 outcomes and to use those in the decisions on allocating resources.

Given the focus on outcomes, we need to step up focus in themes, regions and Centers. Too many Center activities are removed from any impact pathways or impact pathways lack clarity. We plan to develop outcome mapping at site level to ensure focus and connection to impact pathways and spend some time with Center scientists discussing scaling up, so as to ensure that research is more targeted and feeds into impact pathways. In addition, we plan to make some shift of resources in communications, from global outreach to more support to regions to reach stakeholders on the impact pathways.

### ***Food security and food systems***

Currently CCAFS is dominated by work on the production component of food security. As discussed at the Ouagadougou ISP meeting, CCAFS needs to invest in filling gaps, via strategic research or partnerships, to address food security in its wider sense. Additional investments for this are proposed in 2013.



## 2. Theme 1: Adaptation to Progressive Climate Change

**Theme Leaders:** Andy Jarvis (CIAT) and Andrew Challinor (University of Leeds)

**Background:** According to FAO, the world needs to produce 60-70% more food to support a growing and changing population, and this must happen under a more uncertain and potentially unfriendly climate. Many countries and communities are therefore asking: What does climate change imply to their specific context? What can be done to adapt? How much will it cost and how do I implement it? In Theme 1 we see that to adapt farming systems to a 2030 world we need to: **Close the yield gap** by effectively using current technologies, practices and policies in an adaptation context; **Increase the bar** by developing new ways to increase agricultural potential, especially to confront novel climates by supporting crop improvement to deliver farmers with varieties that can stand up to the many challenges of the future; and **Enable policies and institutions**, from the farm to national level, to ensure that change occurs.

### Objectives:

#### Objective 1.1: Adapted farming systems via integrated technologies, practices, and policies

##### Intermediate Indicator:

One to five flagship technical and/or institutional approaches identified and developed with farmers, key development and funding agencies (national and international), civil society organizations and private sector in three regions, which would directly enhance the adaptive capacity of the farming systems to the climate change condition

##### Key Staff:

Andy Jarvis (Theme Leader - 30%), Andy Challinor (Theme Leader - 5%), Osana Bonilla (Science Officer - 40%), Julian Ramirez-Villegas (CCAFS funded PhD student - 50%), Caitlin Peterson (CCAFS fellow - 100%), Flora Mer (CCAFS fellow - 50%), Carlos Navarro (Climate data support - 50%)

##### Major partners and their roles:

University of Oxford (*Systemic Framework for Integrated Adaptation Planning* adaptation planning); University of Florida (Gender analysis); IIAM (Enhancing livelihood resilience and adaptive capacity to climate change); AgMIP (crop modeling); Stanford University (adaptation entry points)

#### Objective 1.2: Develop breeding strategies for addressing abiotic and biotic stresses induced by future climatic conditions, variability and extremes, including novel climates

##### Intermediate Indicator:

Breeding strategies of regional and national crop breeding institutions in three target regions are coordinated, informed by CCAFS-led crop modeling approaches that are developed and evaluated for biotic and abiotic constraints for the period 2020 to 2050

##### Key Staff:

Michael Dingkuhn (shared position CCAFS-Grisp; co-leadership obj. 1.2 - 20%), Andy Jarvis (Theme Leader - 20%), Andy Challinor (Theme Leader - 15%), Osana Bonilla (Science Officer - 30%), Julian Ramirez-Villegas (CCAFS funded PhD student - 50%), Ann Kristin Koehler (CCAFS funded Post-Doc - 100%), Carlos Navarro (Climate data support - 50%). Joint CCAFS-CIRAD PhD TBD (to work on Sorghum); 100%

##### Major partners and their roles:

CIRAD: (co-leadership Objective 1.2); EMBRAPA (Methodological development of an online tool for the identification of TPEs); Global Crop Diversity Trust (pre-breeding and crop wild relatives); NARS breeding groups in CCAFS regions

### Objective 1.3: Integrate adaptation strategies for agricultural and food systems into policy and institutional frameworkss

#### Intermediate Indicator:

Integrated adaptation strategies for agricultural and food systems inserted into policy and institutional frameworks at regional, national or sub-national level in 2 target regions. Policy makers and key stakeholders use CCAFS research outputs -guidelines, tools and methods- to support the development of NAPAS, sector specific adaptation plans, or germplasm benefit sharing policies

#### Key Staff:

Andy Jarvis (Theme Leader - 30%), Osana Bonilla (Science Officer – 20%)

#### Major partners and their roles:

University of Oxford (social science support), University of Florida (Gender analysis support)

### 2013 Milestones

OUTPUT	MILESTONES	PARTICIPATING CENTERS/PARTNERS	REGION <sup>2</sup>
Objective 1.1: Analyze and design processes to support adaptation of farming systems in the face of future uncertainties of climate in space and time			
Output 1.1.1. Development of farming systems and production technologies adapted to climate change conditions in time and space through design of tools for improving crops, livestock, agronomic and natural resource management practices.	<b>Milestone 1.1.1 2013.</b> Tools and guidelines developed to support the selection (and / or maintenance) of the most appropriate <b>water storage options and/ or their combinations for river basin development planning</b> under conditions of increasing climate variability; options most likely to benefit or adversely affect marginal social groups including women assessed. Reviews of tools and guidelines, including links to individual guidelines and access to tools, with explicit recognition of gender and social differentiation.	IWMI	SAs

<sup>2</sup> Region: This shows where this milestone work is being conducted. In some cases we can be specific, but in other cases we still await the final more detailed Center Activity Plans. EA: East Africa, WA: West Africa; SAS: South Asia; SEA: South-east Asia; LAC: Latin America and the Caribbean; SSA: Sub-Saharan Africa.



OUTPUT	MILESTONES	PARTICIPATING CENTERS/PARTNERS	REGION <sup>2</sup>
Output 1.1.2 Building of regional and national capacities to produce and communicate socially inclusive adaptation and mitigation strategies for progressive climate change at the national level (e.g. through NAPAs).	<b>Milestone 1.1.2 2013 (1).</b> New knowledge developed on (1) the potential application domains for agricultural and water management practices, technologies and policies (including maps), prioritized on the basis of their potential benefits for marginal social groups, especially women and (2) best means of transferring these technologies and ensuring their adoption to gender and socially-differentiated beneficiary groups; findings synthesized and presented in report and journal articles	CIAT, Bioversity , ICRAF, IITA, ILRI, CIMMYT, WorldFish, IWMI, IIAM, IUCN, DIIS (CAF), African Bioversity Conservation and Innovations Center (ABCIC), NARES (e.g. KARI, SARI)	EA, WA, SEA, SA, LAM, Global, SAf
	<b>Milestone 1.1.2 2013 (2).</b> Research and development partners (especially female and young scientists) in at least 11 countries trained in using new monitoring and modeling tools for climate change adaptation for different crops including underutilized species; outcomes summarized in report	Bioversity	Global
	<b>Milestone 1.1.2 2013 (3).</b> Capacities raised in at least 6 countries to assess the impacts of climate change on crops and identifying pro-poor and gender-responsive adaptation strategies at the subnational scale using crop models and gender-differentiated local knowledge (links with T4.2). Additional case studies on climate analogues initiated in at least 12 more analogue sites.	CIAT U. of Oxford, NARS, NGOs, ICAR (DWR), BARC, National Universities, National Meteorological and Hydrological Services (NMHS e.g. NMA-Ethiopia, KMD-Kenya); NARES (e.g. KARI, EIAR, NARO); Community partners and Local NGOs	EA, WA, SEA
Output 1.1.3 New knowledge, guidelines and access to germplasm are provided for using genetic and species diversity to enhance adaptation, productivity and resilience to changing climate with benefits for socially marginal groups	<b>Milestone 1.1.3 2013 (1).</b> Germplasm (wild and domesticated) with traits important for adapting to climate change and traits with potential benefits for different user groups conserved in local, national and regional ex situ collections and made available to target users; findings presented in peer-reviewed journal articles and genebank reports; databases augmented	CIAT	Global
	<b>Milestone 1.1.3 2013 (2).</b> Farmers' traditional, gender-differentiated knowledge on use of diversity and climate change adaptation documented and made available in at least 3 countries; findings presented in databases, reports and peer-reviewed article	Bioversity	EA, SEA, SAs,

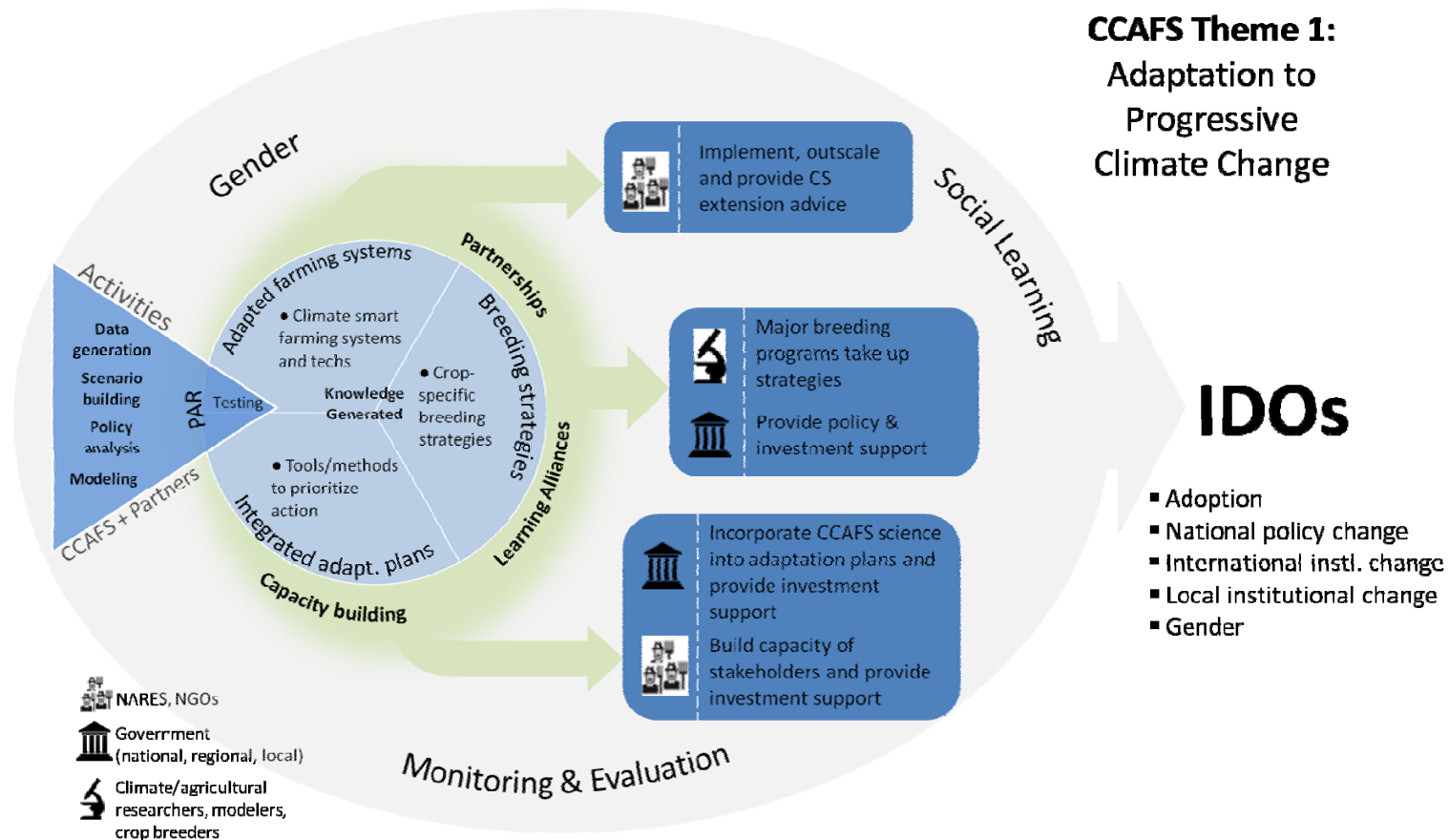
OUTPUT	MILESTONES	PARTICIPATING CENTERS/PARTNERS	REGION <sup>2</sup>
	<b>Milestone 1.1.3 2013 (3).</b> Data gathered on how communities enhance conservation and use of local biodiversity within the climate change context, disaggregated by gender and other social strata; findings summarized in technical reports, factsheets and journal articles	Bioversity	SA, SAs
<b>Objective 1.2: Develop breeding strategies for addressing abiotic and biotic stresses induced by future climatic conditions, variability and extremes, including novel climates</b>			
<b>Output 1.2.1</b> Understanding and evaluating the response of different varieties/crops to climate change in time and space, and generating comprehensive strategies for crop improvement through a combination of modeling, expert consultation and stakeholder dialogue	<p><b>Milestone 1.2.1 2013 (1).</b> Methodological framework developed for assessing the impact of new technologies which are adapted to climate change conditions including their potential for positive social and gender-responsive impact; suitable framework selected by partners / an international panel.</p> <p><b>Milestone 1.2.1 2013 (2).</b> Range of crop modeling approaches (to inform breeding) developed and evaluated for biotic and abiotic constraints for the period 2020 to 2050; findings presented in summary report and at key stakeholders' meetings; *including modeling approaches to evaluate the impacts of climate change and the effects of adaptation technologies such as supplemental irrigation and water harvesting on water availability for crops and their productivity under decadal futures from 2020 to 2050.</p>	<p>CIAT</p> <p>University of Cape Town, Africa Rice, Bioversity, CIAT, CIP, CIMMYT, ICARDA, ICRISAT, IITA, IWMI, EMBRAPA, CIRAD, Leeds University; NERC (National Environmental Research Council)</p>	<p>Global</p> <p>EA, WA, SEA, SAs, CA, LAM, WANA</p>
<b>Output 1.2.2</b> Breeding strategies disseminated to key national agencies and research partners <sup>3</sup>			
<b>Objective 1.3: Integrate adaptation strategies for agricultural and food systems into policy and institutional frameworks</b>			
<b>Output 1.3.1</b> Improved institutional arrangements and socially differentiated adaptation planning approaches at the local level to enable farming system adaptation	<b>Milestone 1.3.1 2013.</b> Socially and gender- differentiated knowledge developed on <b>distribution of local seed material (seed systems)</b> and its effectiveness in climate change adaptation strategies; findings summarized in reports, case study narratives and seed system maps	Bioversity	EA, SEA, SAs, Global

<sup>3</sup> This Output will have Milestones in future years.

OUTPUT	MILESTONES	PARTICIPATING CENTERS/PARTNERS	REGION <sup>2</sup>
Output 1.3.2 Public and private sector policies and strategies at the national level to enable farming communities and the food system to adapt to predicted future conditions.	<b>Milestone 1.3.2 2013.</b> Regional training workshop on approaches and methods for evaluating cost/benefit of adaptation strategies on a national scale.	CIAT, IWMI	LAM, EA, WA,SEA
Output 1.3.3 Policies to enable access to and use of genetic resources for climate change adaptation research, and diffusion of adapted germplasm	<b>Milestone 1.3.3 2013.</b> Policy guidelines produced for centers and partners to address challenges associated with obtaining, using and distributing germplasm as part of climate change related research (with particular focus on addressing challenges associated with access and benefit sharing, IPR, biosafety policies and laws).	Bioversity	EA, WA, SAs, LAM

**Changes made to Objectives, Outputs, Milestones:** The only change made is the removal of Milestone 1.1.3 2013(2); change done because we consider that the related activities can be grouped under the existing Milestone 1.3.1 2013.

**Key pathways to impact:** In 2013, the key impact pathway we will focus on is about ensuring that sound science is included in sectoral, regional and national adaptation plans, building on the ongoing initiatives in Senegal (rice), Colombia (whole agricultural sector), Vietnam (rice and aquaculture) as well as India, Sri Lanka and Nepal (whole agricultural sector). The objective for 2013 is to have detailed adaptation planning ongoing in at least 1 country in each of the 5 regions, and begin to set up the partnerships for this to duplicate to 10 in 2014. The other major impact pathway is through strong engagement of the commodity CRPs to ensure that Objective 1.2 on breeding strategies is fully delivered and results taken up by major global breeding programs.



**Figure 3. Theme 1 Key Pathways to impact with assumed Intermediate Development Outcomes (IDOs) indicated (final IDOs will be produced during 2013)**

**Major communications efforts:** The emerging storylines coming out from the Farms of the Future field studies are excellent for communications, and efforts will be made to ensure a range of multimedia outputs following this story in Nepal, Ghana and Tanzania. Opportunities for communications of interesting angles related to national adaptation planning as per the primary impact pathway for 2013 will also be exploited. Theme 1 will continue the improvement and further development of the Adaptation and Mitigation Knowledge Network (AMKN) expanding its content and ensuring a close linkage with the Data Management Strategy to support and promote dissemination of all CCAFS research and communication outputs.

