2012 Technical Report per Activity

Each Program Participant must provide a small remark against each activity/deliverable to indicate the status of the activity (2-4 sentences required per activity) using the form below. Updated data from the current partners is also required.

CCAFS Theme Led Activities
Theme 2. Adaptation through Managing Climate Risk

Activity No. 23

Activity title		Contribution to Routledge Handbook New challenges to food security: from climate change to fragile states
CCAFS Objective *(select from drop list)*	2.1 Identify and test innovations that enable rural communities to better manage climate-related risk and build more resilient livelihoods	**CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)** 2.1.1 2012
Activity objectives *(what the activity aims to achieve)*	**Objective 1**	To provide an overview of the changes that are underway in how challenges to food security are understood and addressed. Risks related to climate change, state fragility, shifts in land ownership and livelihood instability are putting into question prevailing approaches to addressing food insecurity focused on increased agricultural production and provision of humanitarian food aid.
Activity status		Select a status
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*		

Deliverables status *(You may add any unexpected deliverable)*

Type	Description	Year	Status	Format
Reports, publications	Routledge Handbook New challenges to food security: from climate change to fragile states. This handbook will guide readers in understanding how emerging risk factors require new ways of conceptualising hunger and responding to the moral imperative to address this insecurity.		Select a status	Select a format

Current Partners

	Acronym	Name	Contact Point Full Name	Contact Point Email
ARI - Advanced Research Institution	DIIS	Danish Institute for International Studies	Ian Christoplos	ian@glemdev.com

Activity No. 24

Activity title		Communities of practice
CCAFS Objective *(select from drop list)*	2.1 Identify and test innovations that enable rural communities to better manage climate-related risk and build more resilient livelihoods	**CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)** 2.1.1 2012
Activity objectives *(what the activity aims to achieve)*	**Objective 1**	Establish 3 thematic "Communities of Practice" across CGIAR and partners (e.g., index insurance, crop/rangeland/pest/disease forecasting, household bioeconomic modeling)
	Objective 2	Web portal on each research topic
Activity status		Partially completed
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*		Platforms created for four topics: diversification, climate services for farmers, index-based insurance, and building resilience in food system management

Deliverables status *(You may add any unexpected deliverable)*

Type	Description	Year	Status	Format
Other	Web portals on research topics		Partially completed	Select a format

Current Partners

	Acronym	Name	Contact Point Full Name	Contact Point Email
CG - CGIAR Center		Bioversity	Carlo Fadda	c.fadda@cgiar.org
CG - CGIAR Center	ICRISAT	The International Crops Research Institute for the Semi-Arid Tropics	Arame Tal	a.tal@cgiar.org
CG - CGIAR Center	IRRI	International Rice Research Institute	Michael Sheinkman	m.sheinkman@irri.org

Activity No. 26

Activity title	Traditional knowledge and climate risk management		
CCAFS Objective *(select from drop list)*	2.1 Identify and test innovations that enable rural communities to better manage climate-related risk and build more resilient livelihoods	**CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)**	2.1.1 2012
Activity objectives *(what the activity aims to* **Objective 1**	Review and synthesize knowledge and evidence on effectiveness, equitibility, scalability and transferrability of traditional knowledge and strategies for managing climate-related risk (in focus regions?)		
Activity status	Partially completed		
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*	It was decided that the global level synthesis and review of indigenous/local knowledge and climate risk management should complement reviews conducted at the regional level that were also commissioned by RPLs in 2012, so the start of the work was delayed until regional reviews are complete.		