**Major issues that need to be tackled going forward:** Theme 1 continues to struggle with demonstrating on the ground impact at the farming and food system level as changes made today for a 2030 are abstract. The paper delivered to the ISP on appropriate indicators in April 2012 shows the way ahead, and the Theme will focus on having impact through appropriate adaptation plans and strategies being put in place. It is important that the uncertainties in impacts is therefore translated into the evaluation of adaptation mechanisms that quantify the inherent uncertainty, and simple means of including uncertainty into adaptation planning must be developed. In 2011 the ISP supported the development of a new Objective (1.3). Incentives need to be continually provided to strengthen Objective 1.3 in the theme portfolio, as this is the weakest of the three in terms of centers inputs. New partners must be brought into the CGIAR, and the policy and economics capacity within centers needs to be tapped into more effectively to deliver on Objective 1.3 milestones.

**Cross Center activities:** Opportunities for large cross-center activities lie in the realm of GxE analysis of data in Agtrials (Obj. 1.1: IITA, CIMMYT, CIAT), in pest/disease modeling and response evaluation (Obj. 1.1: CIP, IITA, Bioversity, CIMMYT) and in cost/benefit analysis of adaptation options (Obj. 1.3: IFPRI, CIAT, Africa Rice, IWMI). Theme 1 has requested 250k additional funds to be used to support activities built around setting up collaborations with commodity CRPs to establish breeding priorities (Obj. 1.2), continued budget support to support national adaptation planning for Sri Lanka (Obj. 1.3: 100k, IWMI), and 120k additional funds to establish a cross center post-doc position for GxE analysis, to be based in IITA.

**Budget:** The Theme 1 budget for 2013 is US\$20.8 million. The larger portion of the Center Activity budgets goes to Theme 1 with a 48%. Table 1 shows the distribution of Theme 1 funds across CG Centers. The major portion of the budgeted contributions is concentrated in three Centers: Bioversity, ICRAF and ICRISAT, these three being around 56% of the total. The Theme Leaders total budget is shown separately as well as the Regional Program Leaders budgets which have been broken down into Themes in order to ensure that regional activities are implemented in line with the agreed agenda. The budget per Theme 1 objective is distributed as follows: 63% Obj. 1.1, 19% Obj. 1.2 and 18% Obj. 1.3. 56% of the Theme Leaders 1 budget goes to partners and collaborators.

**Table 1. Theme 1 2013 total budget**

Center	Budget USD (000)	Share (%)
AfricaRice	419	2%
Bioversity	5,308	30%
CIAT	1,637	9%
CIFOR	-	0%
CIMMYT	1,458	8%
CIP	493	3%
ICARDA	1,011	6%
ICRAF	2,615	15%
ICRISAT	1,971	11%
IFPRI	-	0%
IITA	547	3%
ILRI	513	3%
IRRI	385	2%
IWMI	1,323	7%
WorldFish	22	0%
<b>Center subtotal</b>	<b>17,701</b>	<b>100%</b>
Theme Leaders	1,553	13
Regional Program Leaders	1,545	
<b>Total</b>	<b>20,800</b>	

### 3. Theme 2: Adaptation through Managing Climate Risk

**Theme Leader:** James Hansen (IRI)

**Background:** Managing the risk associated with climate variability is integral to a comprehensive strategy for adapting agriculture and food systems to a changing climate. Since many of the projected impacts of climate change are amplifications of the substantial challenges that climate variability already imposes on agriculture, better managing the risk associated with climate variability provides an immediate opportunity to build resilience to future climate change. Theme 2 enables promising innovations for managing climate-related agricultural risk and enhancing resilience at levels ranging from farm households to food systems, and addresses gaps and supports improvements to climate-related information products and services that enable a range of agricultural risk management interventions.

#### Objectives:

##### Objective 2.1: Identify and test innovations that enable rural communities to better manage climate-related risk and build more resilient livelihoods

###### **Intermediate Indicator:**

One to five flagship risk management interventions evaluated and demonstrated by farmers and agencies at benchmark locations in three regions

###### **Key Staff:**

James Hansen (Theme Leader -- 33%), Kevin Coffey (Science Officer -- 33 %)

###### **Major partners and their roles:**

U. of Florida (gender and PAR); NARS in Ethiopia, Kenya, India, Bangladesh, Nepal, Ghana, and Senegal (participatory action research)

##### Objective 2.2: Identify and test tools and strategies to use advance information to better manage climate risk through food delivery, trade and crisis response

###### **Intermediate Indicator:**

Three food crisis response, post-crisis recovery, and food trade and delivery strategies tested and evaluated with partner food system organizations in three regions

###### **Key Staff:**

James Hansen (Theme Leader -- 33%), Kevin Coffey (Science Officer -- 33 %), Michael Sheinkman (CCAFS-funded secondment from WFP -- 100%)

###### **Major partners and their roles:**

UN World Food Programme, Sustainable Development Policy Institute, Nepal Development Research Institute (climate-food security dynamic atlases); Strategic Asia, UNDP (regional trade, stocks and distribution policy); GeoSAS (government food security decision-making in Ethiopia); Food Security Information Network, USAID-FEWSNET (climate input into food security information)



### Objective 2.3: Support risk management through enhanced prediction of climate impacts on agriculture, and enhanced climate information and services

<p><b>Intermediate Indicator:</b></p> <p>National meteorological services and regional climate centers trained and equipped to produce downscaled seasonal forecast products for rural communities in two countries in each of three regions</p>	<p><b>Key Staff:</b></p> <p>James Hansen (Theme Leader -- 33%), Kevin Coffey (Science Officer -- 33 %), Arame Tall (CCAFS-funded scientist, based at ICRISAT -- 100%)</p>	<p><b>Major partners and their roles:</b></p> <p>Climate Services Partnership (networking, communication, knowledge management, workshop co-sponsor); USAID (Mali agrometeorological service evaluation, workshop); Asia Risk Center, Washington State U. (crop and rangeland forecasting tool development); NASA-JPL, FutureWater, JRC (data assimilation for crop forecasting); Kansas State U. (biological threat early warning); IRI-Columbia U. (seasonal forecasting, crop forecasting, meteorological data reconstruction); U. Reading, Princeton U. (meteorological data reconstruction)</p>
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

### 2013 Milestones :

OUTPUT	MILESTONES	PARTICIPATING CENTERS/PARTNERS	REGION
<b>Objective 2.1: Identify and test innovations that enable rural communities to better manage climate-related risk and build more resilient livelihoods</b>			
Output 2.1.1 Synthesized knowledge and evidence on innovative risk management strategies that foster resilient rural livelihoods and sustain a food secure environment	<b>Milestone 2.1.1 2013.</b> Knowledge synthesis deepened, reported and communicated for three gender- and socially-equitable climate risk management interventions; Climate-related risks and vulnerabilities to four key agricultural commodities and /or systems reported.	Bioversity, ICARDA, ICRAF, IFPRI, ILRI, U. Florida, regional (e.g. ECOWAS, IGAD, AIC) and national policy decision makers (e.g., CNEDD-Mali, CONEDD-BF, CSE-Senegal, ANE-Mali in WA) #	SAs, EA, and WA#
Output 2.1.2 Analytical framework and tools to target and evaluate risk management innovations for resilient rural livelihoods improved food security	<b>Milestone 2.1.2 2013.</b> Household modeling tools tested and adapted for evaluating impacts of climate risk and risk management interventions on rural livelihood resilience in 2 countries; Models for crop and water management applied to climate risk and its management in 4 countries.#	Africa Rice, CIMMYT, CIP, IFPRI, ILRI, World Fish, Pennsylvania State U., U. Tasmania#	SAs, EA, and WA#
Output 2.1.3 Development; and demonstration of the feasibility, acceptability and impacts; of innovative risk	<b>Milestone 2.1.3 2013 (1).</b> Gender- and socially-equitable participatory evaluation of risk management interventions, at 2 locations in each of EA, WA and SA; Assessment of transferability and equity of traditional risk management	ILRI, CIMMYT, ICARDA, ICRAF, ICRISAT, IFPRI, WorldFish, U. Florida, and participatory	SAs, EA, and WA

management strategies and actions for socially-differentiated rural communities	<p>strategies and access to services at 2 locations each in EA, WA and SA; Methodology guidelines for participatory evaluation of climate risk management strategies and their gender and social equity; Methodology and lessons from initial sites applied to 4 additional locations</p> <p><b>Milestone 2.1.3 2013 (2).</b> Gender- and socially equitable participatory demonstration and evaluation of impacts of promising production and NRM technologies, and production systems, on livelihood risk and resilience in the face of climate variability, deepened in 5 countries.</p> <p><b>Milestone 2.1.3 2013 (3).</b> Gender- and socially equitable participatory demonstration and evaluation of impacts of social capital, institutional and financial services, and policy interventions, on livelihood risk and resilience in the face of climate variability, deepened in 5 countries.</p>	<p>demonstration project teams (NMS, NARS, other research partners, development NGOs, farmer associations) for benchmark locations</p> <p>#</p>	<p>SAs, EA, and WA</p> <p>SAs, EA, and WA#</p>
<b>Objective 2.2: Identify and test tools and strategies to use advance information to better manage climate risk through food delivery, trade and crisis response</b>			
Output 2.2.1 Enhanced knowledge, tools and evidence to support improved management of the food system (e.g., food delivery, trade, crisis response, post-crisis recovery) in the face of climate fluctuations	<p><b>Milestone 2.2.1 2013;</b> Policy-oriented analysis of climate impacts on food security components, and gender- and socially-differentiated costs and benefits of alternative food security interventions, communicated with key food system stakeholders. ; Food system decision makers engaged in refining and testing decision support tools for food security response strategies.</p>	<p>ILRI, IFPRI, IRRI, GEOSAS, WFP, FSIN, UNDP, NDRI, Strategic Asia, I FEWSNET, relevant line ministries (e.g. MoA, MoE), other relevant regional and national food system and food security response organizations#</p>	<p>SAs, EA, and WA#</p>
<b>Objective 2.3: Support risk management through enhanced prediction of climate impacts on agriculture, and enhanced climate information and services</b>			
Output 2.3.1 Improved, value-added climate information products, knowledge, tools, methods; and platforms for monitoring and predicting impacts of climate fluctuations on agricultural production and biological threats; to support management of agricultural and food security risk	<p><b>Milestone 2.3.1 2013.</b> Historic gridded daily meteorological data sets developed and evaluated, and institutional capacity enhanced, in 2 countries or regional institutions; Crop/rangeland forecasting tools developed; Institutions in 4 countries engaged to develop and test crop forecasting tools tailored to priority crops and local needs.</p> <p>#</p>	<p>CIP, CIMMYT, AGRHYMET, ACMAD, CEREGE, Ethiopia NMA, ANAMS (Senegal), Asia Risk Center, Washington State U., IRI, NASA-JPL, FutureWater, Kansas State U., BARC, NARC, ICAR, FAO, JRC, EMBRAPA, IITA, ICIPE#</p>	<p>SAs, EA, and WA#</p>

Output 2.3.2 Synthesized knowledge and evidence on institutional arrangements and communication processes for enhancing climate services for agriculture and food security, including services that reach marginalized farmers and women	<b>Milestone 2.3.2 2013.</b> Evaluation of agrometeorological advisory services in 2 countries; Tested protocols for designing and communicating salient climate information with rural communities, with attention to the needs of women and socially marginalized; Summary report on gender and social equity of climate information sources and delivery mechanisms, and policy advice to enable equitable access; Synthesis report on status, gaps, opportunities for climate services for agriculture and food security in EA, WA, SA.	CIMMYT, ICRISAT, IWMI, USAID, India Meteorological Department, Meteo-Mali, IER (Mali), World Vision, pilot demonstration project teams (NMS, NARS, NGOs, farmer association, research partners) to be developed for each benchmark location#	SAs, EA, and WA#
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------

**Changes made to Objectives, Outputs, Milestones:** No major changes in strategy were made in 2012. Minor adjustments to several Milestones reflect changes in emphasis and emerging opportunities, particularly under Objectives 2.2 and 2.3.

**Key pathways to impact:** Under Objective 2.1, emphasis will be on connecting participatory and strategic research on two climate risk management interventions, with development organizations interested in scaling up. We have initiated discussion with World Vision about scaling up support for farm-level use of climate forecast information in Tanzania, building on ongoing participatory action research in Kenya and Senegal. We will respond to expressed interest by World Vision and other core partners of the Climate Services Partnership, in curriculum and guidance materials on communicating locally useful climate information. We are also working toward partnership and leveraging opportunities with several development-focused agricultural index insurance initiatives, involving USAID, IFAD, WFP, Oxfam, USAID, the insurance sector, and others. A focus on gender equity challenges will support improved utilization by women, of information and financial services needed to manage risk at at-least one CCAFS site in each region. Under Objective 2.2, we will focus on two key impact pathways in 2013. The first will be work with sub-national government decision-makers in Ethiopia to introduce use of climate-related information for more timely decisions related to food security, and provide evidence of the risks and benefits of earlier action based on advance information. The second is to bring advance information about climate impacts on food production and prices into the ongoing IPC (Integrated Phase Classification for food security) process in South Asia. Under Objective 2.3, analysis of existing climate information initiatives, and evaluation of relatively mature programs in India and Mali will inform good practice guidance, and investments in climate services for agriculture and food security. The Climate Services Partnership (CSP) provides an effective platform for engaging and influencing a network of researchers, information providers, communication intermediaries, donors, and the UN Global Framework for Climate Services. CCAFS has begun working with USAID, under the CSP umbrella, on a strategy for strengthening climate services for agriculture in Sahelian West Africa.

**Major communications efforts:** Theme 2 is supporting new communications platforms based on the “Community of Practice” model to bring CGIAR scientists and Global Change Research partners, working on key thematic areas (e.g., index-based insurance, climate services for

farmers, livelihood diversification, crop and food security forecasting), together to share knowledge and best practices, identify gaps and opportunities, as well as establish common methodologies. A high-profile workshop on *Scaling Up Climate Services for Farmers in Africa and South Asia* (Dakar, Senegal, 10-12 December 2012) will engage a broad set of stakeholders working on climate-related information for farmers, and foster collaboration and investment, and lead to outreach to potential policy, implementation and funding partners in 2013. The communication effort to the climate services community will include a set of videos that highlighting farmers' voices on climate-related challenges and their experience with climate information in India and Mali.

### **Major issues that need to be tackled going forward:**

In 2013, ongoing initiatives will emphasize gender-focused participatory action research around climate risk management interventions, and linking this work to development partners; development of household modeling tools and capacity for evaluating risk management interventions, crop forecasting tools and capacity development; and strengthening climate information services for agriculture. Theme 2 will also introduce a new focus on predicting the food security impacts of climate fluctuations, integrating work on seasonal climate prediction, crop and rangeland forecasting, forecasting price response to production shocks, and disaggregated estimation of impacts on consumption and food security outcomes. Results will be packaged in terms of the now widely-accepted Integrated Phase Classification (IPC) system; and the IPC process will be an entry point for introducing new predictive information into existing food security decision processes. Although individual modeling components exist within the CGIAR and its partners (FAO, WFP, IRI), additional financial resources are needed to bring the partners together and support the integration.

Two major issues need to be tackled: (1) Participatory design and testing of portfolios of risk management strategies at benchmark sites, and evaluation at higher system levels (e.g., household), is an important part of the strategy under Objective 2.1. A significant portion of Center activity under Theme 2 involves testing potentially relevant production technology or other risk management interventions. However, progress at consolidating this work around participatory action research at CCAFS sites has been slow. More effective incentives are needed to either accelerate the process, or shift resources toward more strategic work. (2) In 2012, additional investments directed by the ISP to strengthen under-developed Theme components supported a food security information expert seconded from WFP to strengthen CCAFS work and partnerships at the interface of climate risk and food security management (Objective 2.2); and a new scientist hired through ICRISAT to strengthen and coordinate work on climate services for agriculture and food security across the program (Objective 2.3). These investments have started to correct the imbalance across Theme 2 Objectives. Yet with only one relevant activity in 2012 Center 2012 work plans, work at the level of food systems (Objective 2.2) remains particularly under-resourced within the Centers. The situation should improve over the coming years as new external partnerships and funding opportunities prompt investment within Centers, but this will require extending support for the seconded expert and embedding him in a Center.

**Cross Center activities:** Theme 2 includes several large projects that involve multiple Centers. A systematic review of diversification as a risk management strategy; involving Bioversity, ICRAF, ICARDA, ILRI, CIFOR and WorldFish; demonstrates the potential for knowledge synthesis activities to identify and engage interested researchers across Centers. Theme 2 is working to initiate cross-Center communities of practice in a few strategic research areas: index-based agricultural insurance, risk management through diversification, and climate information and advisories for farmers.

**Budget:** The Theme 2 budget for 2013 is US\$8 million. 15% of the Center Activity budget goes to this Theme. Table 2 shows the distribution of Theme 2 funds across CG Centers. The major portion of the budgeted contributions is concentrated in five Centers: CIMMYT, CIP, ICRISAT, ILRI and WORLD FISH, these five being almost 68% of the total. The Theme Leader total budget is shown separately as well as the Regional Program Leaders budgets which have been broken down into Themes in order to ensure that regional activities are implemented in line with the agreed agenda. The budget per Theme 2 objective is distributed as follows: 50% Obj. 2.1, 13% Obj. 2.2 and 38% Obj. 2.3. 30% of the Theme Leader 2 budget goes to partners and collaborators

Center	Budget USD (000)	Share (%)
AfricaRice	228	4%
Bioversity	-	0%
CIAT	-	0%
CIFOR	-	0%
CIMMYT	972	17%
CIP	775	14%
ICARDA	277	5%
ICRAF	490	9%
ICRISAT	705	13%
IFPRI	247	4%
IITA	-	0%
ILRI	600	11%
IRRI	112	2%
IWMI	470	8%
WorldFish	731	13%
<b>Center subtotal</b>	<b>5,606</b>	<b>100%</b>
Theme Leader	1,201	
Regional Program Leaders	1,287	
<b>Total</b>	<b>8,094</b>	

**Table 2. Theme 2 2013 total budget**

#### 4. Theme 3: Pro-poor Climate Change Mitigation

**Theme Leader:** Lini Wollenberg (University of Vermont)

**Background:** Theme 3 examines how to achieve climate change mitigation in ways that benefit poor farmers and examines the trade-offs that mitigation may involve, especially with the intensification of agriculture. Two windows of opportunity exist for pro-poor mitigation. The first is the design of low net emissions agricultural development pathways. The second is increasing the capacity of the poor (including men and women) to benefit from carbon financing and other incentives, including but not limited to carbon markets. While the largest potential for agricultural mitigation is among smallholders in developing countries, smallholders usually cannot afford the initial capital costs of a transition in practices or carbon market project development, perceive high risks in doing so, encounter data unavailability, and manage diversified mixed crop-livestock systems for which emissions are poorly understood and emissions accounting systems do not yet exist. CCAFS has a comparative advantage in investigating synergies between agricultural mitigation and adaptation, developing generalizations across a range of agroecosystems and regions, and developing integrated whole-farm and landscape approaches.

#### Objectives:

##### Objective 3.1: Inform decision makers about the impacts of alternative agricultural development pathways

###### Intermediate Indicator:

Findings and evaluation tools on mitigation and livelihoods benefits of alternative agricultural development pathways used by global agencies and decision-makers in two countries in each of the three regions

###### Key Staff:

ini Wollenberg (Theme Leader – 33%), TBD (Science Officer – 25%), TBD (Research Program Assistant – 33%), Christopher Clement (Research Assistant – 25%)

###### Major partners and their roles:

CG centers – IFPRI, ILRI, CIAT, IITA (research); IIASA (modeling); WOCAN, FAO (capacity development and information sharing); ENR Africa and NGOs in three regions involved in the CCAFS competitive small grants program (research)

##### Objective 3.2: Identify institutional arrangements and incentives that enable smallholder farmers and common-pool resource users to reduce GHGs and improve livelihoods

###### Intermediate Indicator:

Decision-makers in three regions better informed regarding options and policy choices for incentivizing and rewarding smallholders for GHG emission reductions

###### Key Staff:

Lini Wollenberg (Theme Leader – 33%), TBD (Science Officer – 25%), Christopher Clement (Research Assistant – 50%), TBD (Research Program Assistant – 33%),

###### Major partners and their roles:

CG centers – IFPRI, CIMMYT, IRRI (research); Ecotrust, Vi Agroforestry, CARE, Humbo (PAR on institutional designs, policy and finance; capacity building, trial of finance/incentive mechanisms); ICRAF, EcoAgriculture Partners, U. of Michigan (research)



### Objective 3.3: Test and identify desirable on-farm practices and their landscape-level implications

<p><b>Intermediate Indicator:</b></p> <p>GHG quantification common protocol and monitoring guidelines for smallholder agriculture in developing countries produced and contributing to global standards</p>	<p><b>Key Staff:</b></p> <p>Lini Wollenberg (Theme Leader – 33%), TBD (Science Officer – 50%), Christopher Clement (Research Assistant – 25%), TBD (Research Program Assistant – 33%),</p>	<p><b>Major partners and their roles:</b></p> <p>CG centers – ICRAF, ILRI, IRRI, IFPRI, CIAT (common protocol for GHG measurement and identification of mitigation options, mitigation feasibility); FAO, Colorado State University, Unique Forestry, Duke University, Winrock International, DNDCArt, Global Research Alliance, CLIFF, and the University of Kansas (methods for GHG monitoring and accounting roles)</p>
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

### 2013 Milestones:

OUTPUT	MILESTONES	PARTICIPATING CENTERS/PARTNERS	REGION
<b>Objective 3.1. Inform decision makers about the impacts of alternative agricultural development pathways</b>			
Output 3.1.1 Analysis of agricultural development pathways and trade-offs	<b>Milestone 3.1.1 2013.</b> Analysis of mitigation trade-offs for agricultural development pathways in 3-6 countries (CIAT, IFPRI, T3).	CIAT, CIMMYT, IFPRI, NARS in Colombia, Nicaragua, Burkina Faso and Guinea; Ministry of Agriculture, Kenya.	All CCAFS regions
Output 3.1.2 Enhanced tools, data and analytic capacity in regional and national policy and research organizations to analyze mitigation sectors and agricultural development options	<b>Milestone 3.1.2 2013.</b> Capacity building of decision makers and national stakeholders in use of appropriate tools, data and knowledge (ILRI, T3).	Global Research Alliance. NARIs, University of California Berkeley, Prolinnova, WOCAN, Unique Forestry.	All CCAFS regions
<b>Objective 3.2: Identify institutional arrangements and incentives that enable smallholder farmers and common-pool resource users to reduce GHGs and improve livelihoods</b>			
Output 3.2.1 Evidence, analysis and trials to support institutional designs, policy and finance that will deliver benefits to poor farmers and women, and reduce GHG emissions	<b>Milestone 3.2.1 2013 (1).</b> Research established on economic incentives and benefits for mitigation practices (CIMMYT, ILRI, IITA). Linked to Milestone 3.3.1 (2013-2015).	SIMLESA Project (Africa) CSISA project (SAS-Asia), IITA, ICARDA, ICAR, EIAR, KARI, UMB-USA, UMB-Norway, IFRI and University of Michigan, Makerere University, ILRI, IFPRI, CIMMYT, IRRI, ICRAF, local research partners in benchmark site countries.	SAs, EA

	<b>Milestone 3.2.1 2013 (2).</b> Testing of institutional arrangements for carbon finance, markets and mitigation standards (T3, IFPRI) Linked to CRP6.4.	NARS, IPAM, FOE, University of Michigan, IFRI, GAR, Greenomics.	
<b>Output 3.2.2</b> Improved capacity to increase the uptake and improve the design of incentives mechanisms and institutional arrangements to deliver benefits to poor farmers and women	<b>Milestone 3.2.2 2013.</b> Decision-makers in target regions better informed regarding policy options and gender implications for incentivizing and rewarding smallholders for GHG emission reductions	Government agencies, University networks.	EA, WA, SEA
<b>Objective 3.3: Test and identify desirable on-farm practices and their landscape-level implications</b>			
<b>Output 3.3.1</b> Analysis of mitigation biophysical and socioeconomic feasibility for different agricultural practices and regions, and impacts on emissions, livelihoods and food security	<b>Milestone 3.3.1 2013.</b> Assessment of feasibility and impacts for mitigation practices on farms: (i) soil carbon dynamics under different management practices (EA, SAS, Mexico) and irrigated farming systems in rice-wheat and maize-legume systems (SAS, Mexico) (CIMMYT); (ii) water and nutrient management and avoided straw burning in rice-based production systems (IRRI); (iii) agro- silvi- horti-pastoral farming systems in India (ICRAF); (iv) major crops of Sub-Saharan Africa, coffee and cocoa agroforestry (IITA); (v) dryland Jatropha sites (ICRISAT); (v) pasture and coffee systems (CIAT, with IFPRI); (vi) land use change, land rehabilitation, and peatland management under oil palm (CIFOR); (vii) biochar, integrated smallholder agroforestry, smallholder biofuel production (ICRAF); (viii) livestock, rangelands (ILRI). See also 3.2.1 2013 (2) on biochar (IFPRI).	NARIs in each region, CIMMYT, IFPRI, ICRISAT, ILRI, CIFOR, ICRAF, CIP, IITA, CIAT, IRRI.	All CCAFS regions, LAC, SEA
<b>Output 3.3.2.</b> Methods developed and validated for GHG monitoring and accounting at farm and landscape level to contribute to compliance and voluntary market standards	<b>Milestone 3.3.2 2013.</b> Research established to develop a protocol for quantification of whole farm and landscape GHG emissions among smallholders (ICRAF, ILRI, IRRI, CIMMYT, CIAT, T3). Linked to Milestones 3.3.1 2013-15, 3.2.1 2013 and T4.2.	Colorado State University, T-AGG, Global Research Alliance, Karlsruhe Institute of Technology, Maseno University, NARS in Kenya, Philippines and Vietnam, Duke University, ICRAF.	EA
<b>Output 3.3.3</b> Enhanced capacity for the use and development of monitoring and accounting methods and assessing feasibility and impacts in regional and national research institutions	<b>Milestone 3.3.3 2013.</b> Working groups and networks established in three regions to develop methods for management and MRV of GHG emissions (EA, WA, SAS).	ILRI, Global Research Alliance, NARS in Mali, Ghana, Kenya, Ethiopia, Bangladesh and Nepal, Aarhus University, CLIFF PhD student network.	EA, WA, SAS

**Changes made to Objectives, Outputs, and Milestones:** Milestones have been simplified for readability and accommodation of activities across centers. Details now appear in deliverables column. Most centers overestimated what could be accomplished in 2012, so a number of milestones from 2012 have been extended to 2013 and 2014, and subsequent milestones rescheduled more realistically. .

**Key pathways to impact:** Key pathways for pro-poor mitigation are: (a) In East Africa, linking farm, carbon project and national policy-level participatory action research to demonstrate opportunities for carbon finance to support improved yields, incomes and farmer self-determination (linked to Theme 4.1 work with CARE); (b) Collaboration with agri-businesses in Brazil (livestock) and Indonesia (oil palm) to develop institutional arrangements for supply chains to halt agricultural conversion of forests, in partnership with the Prince's Charities International Sustainability Unit to support learning among 6-10 similar initiatives globally (b) Developing methods for quantifying GHGs at whole farm and landscape levels to identify mitigation options in Kenya, Philippines, Vietnam, and possibly Colombia and India in collaboration with 5-7 CGIAR centers, national universities and agencies, and leading international methods developers and users, including the UNFCCC, FAO, and Global Research Alliance; linked to CLIFF PhD network and GHG working groups in regions; and (c) Synthesizing the evidence needed to demonstrate the feasibility, impacts, and required conditions for agricultural mitigation to advance international attention to mitigation in the IPCC and in COP and SBSTA meetings.

Figure 4 provides an example of a more detailed pathway for improving smallholder benefits from carbon markets.

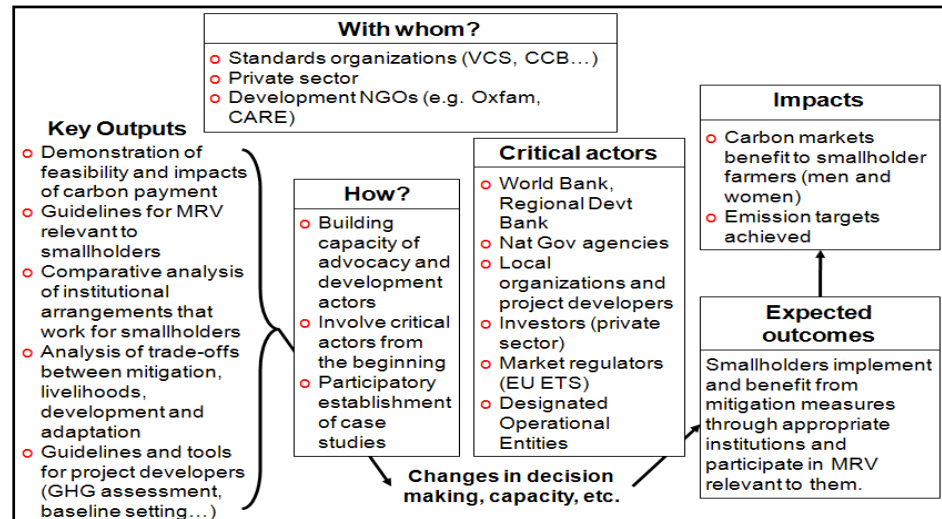


Figure 4. Impact pathway for influencing how carbon markets serve smallholder farmers

Opportunities shaping Theme 3's plan for 2013 include (i) Agriculture is on the UNFCCC agenda, suggesting the possibility of a work program; (ii) increased attention to agricultural mitigation by multilateral organizations (World Bank, FAO), donors (CLUA, DFID), and the private sector through the Climate Smart Agriculture Partnership; (iii) the IPCC Fifth Assessment Report (AR5); and (iv) Global Research Alliance capacity building programs. Theme 3's emphasis in 2013 is as follows: Objective 3.1: (a) Develop decision support tools and analysis at the global level to test the role of agricultural emissions in meeting climate change targets and (b) support national prioritization of mitigation options in Kenya and Colombia Objective 3.2: Identify incentives and institutions at the national and household levels through improving national planning for Nationally Appropriate Mitigation Actions and the quantification of incentives for mitigation practices across CCAFS sites in E Africa, W Africa and IGP; and Objective 3.3: Develop a protocol to identify mitigation options for smallholders in SE Asia and E Africa. Our cross-center initiatives will focus on the GHG protocol and frameworks for integrated approaches to adaptation and mitigation.

**Major communications efforts:** In 2013, we will share key findings from (1) the GHG quantification protocol and results of our syntheses in 2010-2012 of quantification of GHG with users in the regions, and (2) the results of our syntheses in 2010-2012 of incentives for mitigation. We will also develop improved internal communications among CG scientists and partners.

**Major issues that need to be tackled going forward:** Major ongoing initiatives are a protocol for GHG quantification and identification of mitigation options for whole farms and landscapes (CGIAR, 3 years, 170K in 2013) and climate finance (IFPRI, 3 years, 150K in 2013). New initiatives are integrated assessment, decision support and priority setting for mitigation in agriculture (IIASA, 3 years, 140K for first year); a framework for identifying and scaling up women's innovations in mitigation and adaptation at benchmark sites (TBD, 3 years, 100K for first year); technical support to policymakers to test a agricultural NAMA in Kenya (MoA Kenya, FAO MICCA, with CRP 6.4, 100K).

The main issues to be tackled are as follows: (1) The need for a regional strategy to take into consideration different potentials, capacities, and political will among countries. To address this issue, modelling and remote sensing will be conducted to identify mitigation potentials globally together with T4.2. (2) Although progress had been made, most of the focus of Centers' work continues to be on the technical development of practices that reduce GHGs or increase carbon sequestration. More work is needed under 3.1 and 3.2. Provision has been made for a new staff position on climate finance to tackle Objective 3.2 but as yet the post has not been filled, despite two rounds of interviews. IFPRI is using the funds instead to commission work on (a) a review of country readiness for NAMA finance and (b) refining earlier analysis of the scope of corporate social responsibility programs with mitigation elements and how to mainstream these. Additional 3.1 and 3.2 work in 2012 has included establishment of partners and sites in Indonesia and Brazil for understanding incentives and institutional arrangements for sustainable management of agricultural commodities in agriculture-forest landscapes; a global review paper, policy brief and workshop on low emissions development and national mitigation planning, including NAMAs and a review paper on payments for ecosystem services in the livestock sector. (3) Big gaps continue to exist in the analysis of trade-offs, which will be addressed in the 2013 CCAFS science workshop. (4) Centers' impact pathways are unclear, and more effort is needed to support communications and stakeholder involvement among centers.

**Cross-Center initiatives:** GHG quantification protocol (ICRAF, ILRI, IRRI, CIMMYT, CIAT, CIFOR), Adaptation and mitigation trade-offs framework (IFPRI, CIAT, IITA).

**Budget:** The Theme 3 budget for 2013 is US\$9.3million. 19% of the Center Activity budget goes to this Theme. Table 3 shows the distribution of Theme 3 funds across CG Centers. The major portion of the budgeted contributions is concentrated in six Centers: CIAT, CIFOR, CIMMYT, ICRAF, IITA and ILRI, these six being almost 84% of the total. The Theme Leader total budget is shown separately as well as the Regional Program Leaders budgets, which have been broken down into Themes in order to ensure that regional activities are implemented in line with the agreed agenda. The budget per Theme 3 objective is distributed as follows: 16% Obj. 3.1, 10% Obj. 3.2 and 74% Obj.3.3. 28% of Theme Leader 3 budget goes to partners and collaborators.