Deliverables status *(You may add any unexpected deliverable)*

Type	Description	Year	Status	Format
Reports, publications	Synthesis report on traditional knowledge and managing climate risk		Select a status	Select a format

Current Partners

Acronym	Name
IRI	International Research Institute for Climate and Society - Columbia University

ARI - Advanced Research Institution

Contact Point Full Name	Contact Point Email
Kevin Coffey	kcoffey@iri.columbia.edu

Activity No. 29

Activity title	Household modeling of livelihood resilience to climate risks		
CCAFS Objective *(select from drop list)*	2.1 Identify and test innovations that enable rural communities to better manage climate-related risk and build more resilient livelihoods	**CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)**	2.1.2 2012
Activity objectives *(what the activity aims to achieve)* **Objective 1**	Develop and demonstrate a conceptual framework and prototype tools for modeling livelihood resilience of rural households in the face of climate-related risk and risk management interventions.		
Activity status	Completed		
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*	A prototype model has been developed and it has been applied to the Borena benchmark site in Ethiopia. A technical report has been prepared and submitted directly to Theme 2 leader Jim Hansen. Note that Gender could be incorporated in future iterations as the baseline survey used to develop the model includes questions about gender, especially labour allocation. Title of reprt is "Demonstrating a generic framework and tools for modeling resilience of farm houselds to climate-related risk"		

Deliverables status *(You may add any unexpected deliverable)*

Type	Description	Year	Status	Format
Reports, publications	Report	2012	Completed	Document (*.doc, *.odt, *.pdf)
Model tools and software	Risk model prototype	2012	Completed	Other
Data	Household characterization data collected, entered & cleaned for Borana, Ethiopia & Makueni, Kenya	2012	Completed	Database (*.sql, *.mdb, etc)
Data	Spatial characterization of land use in the Borana benchmark site through remote sensing	2012	Completed	Select a format

Current Partners

Acronym	Name
ILRI	International Livestock Research Institute

CG - CGIAR Center

Contact Point Full Name	Contact Point Email
Dr. M.T. van Wijk	M.VanWijk@cgiar.org

Activity No. 30

Activity title		Farm level modeling for ex-ante evaluation of index-based insurance
CCAFS Objective *(select from drop list)*		2.1 Identify and test innovations that enable rural communities to better manage climate-related risk and build more resilient livelihoods
CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)		2.1.2 2012
Activity objectives *(what the activity aims to achieve)*	**Objective 1**	This research will use the latest techniques in structural modeling and randomized control trials (RCTs) to calibrate a behavioral model that allows us to make predictions about the likely impact of index insurance and other financial instruments on a rural communities' resilience to climate related risk, more specifically droughts. Specifically the structural model will captures household behavior and incorporates: (i) a household's decision to purchase insurance; (ii) household investments in risky agricultural technologies, and (iii) household consumption decisions. This model will allow us to generate predictions on: a) optimal design of index insurance products, b) the optimal combination of financial products required to manage climate risk and c) the likely impact of these products on agricultural investments and ultimately household welfare.
Activity status		Completed
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*		A paper was written with simulations from Ethiopia. The paper was presented at the American Economic Association Meetings in San Diego, January 5-7, 2013. The paper is being revised in light of discussant comments for submission to a leading economics journal.

Deliverables status *(You may add any unexpected deliverable)*

Type	Description	Year	Status	Format
Reports, publications	Report and paper to be submitted as DP and/or journal on its application to index insurance	2012	Completed	Document (*.doc, *.odt, *.pdf)
Model tools and software	Farm level structural model	2012	Completed	Other