Center	Budget USD (000)	Share (%)
AfricaRice	-	0%
Bioversity	-	0%
CIAT	740	11%
CIFOR	806	12%
CIMMYT	837	12%
CIP	-	0%
ICARDA	-	0%
ICRAF	1,511	22%
ICRISAT	210	3%
IFPRI	534	8%
IITA	883	13%
ILRI	921	14%
IRRI	377	6%
IWMI	-	0%
WorldFish	-	0%
<b>Center subtotal</b>	<b>6,818</b>	<b>100%</b>
Theme Leader	1,200	
Regional Program Leaders	1,222	
<b>Total</b>	<b>9,240</b>	

**Table 3. Theme 3 2013 total budget**

## 5. Theme 4: Integration for Decision Making

**Theme Leaders:** Philip Thornton (ILRI), Patti Kristjanson (ICRAF)

**Background:** The research undertaken in this theme provides an analytical and diagnostic framework for the whole of CCAFS. It tests and evaluates different engagement, communication and capacity strengthening approaches, together with a range of diverse partners and at different levels, so as to increase the probability that the knowledge generated will lead to actions (changes in strategies, techniques, technologies, policies, institutions) that contribute to impacts on rural poverty, food security, nutrition and health and sustainable management of natural resources. It addresses the need for methods, models, databases and system metrics aimed at two broad challenges: (1) enhanced assessment of the likely impacts of climate change on agricultural systems, particularly in the context of other social and economic changes; and (2) improved methodologies to assess the likely impacts of different policy and program interventions to foster adaptation and mitigation in terms of poverty alleviation, food security and environmental health. Theme 4 provides a critical integrative function for CCAFS. In response to demands from national and global policy makers, it collates and generates standardized global datasets; and undertakes scenario research to

provide plausible futures and guide the development of new technologies and policies in the other Themes of CCAFS. It provides methods and tools for CCAFS data management, priority setting and gender research, as well as to communicate CCAFS individual and integrated outputs. Theme 4 also explores the potential for refined research approaches and non-traditional partnerships, such as social learning and transformative gender approaches, to contribute towards more outcome- and action-oriented research at the local level, and be more pro-active in seeking pro-poor and gender-related outcomes.

### Objectives:

**Objective 4.1: Explore and jointly apply approaches and methods that enhance knowledge to action linkages with a wide range of partners at local, regional and global levels**

**Intermediate Indicator:**

Agriculture mainstreamed into the global climate change policies, and major international food security initiatives fully incorporate climate change concerns

**Key Staff:**

Patti Kristjanson (Theme Leader 4.1 - 100%), TBD (Science Officer – 100%); TBD (gender & monitoring research assistant)

**Major partners and their roles:**

University of Oxford, Society for International Development, Panos Eastern Africa, ASARECA, CORAF, partners in South Asia, IIASA, AgMip, ILRI (scenarios); Prolinnova, AfricaAdapt, Mediae (social learning); CRP2, CRP1.1, CRP1.3, CRP3.7, Consortium gender network, IFPRI, ILRI, CIMMYT, ICRAF, IWMI, ICRISAT, Care, Worldvision, Oxfam, NARS from each CCAFS country (participatory action research), CAPRI/CRP2; IWMI, ICRISAT, ILRI, ICRAF (gender and social differentiation); CRP5, ICRAF, AFSIS, CIAT, IFPRI, IWMI, ICRISAT, Worldfish, NARS, IFFCO (regional farmers' organizations), EAC, ECOWAS, ASARECA, CORAF, INSAH, IIED, IDS, UBC (engagement and communication); NARO, KARI, CRP5, ICRAF (land health)



### Objective 4.2: Assemble data and tools for analysis and planning

<p><b>Intermediate Indicator:</b></p> <p>Global databases and set of tools for climate-smart agriculture established and used by key international and regional agencies</p>	<p><b>Key Staff:</b></p> <p>Philip Thornton (Theme Leader 4.2 - 100%); Wiebke Förch (Science Officer - 100%); Timothy Mulatya (Program Management Officer – 33%); TBD (Data and Knowledge Management Specialist – 100%); Hector Tobon (Data Technician – 100%); Anthony Ndungu (Research Technician – 100%); Jisper Kiplimo (Spatial Analyst – 50%); Ianetta Mutie (Research Technician – 50%)</p>	<p><b>Major partners and their roles:</b></p> <p>University of Reading (support for baseline activities, data management, engagement with national meteorological services and social learning on climate risk); IDS and IIED (social learning to support local decision making on climate change and food security); ILRI (household model development, global integrated model comparisons, vulnerability assessments, social learning); U Cape Town (downscaling climate data and methods; regional climate characterization); Oxford University (regional scenarios and downscaling climate data and methods); IIASA (quantification of regional scenarios, global crop/rangeland extent data layers)</p>
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

### Objective 4.3: Refine frameworks for policy analysis

<p><b>Intermediate Indicator:</b></p> <p>New knowledge on how alternative policy and program options impact agriculture and food security under climate change incorporated into strategy development by at least 3 national agencies, and 3 key international and regional agencies</p>	<p><b>Key Staff:</b></p> <p>Ioannis Vasileiou (Science Officer - 100%)</p>	<p><b>Major partners and their roles:</b></p> <p>CGIAR centers- IFPRI, ILRI, CIMMYT, ICRISAT, CIP, ICRAF (Climate Change research included in the "Global Futures for Agriculture Project", contribution to the creation of an integrated framework for CGE- Partial Equilibrium modeling, participation in crop modeling software improvements); Global economic modeling community (implementation of AgMIP Global Economic Model Intercomparisons: Phase II, contribution to the creation of an integrated framework for CGE- Partial Equilibrium modeling, participation in crop modeling software improvements); University of Florida (leading role in DSSAT crop modeling software improvements), FAO <i>tbc</i> (coordinating role in creation of an integrated framework for CGE- Partial Equilibrium modeling); key regional and national actors (research dissemination in the context of the CRP2 strategic foresight activities, and the "Global Futures for Agriculture" project)</p>
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

## 2013 Milestones

OUTPUT	2013 MILESTONES	PARTICIPATING CENTERS/PARTNERS	REGION
Objective 4.1. Explore and jointly apply approaches and methods that enhance knowledge to action linkages with a wide range of partners at local, regional and global levels			
Output 4.1.1 Future economic development scenarios taking climate change into account, and vulnerability maps and analyses incorporating a changing climate and food security issues shared with decision-makers at national, regional and global levels and informing regional economic development and national food security plans and policies	<b>Milestone 4.1.1 2013.</b> EA and WA regional scenarios finalized in a process that has developed capacity in key national and regional agencies, and policy advisors using the scenarios, or lessons learned through developing them, in informing forward-looking agricultural development, food security, and climate change-related policies and programs. Scenarios partners and processes launched in Latin America and South Asia.	GEC, USAID, ILRI, PANOS, FAO, ASARECA, EAC, ECOWAS, CORAF, EAFF, ROPPA	All CCAFS Regions
Output 4.1.2 Evidence on, testing and communication of, successful strategies, approaches, policies, and investments contributing to improved science-informed climate change-agricultural development-food security policies and decision making	<b>Milestone 4.1.2 2013.</b> First results from PAR, including gender analyses, are published and fed into national and regional policy processes; Synthesis and research reports developed on lessons from linking land health and soil carbon measures with socioeconomic information from CCAFS sites; Local institutional capacity strengthened in land health surveillance methods including soil carbon measurement in additional regions	Local and national NARS, NGOs, gov't agencies and University partners, PROLINNOVA, CARE, CG Gender Network, most CG centers and CRPs, AFSIS/CIAT, EA, WA and SAsia farmers' organizations	All CCAFS Regions
Output 4.1.3 Analyses providing evidence of the benefits of, strategies for, and enhanced regional capacity developed in, gender and pro-poor climate change research approaches that will increase the likelihood that CCAFS-related research will benefit women and other vulnerable as well as socially differentiated groups.	<b>Milestone 4.1.3 2013.</b> Syntheses and other joint partner communication products based on findings from CCAFS work with women and marginalized groups.	CRP2, FAO, IWMI, ICRISAT, ILRI, ICRAF, CGIAR Gender Program, national partner institutions (universities, NARS, gov't)	All CCAFS regions

<p><b>Output 4.1.4 Strengthening capacities to effectively engage in global policy processes and mainstreaming risk, adaptation and mitigation strategies into national policies, agricultural development plans, and key regional and global processes related to agriculture and rural development, food security and climate change</b></p>	<p><b>Milestone 4.1.4 2013.</b> Support to negotiators, civil society and government agencies to fully contribute to the UNFCCC work program on agriculture, with explicit support to marginalized groups to build their capacity to participate in policy development to improve food security; Assessment of effectiveness of CCAFS learning approach and utilization by a diverse range of partners of CCAFS-generated knowledge.</p>	<p>CRP6, EAFF, ROPPA, IFFCO (regional farmers' organizations), EAC, ECOWAS, ASARECA, CORAF, INSAH, government agencies in target regions/countries; key private sector partners in each region</p>	<p>All CCAFS regions</p> <p>All CCAFS regions</p>
<p><b>Objective 4.2. Assemble data and tools for analysis and planning</b></p>			
<p><b>Output 4.2.1 Integrated assessment framework, toolkits and databases to assess climate change impacts on agricultural systems and their supporting natural resources</b></p>	<p><b>Milestone 4.2.1. 2013 (1).</b> Regional site characterizations and baseline data synthesized in cross-regional comparisons in the initial three target regions; Regional site characterizations and baseline data collection completed and initial analyses initiated in two additional target regions at three levels: household, village, and institution</p> <p><b>Milestone 4.2.1. 2013 (2)</b> Downscaled climate data and methods available for application; and regional climate characterization and evaluation of global and regional climate model performance for two additional target regions</p> <p><b>Milestone 4.2.1. 2013 (3).</b> Databases and tools further elaborated and managed to enable stakeholders to assess impacts and evaluate options, including weather data products and household level agricultural systems data</p> <p><b>Milestone 4.2.1. 2013 (4).</b> Assessment toolkit components further evaluated, refined and used to analyze likely effects of specific adaptation and mitigation options in target regions, with a focus on household and intra-household model data and testing and intercomparison of global and regional integrated assessment models</p>	<p>University of Reading Statistical Group, CGIAR centers, regional partners (as last year); CSI, HarvestChoice, Met Services; AFSIS; IHSN</p> <p>CIP, CIAT, University of Cape Town, University of Oxford, Waen Associates; University of Reading, University of Leeds, INPE</p> <p>FAO, ILRI, IIASA, IFPRI, University of Wisconsin, University of Reading, Met Services, WMO, UK Met Office, Harvard, CIAT, ICRAF, CIMMYT, ICRISAT; Hutton Institute, AgMIP</p> <p>ILRI, IIASA, IFPRI, CSIRO, Wageningen University IIASA, PIK, AGMIP, PBL, University of Oxford, Global Futures, regional stakeholders, I, FAO, AfricaRice, IRRI, CIP, ICRISAT, IWMI</p>	<p>All CCAFS regions</p> <p>All CCAFS regions</p> <p>All CCAFS regions</p> <p>All CCAFS regions</p>

Output 4.2.2 Socially-differentiated decision aids and information developed and communicated for different stakeholders	<b>Milestone 4.2.2. 2013 (1).</b> Outcome-oriented approaches to decision aids developed in selected sites in 3 initial target regions that engage with socially- and gender differentiated target groups	National and regional partners, CG centers, ILRI, IDS, IIED, Prolinnova, University of Reading, and partners to be identified	All CCAFS regions
<b>Objective 4.3. Refine frameworks for policy analysis</b>			
Output 4.3.1 Climate change impacts assessed at global and regional levels on agricultural systems (socially and gender differentiated producers and consumers, and their natural resources), national/regional economies, and international transactions and potential of international and regional policy changes to enhance adaption and support agricultural greenhouse gas emissions mitigation	<b>Milestone 4.3.1 2013.</b> Improvements to a modeling environment for policy evaluation and ex-ante assessment of promising technologies related to climate change	CGIAR centers (IFPRI, IRRI, ILRI, CIMMYT, ICRISAT, CIP, ICRAF), Global modeling community, FAO, University of Florida	Global
Output 4.3.2 Analyses of the likely effects of specific adaptation and mitigation options, national policies (natural resource, trade, macroeconomic, international agreements) including gender/livelihood groups, and communicated to key local, national and regional agencies and stakeholders.	<b>Milestone 4.3.2 2013.</b> Global model intercomparisons for analysis of climate change impact, related to mitigation and adaptation policy choices in the agricultural sector. Integration of modeling work into foresight and strategic scenarios building	CGIAR Centers, Global economic modeling community (University of Chicago, University of Sussex, MIT, Oregon State University, Purdue University, Wageningen UR, IIASA, ABARES, LEI, PIK, Pacific Northwest National Laboratory, USDA, NIES (Japan), PBL Netherlands Environmental Assessment Agency, DAFF (Australia), World Bank, EC, FAO, OECD), CRP2 partners, other International Organizations, key regional and national actors	Global
Output 4.3.3 Capacity built at CGIAR, NARS, and international organizations to perform global and regional analyses of the effects of policy changes using tools developed in output 4.3.1	<b>Milestone 4.3.3 2013.</b> Collaboration with CGIAR centers, NARS, and international organizations to further increase capacity in utilizing and developing modeling tools, to perform global and regional analyses in the context of promising technologies related to climate change	CGIAR Centers (IRRI, ICRISAT, ICRAF, CIMMYT, CIP)	Global

**Changes made to Objectives, Outputs, Milestones:** No significant changes in strategy were made. Changed wording was mostly related to the consolidation effort. Theme 4.3 milestones were revised either to reflect transition to a more inclusive research agenda, or to include significant changes in individual activities previously articulated.

**Key pathways to impact:** Figure 5 summarizes Theme 4's impact pathway. Key opportunities in 2013 involve using the multi-stakeholder developed scenarios to influence policies of the East African Community, and to evaluate user-driven mitigation and adaptation options and better inform those decisions by a wide range of partners engaged and trained in this process. New gender tools will be applied across CCAFS sites and capacity of local and regional partners built in gender-CC analyses. CCAFS's baseline instruments, training materials and data are now being widely downloaded from the Dataverse site and used in new sites, regions, and by other CRP's and partners.

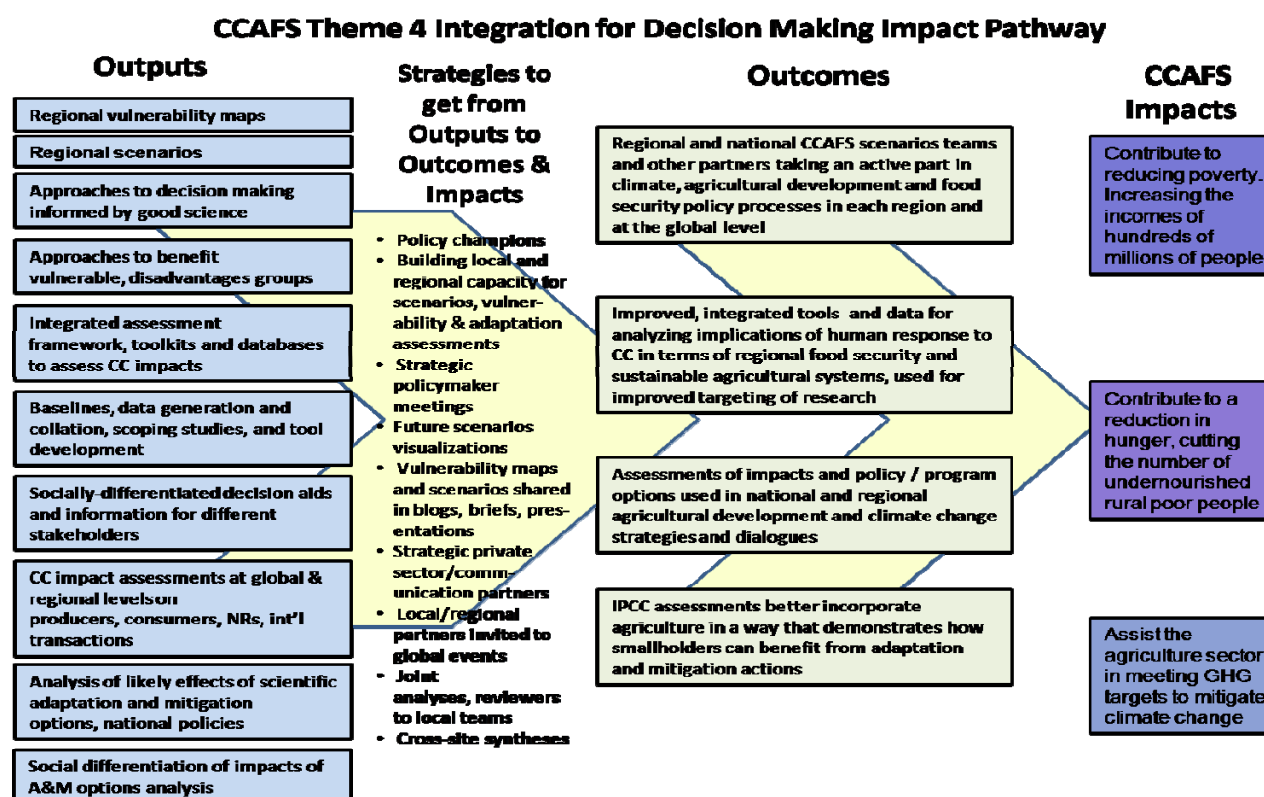


Figure 5. Theme 4 Impact Pathway

**Major communications efforts:** Theme 4 researchers are pursuing multiple strategies aimed at innovative and effective engagement, social learning and communications. These are happening at global, regional, national and local/site levels. In addition, global communication specialists, Panos, are a key partner helping us develop multiple communication products aimed at making CCAFS research products widely accessible, useful and used, and visualization and modeling approaches will be linked in order to tailor CCAFS research products to multiple end users. In 2013 Theme 4 will deliver, in collaboration with FAO and other partners, a background paper on food security and climate change for a high-profile conference on “Food Security Futures: Research Priorities for the 21st Century”, building on several key CCAFS outputs in 2012. A strategy for climate change communications and social learning in climate change was developed in 2012 and will be implemented in 2013. Main components of the strategy include The Sandbox, linked to an Innovation Fund, aimed at building a community of practice on social learning in agricultural research for climate change. Working with ILRI, IDS, IIED and ProInnova, we are exploring social learning as an enhanced tool for local engagement, with the aim of developing decision aids that are appropriate for socially-differentiated stakeholders at the local level.

**Major issues that need to be tackled going forward:** Theme 4 as the cross-cutting theme notes the challenges of establishing cross-theme and cross-region integration, especially with the increased portfolio of center activities. Substantial efforts are needed to tackle these challenges. Theme 4 will support outcome mapping exercises across all CCAFS target regions to help streamline outcome-oriented research. While there has been a strong technological focus in research, Theme 4 has noted the importance of social learning approaches in order to direct more outcome-oriented research involving envisioned target groups in the research process itself. There are also substantial gaps, notably in the areas of participatory action research (PAR) (particularly at the CCAFS benchmark sites) and research on gender and social differentiation. In both these areas we have made substantive investments in 2012 and will continue to support CCAFS in this regard. The CCAFS science meeting in 2013 will focus on social learning and social differentiation and invite a broad audience to discuss the CCAFS strategy. The general problem that very few Centers submitted gender-related, engagement-oriented activities in their 2013 Center Activity Plans continues to be an issue, although the new gender network, with gender specialists from each CRP (many that are recent hires) will be adding critically needed expertise in this areas from the centers. We will encourage the involvement of the newly trained gender-CC analysts in each region and identify remaining gender-CCAFS theme related research gaps and get more centers involved in filling them in 2013. Cross-center coordination, sharing, and scaling out, of successful approaches and methods (e.g. scenarios, vulnerability mapping, outcome mapping with partners, innovative engagement approaches, social learning and participatory approaches, social media and other communication strategies) for linking knowledge with action, remains a challenge. Much attention will be paid to fostering inter-center collaboration in these areas (see section below). A key gap identified in all regions is the lack of decision support tools by national level decision makers for making investment choices amongst alternative agricultural technologies, practices and development pathways. Activities are under way in each region to develop tools for evaluating both mitigation and adaptation options.

**Cross Center activities:** Theme 4 is engaged in a range of cross-center activities and take a role of coordinating these, as well as supporting syntheses and joint workshops. Theme 4 has developed a CCAFS data management strategy in close collaboration with Reading University, as well as with ILRI, ICRAF, CIMMYT and the Consortium Office. The CCAFS regional scenarios are a prime example of cross-center activities that currently involve ILRI, ICRAF, IFPRI, as well as several non-CGIAR partners (IIASA, SID, PANOS, EAC). The social learning work aims to explore



innovative approaches to supporting local decision-making and is conducted in close collaboration with ILRI, CRP5, IDS, IIED and Prolinnova. Moreover, gender and social differentiation work is coordinating studies within each of CCAFS research themes and is pulling in gender experts from the following Universities: Davis, Florida, Minnesota and Columbia, and the new CG Gender network that includes all 15 centers.

The household modeling work is exploring the development of options related to adaptation, mitigation and risk management, with links to the regional scenarios in CCAFS regions that provide the broad context for household-level studies. Farming household systems data are being collected in all core CCAFS sites, and a consortium of partners is developing around the work, including ILRI, ICRAF, ICRISAT, and IWMI, as well as partners in universities in North America, Europe and Australia. Theme 4 is hosting or facilitating several workshops in 2013 aimed at fostering cross-center linkages; these are to do with exploring synergies and collaboration on vulnerability assessments across different regions and at different scales (partners include ILRI, Bioversity, CIAT, ICRISAT), tools that can be used for systems analysis (partners include IITA, Bioversity, CIAT, ILRI, CRP1.1, CRP1.2, CRP1.3, CRP5), and one on comparing methods for downscaling climate model outputs (partners include CIP, ILRI, CIAT, IWMI, University of Leeds, IRI). Additionally, Theme 4.3 brings together several CGIAR Centers (IFPRI, IRRI, ILRI, ICRAF, ICRISAT, CIMMYT, CIP) in collaborative modeling work, which will feed in the following cross-cutting activities; a. Inclusion of climate change research in the “Global Futures for Agriculture” project, a multi-year activity funded by the Bill & Melinda Gates Foundation, b. Crop modeling improvements in the DSSAT software c. Creation of an integrated framework between CGE and Partial Equilibrium modeling d. Support to CRP2 “Strategic Foresight” work to include climate change components.

**Budget:** The Theme 4 budget for 2013 is US\$13.4 million. 18% of the Center Activity budget goes to this Theme. Table 4 shows the distribution of Theme 4 funds across CG Centers. The major portion of the budgeted contributions is concentrated in four Centers: ICRAF, ICRISAT, ILRI and World Fish, these four being around 60% of the Center total. The Theme Leaders total budget is shown separately as well as the Regional Program Leaders budgets which have been broken down into Themes in order to ensure that regional activities are implemented in line with the agreed agenda. The budget per Theme 4 objective is distributed as follows: 37% Obj. 4.1, 48% Obj. 4.2 and 15% Obj. 4.3. 44% of Theme Leaders 4 budget goes to partners and collaborators.

Center	Budget USD (000)	Share (%)
AfricaRice	116	2%
Bioversity	218	3%
CIAT	562	8%
CIFOR	-	0%
CIMMYT	514	8%
CIP	533	8%
ICARDA	-	0%
ICRAF	1,125	17%
ICRISAT	761	11%
IFPRI	449	7%
IITA	-	0%
ILRI	1,247	19%
IRRI	78	1%
IWMI	240	4%
WorldFish	849	13%
<b>Center subtotal</b>	<b>6,692</b>	<b>100%</b>
Theme Leaders	3,401	
Regional Program Leaders	3,348	
<b>Total</b>	<b>13,441</b>	

**Table 4. Theme 4 2013 total budget**

## 6. East Africa Region

**Regional Program Leader:** James Kinyangi (ILRI)

**Background:** Agricultural systems in East Africa are highly vulnerable to climate change and variability because of high dependence on rainfall. Rapid population growth rates, poverty and inequality exacerbate problems caused by exposure to climatic variability and change. Moreover, the current infrastructure for the production and delivery of food will be overstretched in future, threatening food security. The region, therefore, requires long-term actions to build the capacity of its people and institutions to adapt to climate change and reduce greenhouse gas emissions. The regional program will continue to help raise awareness among policymakers and farmers of climate change impacts and support research into appropriate risk management, long term adaptation and mitigation actions.

**Major initiatives:**

In 2013, emphasis will be placed on integrating CCAFS thematic research through building a network of CGIAR and NARES research partnerships. Participatory action research (PAR) will be implemented at the six CCAFS sites in the region under the “climate-smart villages” (CSVs) approach. In 2012, six PAR projects were developed during the regional science workshop held in Arusha, Tanzania. These bring together working groups from NARES and CGIAR centers on building capacity for measurements of greenhouse gases in agriculture, mapping opportunities and risks to target crop-livestock adaptation strategies, climate analogues to design adaptation strategies and downscaling seasonal forecasts for risk management in agriculture, including the integration and communication of farmers’ indigenous technical knowledge. Farmers and self-help groups at CCAFS sites as well as local NGOs and community service organizations will continue to refine and scale up technologies and interventions to enhance adaptive capacity and decrease the vulnerability of rural communities to climate variability and change. The Regional Learning Partnership (RLP) launched in 2011 will be strengthened to build capacity for evidence-informed policy making across east Africa. Through the partnership, an outcome mapping exercise will be completed for all CCAFS regional partners, to align research outputs and outcomes. . The RLP will work across scales, from local to regional levels. CCAFS action research at local level, for example, will provide empirical data to inform local-national-regional policy processes and support the mainstreaming of climate change and the work of CGIAR CRPs into the Comprehensive Africa Agricultural Development Program (CAADP). Through the RLP, the program will continue to support dialogue with national and regional policy makers and actors with regard to inclusion of agricultural issues in climate change policies, and of climate issues in agricultural policies, including international climate change negotiations. (<http://ccaafs.cgiar.org/blog/post-durban-dialogue-climate-change-and-agriculture-eastern-and-southern-africa>). A key contribution in 2013 will be the documentation of 6 to 10 case studies that provide the scientific evidence to lead African negotiators in the UNFCCC process.

## Key staff and major partners and their roles

### Key Staff:

James Kinyangi (Program Leader - 100%), Maren Radeny (Science Officer – 100%), Timothy Mulatya (Program Management Officer – 30%) Assenath Kabugi (Program Assistant - 100%), Communications Officer (To be recruited)

### Major partners and their roles:

Regional and national climate change, agriculture and food security research and non-research organizations (action research partners - NARES, Universities, NMHS, ICPAC, CGIAR; policy processes – EAC, COMESA, FANRPAN); NGOs, Farmers' organizations (EAFF and SACAU) and community based groups at CCAFS sites. The program will focus on mobilizing local level actions and promoting knowledge sharing through farmer exchanges, dialogue with scientists and decision makers. To scale up the work of CCAFS and partners, different communication mechanisms and formats will be tested and used for timely dissemination of climate services and products, including seasonal climate forecasts to various stakeholders (farmers/extension workers). Use of modern ICT tools, existing agro-input distribution systems and other innovative non-traditional communication channels will be explored. Broadcast media, for example, rural radio will be used to stimulate dialogues with farmers on climate risk management options and climate change adaptation measures. We will explore how to link this to other regional initiatives such as with the Shamba-Shape-Up initiative that is supported by Rockefeller foundation, AGRA and the AECF. There will be linkages to other regional and Africa-wide initiatives tapping into a wider network of expertise, knowledge and regional networks and align key research and policy directed interventions.

**Key pathways to impact:** One of the key pathways for engagement is through the Regional Learning Partnership (RLP). The RLP will galvanize key regional economic commissions, institutions, policy entities, farming organizations and researchers focusing on integrating CCAFS thematic research as well as informing the science - policy process. In 2013, the quarterly adaptation and migration professional group meetings will be strengthened. Through shared learning on climate information and services the partnership is promoting enhanced up-scaling and co-generation of knowledge and tools. The program will partner with CARE and the ACCRA to host a major knowledge sharing workshop to consolidate partners' outputs. Exhibitions at key regional events and conferences such as the African Ministerial Conference on Environment (AMCEN) and annual conference on Climate Change and Development in Africa (CCDA) will be planned to engage policy makers and share widely CCAFS research results. Feedback from the knowledge sharing workshop will be used to further refine RLP knowledge outputs. A capacity development approach will be adopted where fellowships will be granted to six young scientists in 2013 for mentorship programs. The program will invest in and deepen approaches such as through gender research hubs, for integrating gender and social differentiation in CRP 7 programs at local and national scales. In addition, regional capacity building through training in use of climate scenarios and climate analogues will continue to support identification of appropriate adaptation interventions. Two farmer-to-farmer exchanges to analogue sites will be organized in 2013, to enhance exchange of knowledge and technology among farmers. Major events will be planned with the CCAFS coordinating unit in order to benefit from wide global publicity.

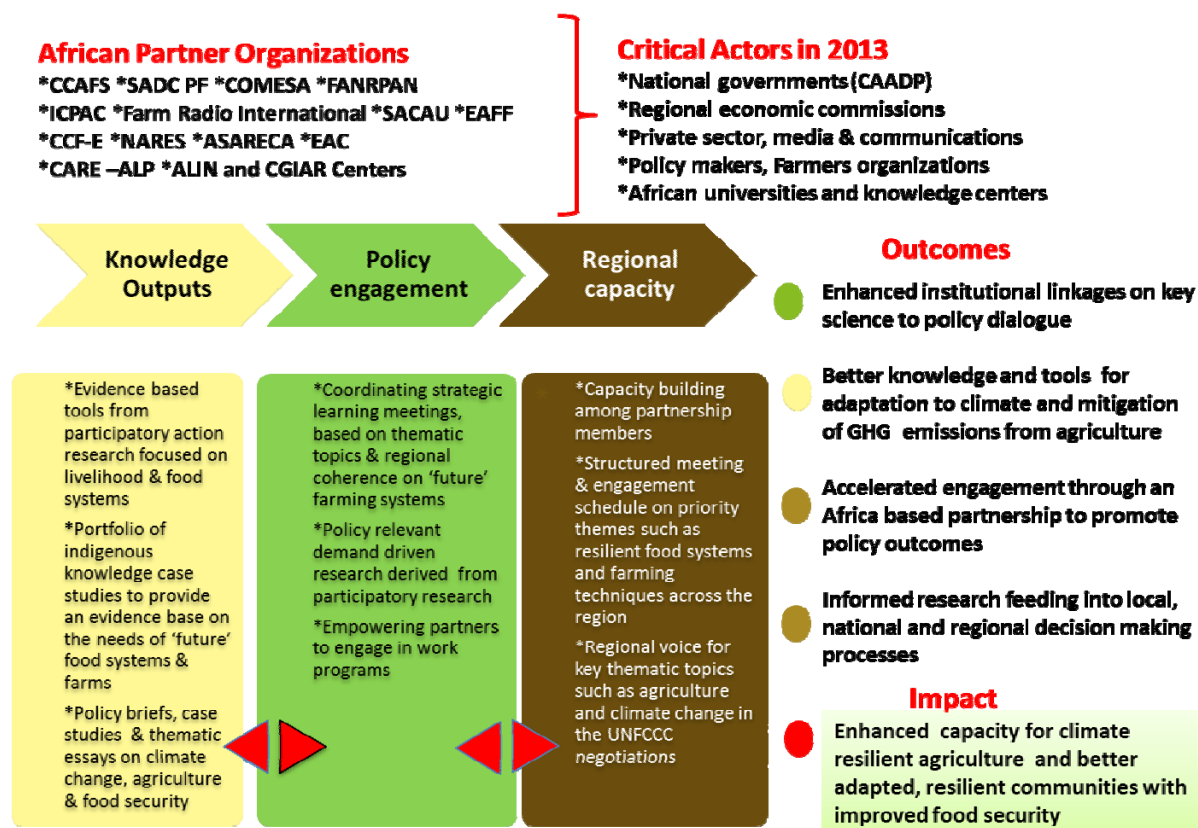


Figure 6. The Regional Learning Partnership (RLP) is an African partnership that is focused on informing the interface of science and policy.

**Major communication efforts:** To effectively communicate CCAFS outputs and those of the participating partners, the innovative use of ICTs will be explored, including building a communication platform that fosters knowledge sharing through the use of savvy tools, particularly web applications through the development of a website. The possibility of using existing CCAFS communications tools will be explored before creation of any new platforms. Together with CCAFS coordinating unit, two major events will be held in 2013, an Africa wide knowledge and shared learning event, bringing together CCAFS research partners and a high level regional policy meeting to engage key decision makers and share widely CCAFS research results. The core focus of communication will be on: cyclical feedback of action research from CCAFS benchmark sites and grassroots partners into the RLP and then into policy relevant outputs. Also, a joint effort with COMESA on the climate impacts of the

food insecurity situation in the Horn of Africa will provide a technical paper, a documentary integrating high-level political voices, and a policy brief to outline pragmatic interventions on transformative actions required to increase climate resilience of agriculture in the drylands of east Africa. Lessons from the field, and within CCAFS will be documented in a quarterly newsletter that will be shared with partners. Video testimonials of farmers' voices will be documented and shared at policy forums to sensitize decision makers. To better understand and serve the needs of regional partners, a communication and knowledge management study was commissioned, that will lead to in 2013, the formulation of a regional communication strategy for CCAFS and its partners.

**Major issues that need to be tackled going forward:** While there are many Center activities in regions they are not, because of the inherited agenda, well aligned with CCAFS strategy or taking place in CCAFS sites. There were attempts in 2012 to bring together scientists from CGIAR and NARES to plan together for longer term regional projects. As part of new investments initiated in 2012 the region will continue to improve alignment. However, Centers are still hesitant to commit scientist time to regional activities even though this is budgeted under the Center led activities. Through working with disaster and risk reduction and climate services partners, the program will continue to focus on food security in a holistic way, rather than the current focus on production. In 2012 effort was made to scope out the key research topics related to the broader food system, including post-harvest loss as well as new and emerging pests and disease patterns in agricultural systems. In 2013 new partnerships such as with ICIPE and the Vegetable Research Center in Arusha will be explored in order to address capacity gaps for research on pests and diseases.

**Cross Center activities:** The program will build on the initiatives in 2012 for inter-center collaboration. In Uganda, for example, CIAT and Bioversity through a PAR approach will be testing improved bean varieties under CIAT/PABRA and bean landraces as part of in-situ biodiversity conservation by Bioversity at the CCAFS sites. Two other centers, CIAT and CIMMYT are participating in a partnership to map risks and opportunities for targeting appropriate crop and livestock adaptation strategies in East Africa. In addition, we intend to foster more integrated PAR through the work of ICRISAT on seasonal weather forecasting approaches and that of Bioversity on building resilient agricultural systems. An initial output in 2013 will be one project developed through the agricultural model inter-comparison regional working group on climate and decision support tools. We will encourage TSBF to complete the land degradation surveillance framework surveys, providing baseline information on biophysical characteristics of the CCAFS sites in East Africa and to centers working in the climate smart villages.