Current Partners

Acronym	Name
IFPRI	International Food Policy Research Institute

CG - CGIAR Center

Contact Point Full Name	Contact Point Email
Miguel Robles	m.robles@cgiar.org

Activity No. 32

Activity title		Gender and participatory action research
CCAFS Objective *(select from drop list)*		2.1 Identify and test innovations that enable rural communities to better manage climate-related risk and build more resilient livelihoods
CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)		2.1.3 2012 (1)
Activity objectives *(what the activity aims to achieve)*	**Objective 1**	In order to improve the participatory research methodologies and ensure appropriate integration of gender and other measures of social equity into CCAFS Theme 2 work, the UF research team is assessing the CCAFS project at multiple levels. The team has taken a number of approaches to understand, organizationally, how CCAFS is incorporating gender. Components of this inventory include:
	Objective 2	organizational assessment and development of an online Prezi
	Objective 3	baseline data assessment
	Objective 4	a literature review of gender challenges in the dlivery of climate information services
	Objective 5	and information gathering from CCAFS document review and key informant interviews (unstructured)
	Objective 6	In addition the team participated in the Dec 10-12 meeting, Scaling Up Climate Services for Farmers in Africa and South Asia. The roles and responsibilities of the team at this meeting included: 1) preliminary talk on the role of inequality and gender in understanding climate services, 2) facilitation of Working Group 4 (inequalities), and 3) facilitation of a gender "side-event".
Activity status		Completed
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*		Established working relationships with Regional Team Leaders and key personnel at prospective research sites resources, research sites, risks). Inactivity at a number of CCAFS sites has somewhat limited the original TOR and redirected energies. Site selection, though not complete, is likely to include Kaffrine, Senegal, Western Kenya, and an India site, perhaps Bihar. Activities laid out in the workplan within the UF/CIAT contract were completed, with the exception of a training plan. Given the evolution of the project, conversations are underway, with the inclusion of Jim Hansen, to refine the role of the UF Team

Deliverables status *(You may add any unexpected deliverable)*

Type	Description	Year	Status	Format
Reports, publications	Literature review - "Investigating Climate Information Services Through a Gendered Lens"	2012	Completed	Document (*.doc, *.odt, *.pdf)
Select a data type	Organizational assessment & Prezi development	2012	Completed	Presentation (*.ppt, *.odp)
Select a data type	Information gathering from CCAFS document review & informant interviews	2012	Completed	Select a format
Select a data type	Participation in Senegal workshop	2012	Completed	Select a format
Select a data type	baseline data assessment	2012	Completed	Select a format

Current Partners		Acronym	Name
	AI - Academic Institution	UF	University of Florida
		Contact Point Full Name	Contact Point Email
		Sandra Russo	s.russo@ufl.edu

2012 Technical Report per Activity

Each Program Participant must provide a small remark against each activity/deliverable to indicate the status of the activity (2-4 sentences required per activity) using the form below. Updated data from the current partners is also required.

CCAFS Theme Led Activities
Theme 2. Adaptation through Managing Climate Risk

Activity No. 34

Activity title	Enhancing Government-Led Decision-Making through Effective Use of Climate Information: Challenges and Opportunities in the Case of Ethiopia	
CCAFS Objective *(select from drop list)*	2.2 Identify and test tools and strategies to use advance information to better manage climate risk through food delivery, trade and crisis response	**CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)** 2.2.1 2012
Activity objectives *(what the activity aims to achieve)*	**Objective 1**	Review of the decentralized government decision-making processes in Ethiopian government machinery with the aim to identify critical decision-making points that impact budget allocation, agricultural planning, and risk management.
Activity status	Completed	
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*	This project represents the first phase of a study on the use of advanced information for national planning and government decision-making. The first phase included a review of the planning process in Ethiopia and identified key decision-making processes where advanced information can be incorporated into decisions. A follow-up project is currently underway to test different formats of information delivery and their influence on decision-making.	

Deliverables status *(You may add any unexpected deliverable)*

Type	Description	Year	Status	Format
Reports, publications	Report; Consensus strategy for improving food security reponse timeliness	2012	Completed	Document (*.doc, *.odt, *.pdf)
Reports, publications	Capacity gap analysis on the use of climate information by decision makers at all levels		Select a status	Select a format

Current Partners

Acronym	Name	
GeoSAS	GeoSpace Analytical Services	
PRI - Private Research Institution	**Contact Point Full Name**	**Contact Point Email**
	Teshome Erkineh	teshomee@geosas.net

Activity No. 35

Activity title	Pilot interventions increasing resilience to climate variability. Improving linkages between existing food security monitoring efforts (WFP and FAO), climate service providers, and government decision makers	
CCAFS Objective *(select from drop list)*	2.2 Identify and test tools and strategies to use advance information to better manage climate risk through food delivery, trade and crisis response	**CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)** 2.2.1 2012
Activity objectives *(what the activity aims to achieve)*	**Objective 1**	The primary objective of this activity is to identify mechanisms to introduce indicators and appropriate thresholds that can provide early warning when seasonal climate variability is likely to have advserse effects on agricultural production and/or household food security.
	Objective 2	The secondary objective of this activity is to obtain reports from Monsoon Forum events and share them with agricultural and food security system analysts to foster dialoge about the type, format, and timing of climate services needed to support decision-making processes.
Activity status	Completed	
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*	The IPC Asia project provided an opportunity to identify mechanisms to integrate climate services into the food security analysis process at national and sub-national levels in several countries in Asia. The Monsoon Forum events, organized and supported by RIMES, provided opportunities to foster dialogue between national meteorological services and agricultural and food security system analysts about climate services needed to support decision-making processes.	

Deliverables status *(You may add any unexpected deliverable)*

Type	Description	Year	Status	Format
Reports, publications	Joint report on results from pilot interventions	2012	Select a status	Document (*.doc, *.odt, *.pdf)

Current Partners		**Acronym**	**Name**	
	Other	WFP	World Food Program	
		Contact Point Full Name	**Contact Point Email**	
		Michael Sheinkman	m.sheinkman@wfp.org	
		Acronym	**Name**	
			FEWSNET	
	NGO_DO - Non-governmental organization/Development organization	**Contact Point Full Name**	**Contact Point Email**	
		Gary Eilerts	geilerts@usaid.gov	

Activity No. 36					
Activity title		Climate risk-food security mapping tools			
CCAFS Objective *(select from drop list)*		2.2 Identify and test tools and strategies to use advance information to better manage climate risk through food delivery, trade and crisis response	**CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)**	2.2.1 2012	
Activity objectives *(what the activity aims to achieve)*	**Objective 1**	Build interactive climate risk-food security mapping tools that incorporate food security indicators and historical climate data to aid climate smart decision-making, 1 country in each region. The objective of this project is to produce an informative and easily accessible reference on risks due to climate variability and their current and potential impact on food security in Nepal, including a discussion of policy response options for adaptation and enhancing resiliance.			
	Objective 2	• Synthesize the annotated bibliography			
	Objective 3	• Perform analysis on climate variability and its impact on various sectors			
	Objective 4	• Consultative Workshop in Kathmandu and Islamibad			
	Objective 5	• Develop Online Decision Support Tool			
Activity status		Completed			
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*		Annotated bibliographies were completed for both countries and consultative workshops were held with key partners in government and the humanitarian community. The online mapping tools are complete. The tools are currently password protected until the process is complete for final approval from partners to make all data public.			

Deliverables status *(You may add any unexpected deliverable)*	**Type**	**Description**	**Year**	**Status**	**Format**
	Model tools and software	Online decision support tool for Pakistan and Nepal	2012	Completed	Other
	Workshops	Provincial consultative workshops	2012	Completed	Other
	Reports, publications	Annotated bibliography	2012	Completed	Document (*.doc, *.odt, *.pdf)

Current Partners		**Acronym**	**Name**	
	NGO_DO - Non-governmental organization/Development organization	SDPI	Sustainable Development Policy Institute	
		Contact Point Full Name	**Contact Point Email**	
		Shakeel Ahmad Ramy	sramay@sdpi.org	
		Acronym	**Name**	
	PRI - Private Research Institution	NDRI	Nepal Development Research Institute	
		Contact Point Full Name	**Contact Point Email**	
		Dr. Laxmi Devkota	lpdevkota@ndri.org.np	

2012 Technical Report per Activity

Each Program Participant must provide a small remark against each activity/deliverable to indicate the status of the activity (2-4 sentences required per activity) using the form below. Updated data from the current partners is also required.

CCAFS Theme Led Activities
Theme 2. Adaptation through Managing Climate Risk

Activity No. 37

Activity title		Development of a spatial crop yield forecasting platorm
CCAFS Objective *(select from drop list)*		2.3 Support risk management through enhanced prediction of climate impacts on agriculture, and enhanced climate information and services
CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)		2.3.1 2012
Activity objectives *(what the activity aims to achieve)*	**Objective 1**	Review of existing platforms
	Objective 2	Develop and deliver a pilot version of a toolkit that will facilitate researchers and other users to forecast crop yields and study the impact of climate change on crop yields. Toolkit components are crop modeling engines; seasonal forecasting engine; and data sets for weather, climate change, soil, crop masks, irrigation masks, cultivar and weather data
Activity status		Completed
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*		Review of existing platforms is complete. The first runs of the prototype platform were conducted in Nov. 2012.