**Budget:** East Africa Regional Program Leader budget for 2013 is US\$2 million. Budgets for regional programs have already been indicated in the Theme budgets as regional programs are integrated into themes. Regional Program Leader budget going to partners represents about 44% out of the total budget for 2013.

## 7. West Africa Region

**Regional Program Leader:** Robert Zougmore (ICRISAT)

**Background:** West Africa is characterized by large rural populations who depend on rain-fed, cereal-based subsistence agriculture in the sub-humid and semi-arid zones and on pastoralism in the arid zones. These areas are highly vulnerable to climate variability and sensitive to any future changes of climate. Increasing frequency and severity of episodic climate shocks – primarily drought – have led to major food crises in the dry lands of this region, with resultant loss of lives and livelihoods, and a cycle of costly disaster relief competing with long-term development for scarce resources. The regional program aims to identify partnerships, opportunities for and impediments to action, measures and communications channels needed to sustain and broaden successful outcomes, knowledge and capacity gaps, and potential policy responses to support adaptation and mitigation to climate change.

**Major initiatives:** In 2012, various activities pertaining to research, engagement, capacity strengthening and communication have been initiated with identified partners at community, national and regional levels. This covered major components such as (1) testing of adaptation and mitigation practices and technologies through participatory action research (PAR) at CCAFS sites; (2) Capacity strengthening of partners on research approaches, scientific tools, M&E, knowledge and information management and sharing; (3) Decision making support for policy makers; and (4) Communication and outreach. These activities will be pursued in 2013 in order to achieve the milestones for the regions priority outputs. Gender and social differentiation will be mainstreamed across activities.

### Key staff and major partners and their roles

#### Key Staff:

Robert Zougmore (West Africa Program Leader - 100%),  
Abdoulaye Saley Moussa (Science officer -100%);  
Minielle Tall (Communication Officer - 100%), Andre  
Butler (Visiting scientist – 50%), Mundeke Wavelellah  
(Administrative Assistant- 100%)

#### Major partners and their roles:

CORAF/WE CARD,, CSE(policy engagement at regional level, based on existing regional and national platforms and channels, to reach, e.g., ECOWAS, ROPPA, Ministries of Agriculture and Environment); ICRAF (regional coordinating partner, comparative research and impact framework); AfricaRice (Decision support tools to prioritize adaptation and mitigation options at national/sub-national scale); IUCN (participatory monitoring and evaluation to strengthen adaptive capacity of farmers), AGRHYMET (regional player, linking with national meteorological services and NARES to develop climate risk management strategies, up scaling of tools (analogues and scenarios) and information, capacity strengthening); NARES, NGOs and local partners (research and policy).

**Key pathways to impact:** Figure 7 synthesizes the strategy that will allow working across themes and with relevant partners in order to design climate smart agriculture models that can be scaled-up. A group of championing individuals identified from national policy institutions will be capacitated to form the backbone for an innovative policy decision making that insure the mainstreaming of climate change in agricultural plans.

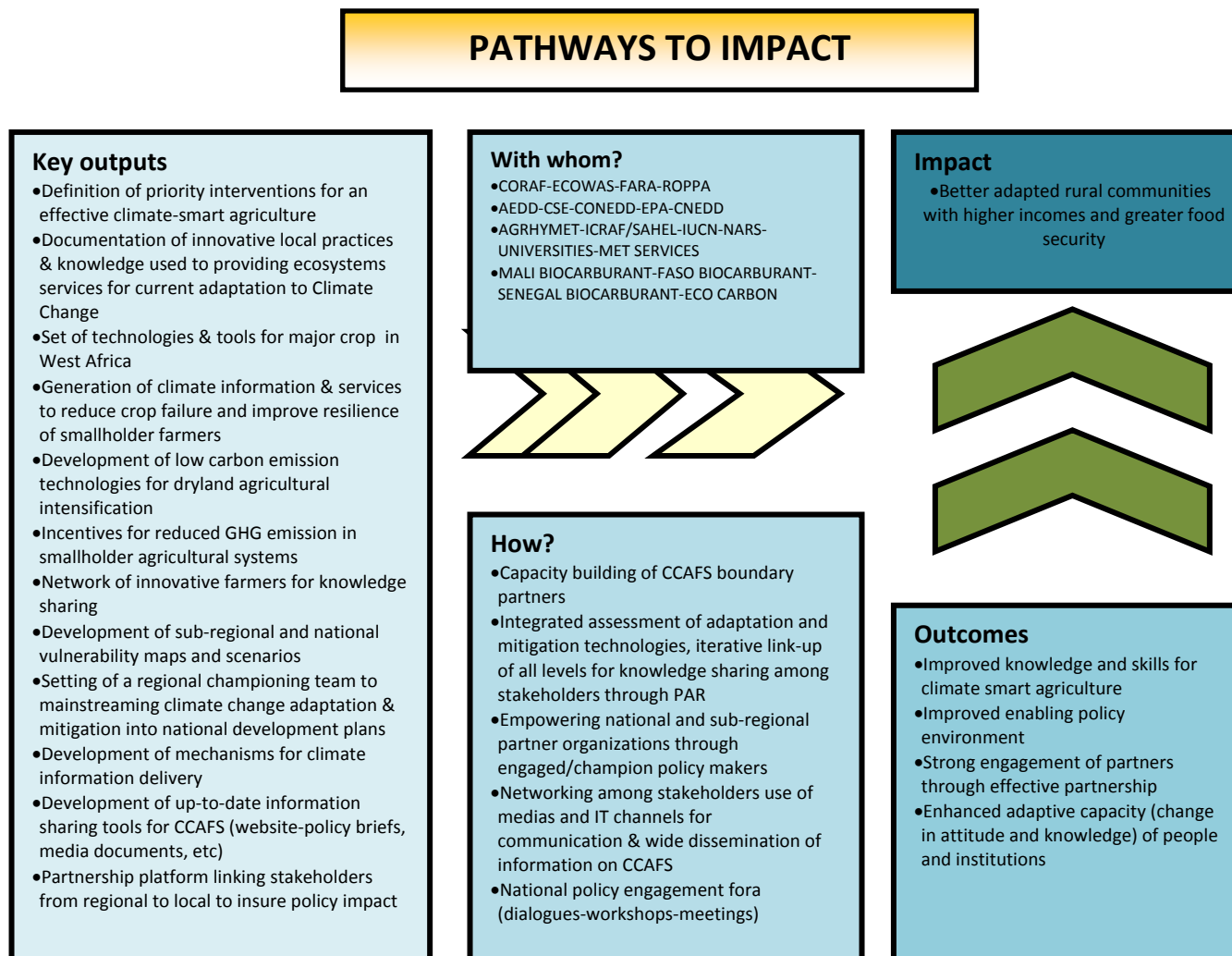


Figure 7. WA Pathways to Impact



In 2013, knowledge and behavioural change acquired by local stakeholders through the implementation of the participatory planning (M&E toolkit) and through the analogue site visits, will serve to iteratively focus the PAR work on climate change adaptation and mitigation issues. Initial demonstrations with communities will be pursued in order to test, adapt, improve and monitor strategic innovations supporting climate-smart agriculture. In the Sudano-Sahelian and Sahelian regions, examples of priority production interventions with expected mitigation and adaptation synergies are integrated soil nutrient management, agroforestry, rehabilitation of degraded lands, and water conservation and management. Conservation agriculture will be promoted within these cropping systems through reduced tillage (ex: zaï technique) , crop rotation and soil cover in order to increase carbon sequestration and to improve soil health. In the humid zones, interventions will focus on agricultural intensification; Potential mitigation practices will be examined from the perspective of carbon sequestration, mitigation incentives, institutional arrangements, gender impacts, etc. The regional group of experts will develop tools and information (e.g. scenarios, emissions factors) relevant to the region for the quantification of greenhouse gases. Based on lessons learnt from the pilot farmers' exchange between climate analogue sites, 3 exchange visits will be organised in 2013 to document social and cultural barriers that limit the adaptive capacity of farmers and their communities. . Climate risk management strategies will focus on downscaled seasonal climate - crop forecasting – Index-based crop insurance; drought-tolerant varieties; climate information delivery mechanisms. Overall, the country learning & exchange platforms will be the backbone for defining research priority needs, national policy orientation and the mainstreaming of adaptation to climate change into national agricultural development policies and strategies.

Capacity in the region is weak on all fronts. The WASCAL project which aims to strengthening the research infrastructure and capacity in West Africa related to climate change and to pooling the expertise of ten West African countries and Germany, will be a key partner. In 2013, research questions identified through the PAR process in the five pilot sites will be considered for MSCs and PhD studies in collaboration with WASCAL universities in West Africa. Through AGHYMET, NARS and national meteorological services will be strengthened to improve met data quality and to develop new climate services that are tailored to the need of farmers.

**Major communication efforts:** A more comprehensive communication strategy has been developed for West Africa in 2012 and will serve as a basis for communication outreach such as to develop products that will enable rapid exchange and learning across sectors and between the field and national levels. In addition to sharing relevant knowledge and information with partners through the regional and national learning and exchange platforms, the website in French will be maintained, where CCAFS publications, reports, policy briefs, videos, blogs will be posted. TV and Radio programs will also be developed with regional broadcasting channels. One of our major's communication activity in 2013 will be the launch of special series with Africable and WADR that will serve as outreach platforms for CCAFS pilot countries and partners in West Africa (example: series of documents on gender issues related to climate change and food security developed and broadcasted on Maina TV). These collaborations with Media companies will allow us to boost CCAFS visibility by giving our partners frequent occasions to showcase their work on the ground through CCAFS and to create a momentum on climate change agriculture and food security. A bimonthly newsletter will be also launched in 2013 in order to share regular updates on CCAFS activities and outputs to partners.

Better uses of photographs and drawings to document Field visits are likely to be produced and shared. Two policy dialogues gathering national stakeholders (scientists, policy makers, private sector, etc.) will be organized in two selected countries around a specific subject of interest (ex: seasonal forecasting and food crisis).

**Major issues that need to be tackled going forward:** In 2012, the development of an adaptation road map for the rice sector in Senegal, as a decision support tool to guide national priority investments for climate smart agriculture has been initiated through Africa Rice. However, with the increasing number of approved CRPs, a rising challenge is how to mobilize effectively CGIAR centers and local partners (more and more solicited) around CCAFS activities in regions. Although additional investments have been recommended by the ISP to be utilized in the regions for greater involvement of CGIAR Centers in participatory action research, and for developing tools to prioritize adaptation and mitigation options at national/sub-national scale, there is an urgent need to improve the cross-CRPs activities for an efficient partnership at all levels.

**Cross Center activities:** The participatory action research work initiated in 2012 in CCAFS sites, is coordinated by ICRAF and ICRISAT. Also, the development of decision support tools for priority investment options in the rice sector in West Africa is led by Africa Rice with expected inputs from IWMI and CIAT. In 2013, these cross center activities will involve other centers based in WA such as ILRI and IFPRI.

**Budget:** West Africa Regional Program Leader budget for 2013 is US\$1.8 million. Budgets for regional programs have already been indicated in the Theme budgets as regional programs are integrated into themes. Regional Program Leader WA budget going to partners represents 44% out of the total budget for 2013.

## 8. South Asia Region

**Regional Program Leader:** Pramod K. Aggarwal (IWMI)

**Background:** South Asia is 2.4% of the world's land surface area but is home to almost 23% of the world's population. Agriculture employs more than 50% of the labor force in South Asia and contributes 14-25% of GDP depending on the country. The region has shown tremendous progress in last four decades in food production and availability, yet 1/4<sup>th</sup> of the world's hungry and 40% of the world's malnourished children and women live here. South Asian population continues to grow rapidly implying a greater demand for food. The additional quantities will have to be produced from the same or even shrinking land resources due to increasing competition for land from the non-agricultural sectors. Alleviating poverty and attaining food security at the household and sub-national/regional level is thus a major challenge. Climate change is likely to compound this situation further. Millions of people in South Asia are vulnerable to climate change because of depleting glaciers, increasing coastal erosion, frequent floods, droughts, and

periods of higher temperatures associated with global warming. For addressing these challenges CCAFS SA is focusing climate smart PAR activities in the priority sites, working with partners on climate change adaptation and mitigation policies, and capacity building of the national partners.

**Major initiatives:** In 2011 and 2012, together with CG, national and local partners, we had started at our baseline sites participatory action research in the form of climate smart villages to facilitate integration of CCAFS thematic research at field scale. Interventions to promote climatic resilience, adaptation, mitigation and profitability of farmers are being tried by farming communities. In 2013, this work will be given further impetus. A proper data collection and management strategy in these villages will be initiated. Another major initiative in 2013 will be development of an adaptation/mitigation plan for supporting policy analysis and investment decisions at sub-national scale (in India) and at national scale (in Nepal). The Climate Smart Agriculture Learning Platform for South Asia (CSALP), launched in 2012, will be strengthened to build capacity for evidence-informed policy making across South Asia. Capacity in the region in climate change scenarios, analogues, yield forecasting, and gender issues will be further strengthened.

### Key staff and major partners and their roles

#### Key Staff:

Pramod K. Aggarwal (Program Leader - 100%); Gopal D. Bhatta (Regional Science Officer- 100%); Deepshikha K. Sharma (Communication Officer-70%), Nirmal Sigtia (Administrative Officer- 100%).

#### Major partners and their roles:

Nepal Agricultural Research Council (participatory action research in Nepal's terai); Bangladesh Agricultural Research Council (GHG measurements); IFFCO Foundation (participatory action research for climate risk management in Vaishali, Bihar); National Bureau of Plant Genetic Resources, India (climate analogues and germplasm evaluation and conservation); Bioversity International (climate analogues and germplasm evaluation and conservation); WorldFish (participatory action research in coastal regions of Bangladesh); IFPRI (prioritization of adaptation/mitigation interventions); IWMI (mapping floods and their impacts and water management interventions in CCAFS sites); IRRI (baseline GHG emissions), CIMMYT (action research in CCAFS sites), Indian Department of Meteorology and Department of Hydrology and Meteorology, Nepal (weather forecasting and associated agro-advisories); farmers organizations and community based groups at CCAFS priority sites for action research.

**Key pathways to impact:** Figure 8 shows the key impact pathways to be followed in 2013 which will build on the efforts made in 2011 and 2012. These include participatory action research at some selected sites in the region to demonstrate integrated approaches for climatic risk management, capacity strengthening of rural women leader in understanding climate change and the adaptation options, and of other stakeholders to understand, to apply knowledge for climate linked germplasm evaluation and conservation, vulnerability assessment, and yield forecasting; and to develop and apply decision support tools to prioritize interventions that will enable agriculture become climate smart. Farmer to farmer learning will be accelerated by facilitating farmer exchange at climatic risk analogue sites. A series of training workshops will be organized to strengthen capacity in the region in downscaling climate change scenarios, climate risk analogues, climate information dissemination and utilization for risk management, and adaptation planning. Gendered adaptation strategies will be explored especially in the eastern Gangetic plains. One of the key pathways for regional engagement is through Climate Smart Agriculture Learning Platform (CSALP) for South Asia. CSALP will organize Science-Policy-People Interface in at least one country in South Asia in which policy makers, political leadership, researchers and farmers will be engaged to support climate smart planning at different scales using CCAFS tools and methodologies.