Deliverables status *(You may add any unexpected deliverable)*

Type	Description	Year	Status	Format
Reports, publications	Crop/rangeland forecasting system platform design specifications report	2012	Completed	Other
Model tools and software	Software suite	2012	Completed	Other
Reports, publications	Hoogenboom, G. 2012. Integration of MODIS producs and a crop	2012	Completed	Document (*.doc, *.odt, *.pdf)
Workshops	Participated in JRC-CCAFS workshop and consultations with ARC	2012	Completed	Other

Current Partners

	Acronym	Name	Contact Point Full Name	Contact Point Email
Select a partner type.	WSU	Washington State University	Dr. Gerritt Hoogenboom	<gerrit.hoogenboom@wsu.edu>
Select a partner type.	ARC	Asia Risk Centre	Dr. Premal Mehta	premal.ehta@asiariskcentre.com

Activity No. 38

Activity title		Remote sensing data assimilation methodology, evaluation and workshop
CCAFS Objective *(select from drop list)*		2.3 Support risk management through enhanced prediction of climate impacts on agriculture, and enhanced climate information and services
CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)		2.3.1 2012
Activity objectives *(what the activity aims to achieve)*	**Objective 1**	Develop remote sensing data assimilation methodology & evaluate
	Objective 2	Co-host workshop with JRC
Activity status		Partially completed
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*		EnKF software has been implemented. Workshop report is published online. Journal paper from IRI and JPL is submitted to Remote Sensing of Environment and in review. Journal paper from FutureWater on methodology adapted to heterogeneous smallholder environments is forthcoming.

Deliverables status
(You may add any unexpected deliverable)

Type	Description	Year	Status	Format
Model tools and software	Ensemble Kalman filter software linked with 2 crop models	2012	Completed	Other
Reports, publications	Report, "The added value of high-resolution above coarse-resolution remote sensing images in crop yield forecasting A case study in the Egyptian Nile Delta"	2012	Completed	Document (*.doc, *.odt, *.pdf)
Reports, publications	Journal paper, "Assimilation of Remotely Sensed Soil Moisture and Vegetation with a Crop Simulation Model"	2012	Completed	Document (*.doc, *.odt, *.pdf)
Workshops	Workshop report, "Combining crop models and remote sensing for yield prediction: Concepts, applications and challenges for heterogeneous, smallholder environments"	2012	Completed	Document (*.doc, *.odt, *.pdf)

Current Partners

	Acronym	Name	Contact Point Full Name	Contact Point Email
Research_Network - Research network	JRC	EU Joint Research Center	Francois Kayitakire	francois.kayitakire@jrc.ec.europa.eu
GO - Government office/department	JPL	NASA Jet Propulsion Laboratory	Narendra Das	Narendra.N.Das@jpl.nasa.gov
AI - Academic Institution	IRI	International Research Institute for Climate and Society	Amor Ines	ines@iri.columbia.edu
PRI - Private Research Institution		FutureWater	Wilco Terink	w.terink@futurewater.nl

Activity No. 39

Activity title		Historic weather data reconstruction methodology development, data set development and capacity-building.
CCAFS Objective *(select from drop list)*		2.3 Support risk management through enhanced prediction of climate impacts on agriculture, and enhanced climate information and services
CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)		2.3.1 2012
Activity objectives *(what the activity aims to achieve)*	**Objective 1**	Historic weather data reconstruction methodology development
	Objective 2	Data set development
	Objective 3	Capacity building
Activity status		Partially completed
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*		Journal article is forthcoming.