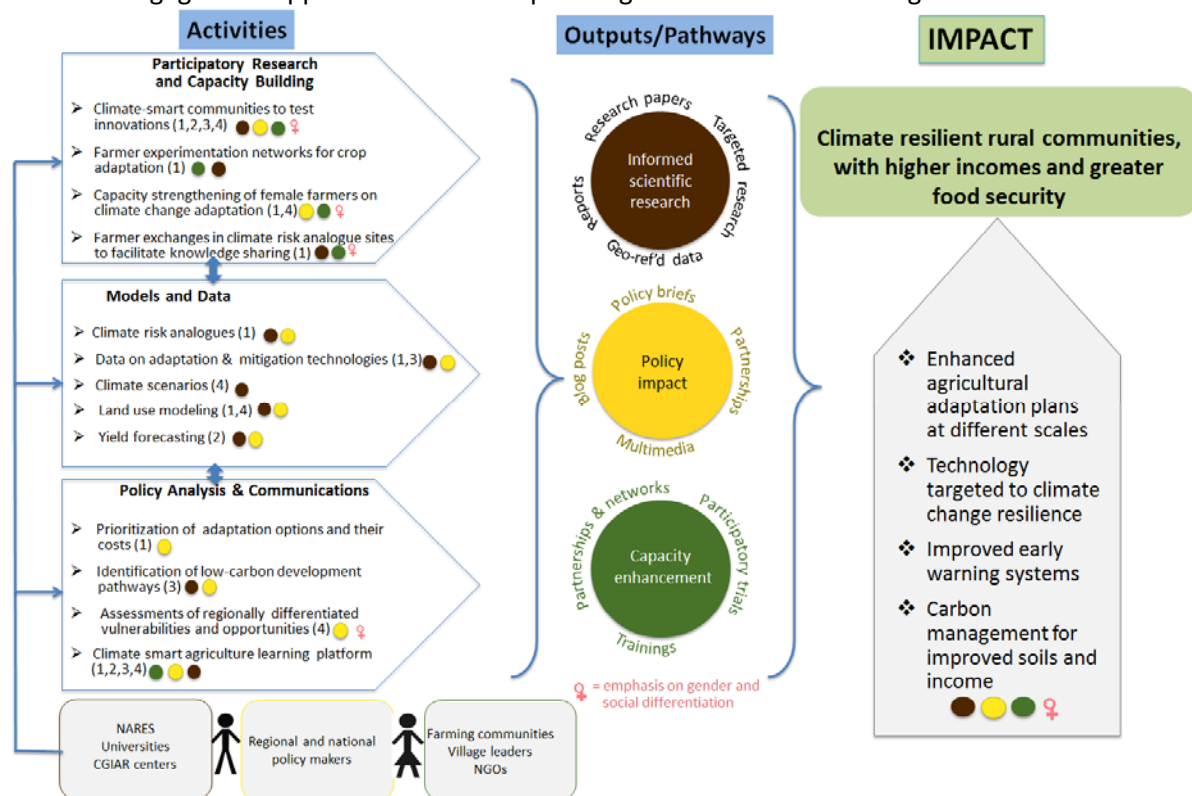


Figure 8. South Asia pathways to impact

**Major communication efforts:** The communications strategy in 2013 will consist of two parts: (a) Project-specific: It will match up all projects with publication outputs (e.g., internal report, CCAFS report, CCAFS working paper, or journal articles) and communications outputs (e.g., project description for SAS webpage, blog post, event on CCAFS event page, quarterly newsletter covering major outputs of the CCAFS funded projects in the region and related projects, photos, video, or AMKN data); reports of the outcome mapping and planning workshop, Science-Policy-People Interface involving national stakeholders, (b) Regional program-wide: It will synthesize what CCAFS does in the region, succinctly and clearly. This will entail managing the SAS webpage, creating a brochure about the CCAFS-SAS program and projects, and publishing a short annual report on each year's research outputs. Climate Smart Agriculture Learning Platform started in 2012 will be strengthened in 2013. The planned high level regional science-policy interface workshop in 2013 will be supported by a focused press conference and a few policy briefs. Farmer to farmer dissemination of climate smart agricultural practices will be promoted through farmer participatory videos.

**Major issues that need to be tackled going forward:** The key need in the region, identified even earlier, is tools for national level stakeholders to make investment choices amongst different options for climate-smart agriculture. Together with IFPRI we have started addressing this but a more focused approach is still needed. We also need a climate risk analogue mapping tool together with climate analogue tool to make greater use of the concept in shorter-time frame. Capacity in some countries in the region is relatively low for uptake of technology, intensive tools and techniques such as weather-linked agro-advisories and index based insurance. Finally, there is a need to have significant partnership with national researchers and policy makers for increasing impact of CCAFS. CCAFS South Asia will focus on all these areas in 2013.

Many of our contracts are multi-year. Several contracts were initiated in 2011 and 2012 to bring CG centers together at our PAR sites. As a consequence, there is relatively little budget in 2013 to strengthen earlier activities or to launch new initiatives. Additional budget is needed to start activities on climate information services in Nepal and for facilitating adaptation planning in the region.

**Cross Center activities:** Several centers (CIMMYT, IRRI, Bioversity, IWMI, IFPRI, WordFish) are working together on climate smart villages at different sites and on promoting various adaptation/mitigation activities. IFPRI, CIMMYT and some others shall start working on the process and tools of decision making.

**Budget:** South Asia Regional Program Leader budget for 2013 is US\$ 1.8 million. Budgets for regional programs have already been indicated in the Theme budgets as regional programs are integrated into themes. Regional Program Leader SAs budget going to partners represents 40% out of the total budget for 2013.

## 9. South East Asia & Latin America Region

New regional offices will be established at CIAT in Cali for Latin America and at IRRI in Hanoi for South East Asia. The Regional Program Leader is expected to be in post by late 2012 in Latin America and early 2013 in South East Asia. A consultant will be employed in the last part of 2012 for the SEA office so as to get things moving.

Some information collation will take place in late 2012 and be continued into early 2013 to prepare for country selection and site selection. As soon as Regional Program Leaders are in place they will organize stakeholder meetings to get input into these selection decisions. Regional program Leaders will be asked to prepare work plans for 2013 as soon as they are in post, and these will be discussed and approved at the PMC meeting in the 1<sup>st</sup> quarter of 2013.

**Budget:** South East Asia and Latin America Regional Program Leaders budget for 2013 is US\$ 0.9 million each. Budgets for regional programs have already been indicated in the Theme budgets as regional programs are integrated into themes.

## 10. Global partnerships, engagement & communications

CCAFS objectives for partnerships, engagement and communications are to provide a credible and authoritative platform for scientific information, knowledge and tools on agriculture and food security under climate change, and to engage actively at all levels to facilitate user-driven research, science-based dialogue, knowledge sharing, and evidence-based policy. To achieve these objectives, strategic partnerships will be critical to ensuring that research maintains relevancy to dynamic policy agendas, scientific knowledge is co-generated and co-owned, and space is created for science-based dialogue among different interest groups.

CCAFS has a wide remit in this area and, in order to set annual priorities at the global level, the strategy is to engage in a small number of major activities with key partners each year, while keeping a wider set of partner relationships active. Many communications activities are handled by Themes, Regions and CGIAR Centers, with a limited number of products and events (those most strategic for global communications) managed by the Coordinating Unit.

Our global communications efforts have been largely successful and in 2013 we will put a greater effort into supporting Regional Program Leaders so as to help build national and regional outcomes.

For 2013 the plans for major global activities are:

### Events:

- Second Global Climate-Smart Agriculture Science Conference at University of California-Davis: develop conference topics and major content contribution; convene scientists across CGIAR and support young scientists attendance (capacity enhancement)
- Irish EU Presidency Conference on Hunger, Nutrition and Climate Justice: co-organized and co-financed by Irish Aid, the Mary Robinson Foundation - Climate Justice, CCAFS and the World Food Programme (WFP)
- Bonn SBSTA and UNFCCC COP19 in Eastern Europe (country to be confirmed): Depending on progress of agriculture at COP18, strategic sub-events and outreach. This will include holding Ag Day 6, now labeled "Agriculture, Landscapes and Livelihoods Day"
- Africa Agriculture Science Week, to held in West Africa (Accra): support FARA in the delivery of the conference and engage key policy audience to build opportunities for outcomes
- East Africa high level regional policy meeting to engage key decision makers and share widely CCAFS research results
- Seventh Community-Based Adaptation Conference to be held in South Asia (Dhaka) – CCAFS to run the session on scaling up success in agriculture, which will build on the case study analysis done for COP18 and facilitate interchange between participatory action researchers from CCAFS sites and a largely development agency and practitioner audience

### Synthesis products:

- "Managing transitions in climate-smart agriculture" – a partnership with FAO to make practical assessment of the changes needed towards climate-smart agriculture, what is entailed in the process and the metrics of change and success, to be released at the IFPRI Food Security Futures meeting in April 2013 and to inform agenda-setting across FAO and CGIAR climate work (main target audiences: donors, national governments, development agencies)



- Assessment of the role of conservation agriculture in achieving outcomes for mitigation, adaptation and food security, in partnership with CIRAD( main target audiences: donors, national governments, development agencies, farmers’ organizations and rural communities of practice)
- “Big Facts” project: Management and updates of state-of-the-art best scientific quantitative statements on key parameters of food security, adaptation in agriculture and food systems, mitigation in agriculture and food systems (main target audiences: media, policy makers, implementation agencies, civil society organizations, farmers’ organizations and rural communities of practice)
- Nine issues of AgClim Letters (main target audiences: policy makers and opinion leaders at international, regional and national levels)
- Food Climate Research Network: Support to FCRN to improve understanding of climate change issues across the food system among its network (main target audiences: private sector, policy makers, implementation agencies, research community)
- Set of three background papers on the role of rural-urban linkages in providing adaptation innovations for future food security with co-benefits for mitigation, in partnership with START and IIED, as a component of CCAFS engagement on food security, leading into a multi-stakeholder workshop (main audiences: at this early stage, research partners in CCAFS countries, smaller-scale private sector)

#### **Communications products and support activities:**

- Up to eight globally strategic CCAFS reports and policy briefs
- Finalization of revamped website, including new CCAFS open-access online repository for research outputs, in first quarter and implementation for the remainder of the year
- Implement an updated partnership database system
- Up to four strategic global or regional media campaigns based on CCAFS outputs and, preferably, linked to strategic events and to theme and region impact pathways to the extent possible
- The global communications unit will step up work with regions on communications, media outreach and knowledge management activities, and develop common platforms for communication and knowledge management
- Up to four live streamed CCAFS video science seminars
- Develop farmer testimonials (captured via photos, videos and stories) from baseline sites, through field visits for CCAFS communicators
- Organize voluntary media training for CCAFS scientists
- Regular updates to subscribed stakeholders
- Director’s monthly and quarterly bulletins

**Budget:** The global partnerships, engagement and communications budgets, as well as a few centrally-administered capacity enhancement activities (see section 4) are coordinated by the University of Copenhagen, as part of its role in the Coordinating Unit. Total budget for 2013 is \$1.77 million.

## 11. Capacity Enhancement

CCAFS seeks to help both researchers and research users to enhance their own capacity to demand, conduct, use and critique research on the inter-relationships among climate change, agriculture and food security. For researchers, the CCAFS objective is to provide opportunities to enhance personal and institutional capacity in the emerging range of conceptual frameworks, databases, analytic tools and means of communication, for example on policy options and on uncertainty. For decision-makers and other users of research, CCAFS aims to assist them to be better users of knowledge, and also better agenda-setters – more effective in their abilities to interrogate current knowledge and priorities around climate change and food security, and to develop convincing alternatives.

CCAFS capacity enhancement activities are mainstreamed within the Milestones (units of research and policy engagement work of between \$0.5 and \$1.5 million) under the four research themes, and carried out by CCAFS Theme and Region staff, by CGIAR Centers that partner in the delivery of CCAFS, and by other core partners. Most research and policy activities have explicit capacity enhancement components. Some of the major initiatives for 2013 are highlighted below.

Under Theme 1, CCAFS will train research and development partners (especially female and young scientists) in at least 11 countries to use new monitoring and modeling tools for climate change adaptation for different crops including underutilized species. CCAFS will also run regional training workshops on approaches and methods for evaluating the costs and benefits of adaptation strategies on a national scale. Also, farmer-to-farmer exchanges to analogue sites will be organized, to enhance direct exchange of knowledge and technology among farmers.

Under Theme 2, capacity enhancement will focus in 2013 on building national capacity on development and evaluation of historic gridded daily meteorological data sets and on development and testing of crop and rangeland forecasting tools tailored to priority crops and local needs.

Under Theme 3, a key agenda for 2013 is to continue raising capacity in the understanding, prioritization and quantification of mitigation potentials in livestock, agriculture forestry and aquaculture sector, including analysis through the supply chain and differentiation of systems of known importance to women and the poor. As part of its work on a common protocol to support identification of mitigation options and to contribute to international standards for smallholders, CCAFS will enhance capacity among regional working groups and the student research CLIFF (Climate Food and Farming Network). CCAFS will furthermore enhance capacity in methods for management and MRV (monitoring, reporting and verification) of GHG emissions in three regions.

Under Theme 4, CCAFS will facilitate the completion of scenarios for the East Africa and West Africa regions, enhancing the capacity of decision-makers to use this material and these tools in informing forward-looking agricultural development, food security, and climate change-related policies and programs. CCAFS will also strengthen local institutional capacity in land health surveillance methods, including soil carbon measurement, and in application of the IMPACT and CGE models. Another key area will be support to negotiators, civil society and government agencies to contribute fully to the (possible) UNFCCC work program on agriculture, with explicit support to marginalized groups to build their capacity to participate in policy development to improve food security.

Further capacity enhancement activities under Theme 4 will address gender issues. CCAFS will train partners (e.g. trainers in the African Women in Agricultural Research and Development (AWARD) program) in gender-sensitive research approaches, which will in turn train others in the CCAFS target regions. The gender equity impacts of this “training of trainers” approach will be further enhanced by contributions to the recruitment and leadership development of women scientists working on CCAFS Theme research questions and sponsorship of their participation in important CCAFS-related events.

The CCAFS Regions will take the lead on several of the key capacity enhancement activities, integrating across the Themes. The participatory action research (PAR) sites will be the loci for social learning and capacity enhancement among multi-agency groups that include farmers and local government. The regional learning platforms will play a similar role at the regional level, enhancing capacity for evidence-informed policy and for policy-informed research. These learning platforms will also be the basis for strengthening decision-makers’ capacity to provide evidence-informed and coordinated inputs to the UNFCCC. The Regions will also invest in region-specific capacity enhancement initiatives that address particular needs. For example, South Asia will rural women leader in understanding climate change and the adaptation options, East Africa will grant fellowships to six young scientists, and West Africa will partner in a WASCAL project which aims to strengthen research infrastructure and capacity on climate change.

A new collaboration has begun with the University of Alberta to train PhD students in resource economics and rural sociology, working on CCAFS topics in CCAFS sites. Students will select topics in collaboration with Theme Leaders and Regional Program Leaders. This effort is aimed at strengthening the social science and economics within CCAFS.

## 12. Gender & Social Differentiation

CCAFS is in the process of implementing its new comprehensive social differentiation and gender strategy, aimed at integrating gender analysis in climate change, agriculture and food-security research across the Program's Themes, and support and strengthen capacity development and organizational gender mainstreaming. The following activities will be implemented in 2013:

1. Joint development and field testing of an intra-household, gender differentiated survey instrument and training materials for implementation in select CCAFS/other CRP 'gender sentinel' sites (with CG gender network, IFPRI, ILRI, ICRAF, CRP2, CRP1.3, U. of Reading, U. of Florida, AWARD, and all CCAFS themes). This survey will address adoption of CSA practices by women and men and the least food secure households, one of CCAFS's proposed new intermediate development outcomes.
2. Training partners (e.g. African Women in Ag Research and Development (AWARD) program trainers) in gender-sensitive research approaches (that will in turn train others in the CCAFS target regions) and sponsoring their participation in CCAFS-related events; assessing and monitoring needs for training and maintaining a roster of suppliers of training.
3. The Theme 4.1 leader is a member of the CG Gender Network Committee on Joint Monitoring and Evaluation, which has received support from SIDA for a monitoring and evaluation expert to be based at ICRAF with CCAFS, and who will work together with the Network on development of a set of cross-cutting gender outcomes and how to measure them.
4. Continuing to post and highlight gender-related research outputs on the CCAFS website and facilitating a community of practice for knowledge-sharing and collaboration in climate-change related gender research.
5. Conducting comparative analysis of gender-disaggregated data (e.g. collected during the IMPACT household and gender surveys) and learning across CCAFS regions and sites, contributing to the Program's scenario development, ex ante analysis and policy dialogue.
6. Using the gender strategy to guide and support the application of gender analysis in the design and testing of CCAFS adaptive and mitigation strategies, technologies and institutional arrangements, addressing social differentiation and gender issues critical for their relevance and acceptability to end-users.
7. Implementing case studies and participatory action research in CCAFS benchmark sites to address CCAFS theme-related gender questions.
8. Contribute to the recruitment and leadership development of women scientists working on CCAFS Theme research questions and sponsor their participation in important CCAFS-related events.
9. A special issue highlighting innovative CG work on gender entitled 'Gender integration across the agriculture for development research cycle: Informing good practice' is being developed by the Theme 4.1 leader and CRP1.3's gender specialist, and supported by the CG gender network.

The budget for gender and social differentiation activities is mainstreamed into theme budgets, where we have been meeting a target of approximately 16% of total TL and RPL budgets and 19% of Center Activity budgets going to such work. We continue to work with the center's climate focal points, together with the CRP gender network (with gender experts from each center/CRP) to increase their investments in gender and social-differentiated work, particularly in our joint sites. The strategy of sharing all CCAFS baseline and other survey data with other CRP's continues to attract them to work/choose sites in the same landscapes/watersheds.

### 13. Priority Setting, Monitoring & Evaluation

**Foresight and Priority Setting:** at the highest level, research priorities for CCAFS are set by the Strategic Results Framework of the Consortium. At the programmatic level, priorities for CCAFS were first set via extensive consultations with all Centers and other partners, and these are being continually reviewed and updated, through explicit stock-taking and gap analyses (example: the household modeling review, workshop and research agenda development) and through formal and informal consensus building (example: the identification of new CCAFS target regions). A key output of Theme 4 is a broad set of ex-ante assessment tools to evaluate the likely impacts of different research and development approaches, with links to the regional scenarios being developed and quantified in each of the CCAFS target regions. In 2013, the focus will be on (1) identifying priority sites and activities in the new CCAFS regions and (2) drawing up and starting to execute implementation plans for monitoring CCAFS's IDOs.