Deliverables status
(You may add any unexpected deliverable)

Type	Description	Year	Status	Format
Data	Reconstructed rainfall dataset for 2 countries	2012	Partially completed	Select a format
Model tools and software	Station data quality control software	2012	Completed	Select a format
Model tools and software	Software for blending station and proxy data	2012	Completed	Select a format
Reports, publications	Methodology and evaluation report and journal paper	2012	Partially completed	Select a format

Current Partners

	Acronym	Name	Contact Point Full Name	Contact Point Email
AI - Academic Institution	UR	University of Reading	Maidment	<R.I.Maidment@pgr.reading.ac.uk>
RO - Regional Organization	T	AGRHYMET Regional Center	Abdou Ali	abdou.ali.cra@gmail.com
GO - Government office/department	NMA	Ethiopia National Met Agency	Kinfe Hailemariam	kinfe_hm@yahoo.com
AI - Academic Institution		Princeton University	Justin Sheffield	justin@princeton.edu
ARI - Advanced Research Institution	IRI	International Research Institute for Climate and Society	Tufa Dinku	tufa@iri.columbia.edu

Activity No. 41

Activity title: Expand seasonal rainfall risk and prediction analysis and maprooms for South Asia

CCAFS Objective *(select from drop list)*: 2.3 Support risk management through enhanced prediction of climate impacts on agriculture, and enhanced climate information and services

CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet): 2.3.1 2012

Activity objectives *(what the activity aims to achieve)*

Objective 1: To extend tailored historical and forecast maprooms for precipitation developed in 2011 to: (1) winter season precipitation, (2) temperature (winter and summer), and (3) multi-GCM ensemble forecasts. Targeted temperature quantities to include heating and cooling degree days (heat/chill units).

Activity status: Completed

Insert a small remark to indicate the status of the activity.
(2-4 sentences required per activity)

The analysis is complete and available in an open access IRI maproom. The report for this work is being published as a CCAFS working paper.

Deliverables status
(You may add any unexpected deliverable)

Type	Description	Year	Status	Format
Model tools and software	Expanded maproom	2012	Completed	Other
Reports, publications	Report	2012	Completed	Document (*.doc, *.odt, *.pdf)

Current Partners

	Acronym	Name	Contact Point Full Name	Contact Point Email
ARI - Advanced Research Institution	IRI	International Research Institute for Climate and Society	Andrew Robertson	awr@iri.columbia.edu

Activity No. 42

Activity title	Agro-climate services case studies
CCAFS Objective *(select from drop list)*	2.3 Support risk management through enhanced prediction of climate impacts on agriculture, and enhanced climate information and services
CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)	2.3.2 2012
Activity objectives *(what the activity aims to* **Objective 1**	Evaluate 3-4 case studies of climate service initiatives targeting agriculture in Africa and S. Asia, with a view toward strengthening and upscaling.
Activity status	Completed
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*	Case studies were completed and presented at the South-South workshop (Activity #43). Case stdies are available on-line on the workshop website.

Deliverables status *(You may add any unexpected deliverable)*

Type	Description	Year	Status	Format
Reports, publications	Report on climate service case studies for India	2012	Completed	Document (*.doc, *.odt, *.pdf)
Reports, publications	Report on climate service case studies for Mali	2012	Completed	Document (*.doc, *.odt, *.pdf)
Communication products	Video	2012	Completed	Video (*.avi, *.mpeg, etc)

Current Partners

	Acronym	Name	Contact Point Full Name	Contact Point Email
CG - CGIAR Center	ICRISAT		Arame Tall	<ccafs_theme2@iri.columbia.edu>
Research_Network - Research network	CSP	Climate Services Partnership	Steve Zebiak	steve@iri.columbia.edu
GO - Government office/department	IMD	Indian Met Department	Laxman Singh Rathore	lrathore@gmail.com
Donors - Donors	USAID	US Agency for International Development	John Furlow	
AI - Academic Institution	USC	University of South Carolina	Edward Carr	edwardrcarr@gmail.com

Activity No. 43

Activity title	Scaling Up Climate Services for Farmers in Africa and South Asia workshop
CCAFS Objective *(select from drop list)*	2.3 Support risk management through enhanced prediction of climate impacts on agriculture, and enhanced climate information and services
CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)	2.3.2 2012
Activity objectives *(what the activity aims to* **Objective 1**	Climate services for farmers workshop
Activity status	Completed
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*	The workshop was held jointly with CCAFS, WMO, USAID, and CSP in Dakar in Dec 2012.