**Evaluating Research Outcomes:** at all the CCAFS sites, a set of baselines is being implemented at three levels – household, village and organization -- designed to meet some of the needs of future ex-post impact assessment. The baseline, using the same survey instruments across the highly diverse CCASF regions and sites, is providing snapshots, in the form of indicators, of current behavior as regards adaptation, mitigation and risk management. All instruments, guidelines and data are publicly available, and the surveys are being utilized by other organizations as well. In the coming years, ex-post impact assessments will be carried out at the CCAFS sites by rerunning the baselines surveys using the same instruments, complemented with additional site- and intervention-specific data as needed. In 2013 (baseline in SEA, LA)

**Ex ante Impact Assessment:** In 2013, Theme 4. will continue to build the modelling framework for ex ante impact assessment at the broad level (global, continental, regions), and model development for more local analyses (at farm and household level) will continue, in concert with the regional scenario work.

**Internal Learning:** To ensure that we constantly learn from the implementation of CCAFS, considerable attention will be given to internal learning.

What	When	Who
a. 360° evaluation (by peers, subordinates and supervisors) of Theme Leaders, Regional Program Leaders, CU staff	January	Peers, Sub-ordinates, Supervisors
b. 360° evaluation of Center performances	April	PMC, Contact Points
c. Evaluation of 2012 report of activities	April (TBC)	ISP
d. Progress against major indicators assessed	April (TBC)	ISP
e. Ongoing feedback from stakeholder groups in regions and globally (through targeted activities designed to reflect on research priorities), and annual reflection on impact pathways and need for modification of strategy/ Outcomes/ Outputs/ Milestones	June	PMC
f. Facilitated reflection on the progress recorded on key success factors	September	PMC and external facilitator
g. Revisit risk analysis	September	PMC

**Monitoring:** As soon as the principles for monitoring and evaluation are completed by the Consortium Office (CO) the priority is to finalize the CCAFS Monitoring and Evaluation strategy. In the course of 2013 we will be expected to submit our second monitoring report to the CO. The data for monitoring will all have been collected in the above internal learning activities.

What	When	Who
a. Monitoring report to be submitted to CO – a report based on c & d above	March	PMC

**External Evaluation:** All that will be required at this point is likely to be on-going attention to the baselines survey, as appropriate; and CIAT/ISP commissioned external evaluations. A key evaluation to be conducted in 2013 is the evaluation of governance and management systems. One further review will be commissioned for 2013.

What	When	Who
a. Ensure that the baseline data from households, villages and organisations is publically available on the web	January	Theme 4.2
b. Plan for new baseline surveys to be initiated in 2013 in newly selected regions	November	Theme 4.2
c. Center-commissioned evaluation of the governance and management system of CCAFS	Jan-Mar – Evaluation conducted Apr-May – report evaluated	Evaluator CIAT
<b>d. Second Center-commissioned evaluations for 2013</b>	May-November	CIAT

## 14. Administration Coordination and Management

### Coordinating Unit carbon footprint reduction

The CCAFS Coordinating Unit (CU) has committed itself to reducing its greenhouse gas (GHG) emissions from everyday activities. The CU is in the process of implementing the carbon footprint reduction strategy that was finalized in 2012. The following activities will be implemented in 2013:

#### **GHG emission reduction in selected focus sectors:**

- Air travel: reduction of air travel, reduce purchase of business class tickets, and increase and improve video conferences, video presentations and other alternative solutions.
- Events: eco-friendly events checklist; selection of environmentally-friendly conference venues, accommodation and restaurants when possible; increase vegetarian catering; publications available digitally and online; offset options for air travel to be proposed for participants of CCAFS event.
- Office: reduce electricity, heating, printing and other emissions related to the office;
- Offsetting via the agroforestry project “Emiti Nibwo Bulora” in Tanzania (near a CCAFS site) in partnership with the Plan Vivo program. The project involves small-scale farmers planting fruit trees, and adopting land management techniques that sequester atmospheric carbon and prevent leakage.



## 15. Organizational chart

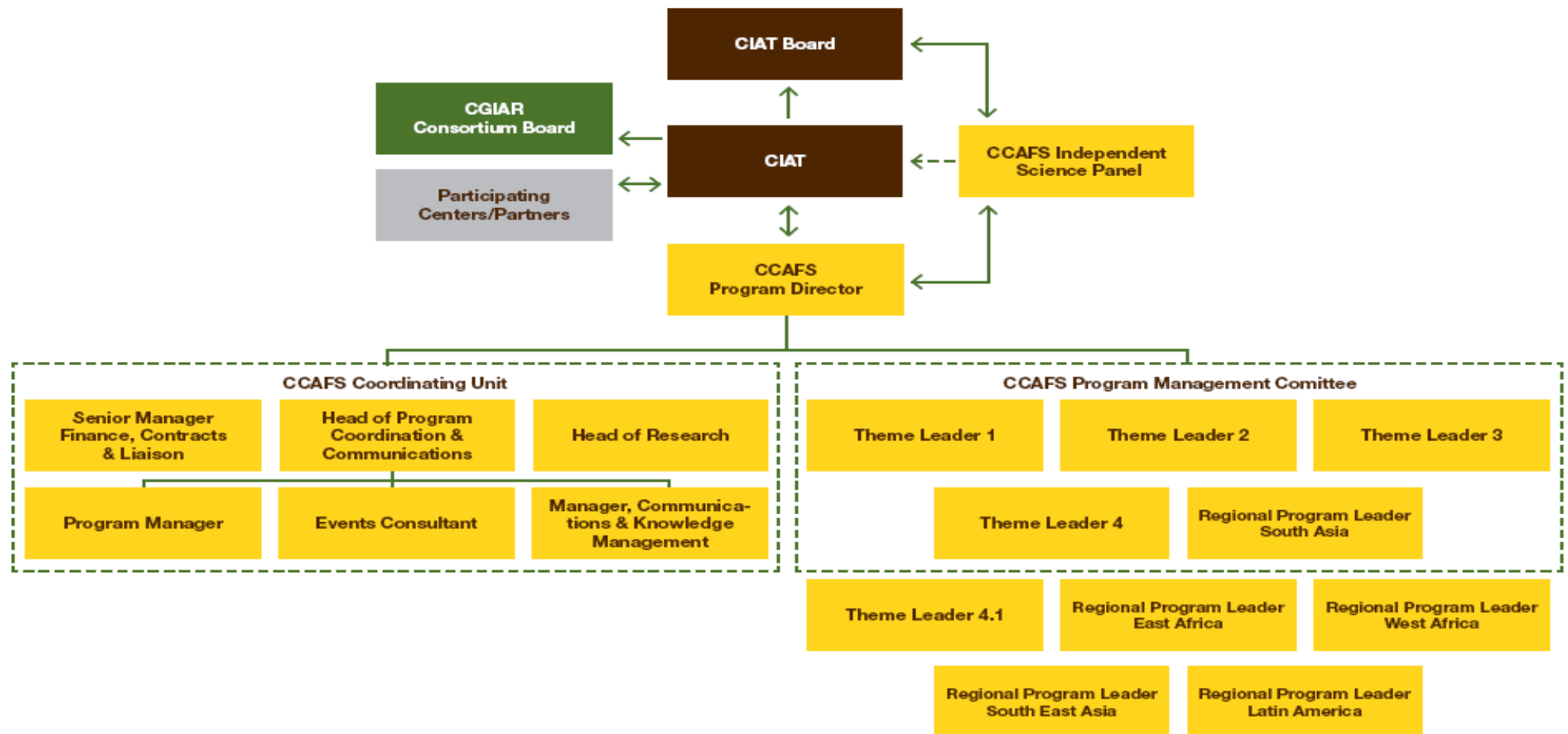


Figure 9.CCAFS Organizational Chart

**16.  
Summary  
budget  
2013**  
(Expressed in  
USD  
thousands)

2013 budget figures have been updated by each of the Participating Centers under the assumption of a total budget of \$56 million. The Participating Centers prepared their budgets according to their updated 2013 Activity Plans. However given CCAFS has only recently been given a likely total budget figure for Window 1 and 2 (90% of expenditure in 2012) we have yet to return to Centers to revise their initial budget submissions. Thus the detailed breakdown by themes and budget lines may slightly vary.

US\$37.26 million is expected from the CGIAR Fund (Windows 1 and 2) and US\$16.5 million comes from bilateral sources from Center Activities. In addition \$1.74 from previous Challenge Program and \$1.2 from EU grant (Window 3) is available to cover part of the 2013 Coordinating Unit and part of the RPLs/ TLs expenses. Final Window 1 and Window 2 Funds will only be known in late 2012, but if our assumption of \$37.26 materializes then we have an additional \$0.5 million to allocate. The to be allocated \$0.5 million will be used to cover strategic initiatives started in 2012 that need additional funds to ensure continuity.

CCAFS	Center Activity	Theme & Regional Program Leaders	Coordination, Synthesis & Outreach	TOTAL	Share (%)
Personnel	15,561	2,602	451	18,613	34%
Collaborators/Partnership Costs - CG Centers	473	1,997	-	2,469	5%
Collaborators/Partnership Costs - Others	4,840	6,687	1,770	13,296	24%
Supplies and services	8,563	1,147	466	10,177	19%
Operational travel	2,072	454	60	2,587	5%
Depreciation	95	5	-	100	0%
Contingency (only for budgeting purposes)	98	-	31	129	0%
<b>Subtotal</b>	<b>31,703</b>	<b>12,892</b>	<b>2,778</b>	<b>47,372</b>	<b>87%</b>
Indirect costs	5,115	1,865	161	7,141	13%
<b>TOTAL</b>	<b>36,817</b>	<b>14,757</b>	<b>2,939</b>	<b>54,513</b>	<b>100%</b>

CIAT Management 1,804

Funds to be allocated 500

**GRAN TOTAL 56,816**

**Table 5: 2013 CCAFS Budget by Natural Classification**

The 2013 CCAFS total budget is therefore US\$56.8 million. This represents a 5% decrease over 2012 (US\$60 million excluding 2011 carried over funds and additional allocations). Partners play a significant role in CCAFS therefore 24% of the 2013 budget is planned to be allocated to these. However, we note this figure is down from the stated amount (30%) in the Program Plan.<sup>4</sup>

<sup>4</sup> The figure in the Program Plan included inter-center partnerships.

Table 6 shows the budget for 2013 by Center and the projected source of funding. The budgeted amounts for Coordination Synthesis, Capacity Building, Communication, CIAT management cost are also shown. The largest portion of the Center Activity budgets goes to Theme 1 while the remaining three themes are relatively even. Theme Leaders' and Regional Program Leaders' budgets are shown separately from the Center Activity budgets. Eight of the fifteen Centers are heavily dependent on the CGIAR Fund with 70% or more of their total funding requested from the CGIAR Fund.

Center	Center Activity Theme 1	Center Activity Theme 2	Center Activity Theme 3	Center Activity Theme 4	Theme & Regional Program Leaders	TOTAL	Source of funds			
							W1 & W2	%	Bilateral & W3	%
AfricaRice	419	228	-	116	-	763	375	49%	388	51%
Bioversity	5,308	-	-	218	-	5,526	2,940	53%	2,586	47%
CIAT*	1,637	-	740	562	4,853	7,793	6,289	81%	1,504	19%
CIFOR	-	-	806	-	-	806	310	38%	496	62%
CIMMYT	1,458	972	837	514	-	3,781	2,865	76%	916	24%
CIP	493	775	-	533	-	1,800	1,285	71%	515	29%
ICARDA	1,011	277	-	-	-	1,288	950	74%	338	26%
ICRAF	2,615	490	1,511	1,125	1,250	6,991	3,417	49%	3,574	51%
ICRISAT	1,971	705	210	761	1,800	5,447	3,152	58%	2,296	42%
IFPRI	-	247	534	449	601	1,831	1,601	87%	230	13%
IITA	547	-	883	-	-	1,430	630	44%	800	56%
ILRI	513	600	921	1,247	3,551	6,831	5,484	80%	1,347	20%
IRRI	385	112	377	78	900	1,852	1,525	82%	327	18%
IWMI	1,323	470	-	240	1,802	3,834	2,699	70%	1,135	30%
WorldFish	22	731	-	849	-	1,601	400	25%	1,201	75%
<b>Center subtotal</b>	<b>17,701</b>	<b>5,606</b>	<b>6,818</b>	<b>6,692</b>	<b>14,757</b>	<b>51,574</b>	<b>33,920</b>		<b>17,654</b>	
Coordination, Synthesis, Capacity Building, Communications						2,939	1,099	37%	1,840	63%
CIAT Management						1,804	1,745	97%	59	3%
<b>Total Program Costs</b>						<b>56,316</b>	<b>36,764</b>	<b>65%</b>	<b>19,552</b>	<b>35%</b>
<b>Funds to be allocated</b>						<b>500</b>	<b>500</b>	<b>100%</b>	<b>-</b>	
<b>GRAN TOTAL</b>						<b>56,816</b>	<b>37,264</b>	<b>66%</b>	<b>19,552</b>	<b>34%</b>

\* CIAT and Non CG participants (3 partner Universities)

**Table :6 2013 CCAFS Budget by Center by Source of funding**

In fitting with the direction of the Consortium, when allocating funds to Centers, CCAFS used a performance-based system involving a number of variables as described below. The following variables were deemed important for making the allocation decision:

VARIABLE	HOW MEASURED		
Strategic fit of activities	Based on ranking of all Center activities by Theme and Region Leaders on 3-point scale 3=highly strategic; 2= somewhat strategic; 1= not strategic		
Degree of representation in CCAFS portfolio	Consideration of current budget in 2012 (base level) and the degree to which the Center is over-represented (i.e. has more budget than its mandate in climate change adaptation/mitigation and achieving outcomes there from) (rated on 5-point scale: 5=very under-represented; 3=fits well; 1=very over represented)		
Gender: activities and reporting	Degree of consideration of gender in the activity portfolio and reporting thereon (5=Excellent; 4= relatively good; 3=OK; 2=relatively poor; 1=unacceptable) (Centers which have excused themselves, even if have zero gender activities could be given 3=OK, e.g. CIFOR)		
Partnership budget	% budget allocated to partnerships (of total budget) converted to 5-point scale in normalised data as follows:		
	score	min	max
	5	36	
	4	30	35
	3	22	29
	2	13	21
	1		12
Communicating CCAFS	Degree to which comms group at Center is active in promoting CCAFS (5=Excellent; 4= relatively good; 3=OK; 2=relatively poor; 1=unacceptable)		
Inter-Center synergies	Degree to which Center is active in promoting and participating in inter-Center CCAFS activities or cross-CRP activities (5=Excellent; 4= relatively good; 3=OK; 2=relatively poor; 1=unacceptable)		
Bilateral percentage	% budget derived from bilateral sources (of total budget) converted to 5-point scale in normalised data as follows:		
	score	min	max
	5	55	
	4	45	54
	3	35	44
	2	25	34
	1		24
Ambition of activities and deliverables	The degree to which Centers are presenting an ambitious plan of activities and delivering on the "deliverables", (5=Excellent; 4= relatively good; 3=OK; 2=relatively poor; 1=unacceptable)		
Reporting of outcomes	The degree to which Centers are reporting outcomes in relation to their contractual commitments in their PPAs (5=Excellent; 4= relatively good; 3=OK; 2=relatively poor; 1=unacceptable)		
Timeliness	The degree to which centers meet crucial deadlines (5=Excellent; 4= relatively good; 3=OK; 2=relatively poor; 1=unacceptable)		

**Table :7 Variables used for allocation decisions**

Theme Leaders, Regional Program Leaders and the Coordinating Unit were asked to weight the variables. The results are as shown below in Table 8. They show that outcomes, strategy and level of ambition of activities and deliverables are most highly weighted. For this year, given that CCAFS is so early into implementation, it was decided not to use the outcomes variable in the analysis, and that this variable would only be used in the 2013 planning process.

The appropriate person(s) in the PMC then scored the Centers on each of the variables, or the data was derived from the budget (e.g. partnership budget, bilateral percentage). Based on this method, and deriving an average “performance score”, the allocation of funds to each Centers was made.

VARIABLE		WEIGHT
<b>Strategy</b>	Strategic fit of activities	0.20
	Degree of representation in CCAFS portfolio	0.09
<b>Reflection of CCAFS principles</b>	Gender: activities and reporting	0.07
	Partnership budget	0.05
	Communicating CCAFS	0.06
	Inter-Center synergies	0.08
<b>Ambition</b>	Bilateral percentage	0.06
	Ambition of activities and deliverables	0.12
	Reporting of outcomes	0.25
<b>Admin efficiency</b>	Timelines	0.02

**Table :8 Variable weighting**

Center	Variance
AfricaRice	-21%
Bioversity	-20%
CIAT	-13%
CIFOR	-20%
CIMMYT	-28%
CIP	-24%
ICARDA	-30%
ICRAF	-20%
ICRISAT	-18%
IFPRI	-10%
IITA	-20%
ILRI	-15%
IRRI	-13%
IWMI	-17%
WorldFish	-11%
<b>Center subtotal</b>	<b>-20%</b>

Table 9 shows the budget changes (2012 vs 2013) for each Center.

**Table 9: Budget changes per Center**