Deliverables status
(You may add any unexpected deliverable)

Type	Description	Year	Status	Format
Workshops	Workshop	2012	Completed	Other
Reports, publications	Workshop report	2012	Completed	Document (*.doc, *.odt, *.pdf)

Current Partners

	Acronym	Name	Contact Point Full Name	Contact Point Email
CG - CGIAR Center	ICRISAT		Arame Tall	A.Tall@cgiar.org
Research_Network - Research network	CSP	Climate Services Partnership	Steve Zebiak	steve@iri.columbia.edu
GO - Government office/department	WMO	World Meteorological Organization	Robert Stefanski	rstefanski@wmo.int
GO - Government office/department	USAID	US Agency for International Development	John Furlow	jfurlow@usaid.gov

Activity No. 44

Activity title

Develop roadmaps for strengthening gender- and socially-equitable climate information services and delivery mechanisms for rural communities in 3 regions

CCAFS Objective
(select from drop list)

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

CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)

2.3.2 2012

Activity objectives *(what the activity aims to*

Objective 1	Report outlining regional strategies for strengthening climate services for agriculture and food security

Activity status

Partially completed

Insert a small remark to indicate the status of the activity.
(2-4 sentences required per activity)

The process started at the workshop on Scaling Up Climate Servicves for Farmers in Africa and South Asia. USAID has agreed to co-fund regional roadmap meetings and small grants to support follow-up proposals related to the roadmaps and Activity #43. Roadmaps are expected to be complete in May 2013.

Deliverables status
(You may add any unexpected deliverable)

Type	Description	Year	Status	Format
Reports, publications			Select a status	Other

Current Partners

	Acronym	Name	Contact Point Full Name	Contact Point Email
CG - CGIAR Center	ICRISAT		Arame Tall	<ccafs_theme2@iri.columbia.edu>
Research_Network - Research network	CSP	Climate Services Partnership	Steve Zebiak	steve@iri.columbia.edu
ARI - Advanced Research Institution	IRI	International Research Institute for Climate and Society		

Activity No. 6				
Activity title		Prospects for DSS/EWS and index insurance to support adaptive management of pests and diseases		
CCAFS Objective *(select from drop list)*		2.1 Identify and test innovations that enable rural communities to better manage climate-related risk and build more resilient livelihoods	**CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)**	2.1.2 2012
Activity objectives *(what the activity aims to achieve)*	**Objective 1**	Determine opportunities for synergy between DSS for pest/disease management and weather index insurance based on the common use of weather indices for losses to pests and diseases. We are determining what scenarios support successful use of these systems and which do not		
	Objective 2	DSS/EWS depend on the frequency distribution functions for profit conditioned on pest/disease management decisions. We are identifying the scenarios in which DSS/EWS are likely to be useful, when applied as recommended, under changing climate conditions.		
	Objective 3	Farmers will use a range of information in addition to output from DSS provided by scientists and consultants. We are identifying the scenarios in which farmer decision making will be sustainable under changing climate conditions		
	Objective 4	Develop model framework for DSS/EWS		
Activity status		Completed		
Insert a small remark to indicate the status of the activity. *(2-4 sentences required per activity)*		The report was completed and will be turned into a CCAFS working paper.		

Deliverables status *(You may add any unexpected deliverable)*	**Type**	**Description**	**Year**	**Status**	**Format**
	Model tools and software	Model framework for DSS/EWS	2012	Completed	Document (*.doc, *.odt, *.pdf)

Current Partners		**Acronym**	**Name**
	AI - Academic Institution	KSU	Kansas State University
		Contact Point Full Name	**Contact Point Email**
		Karen Garrett	kgarrett@k-state.edu

2012 summary report of activities and deliverables by Output level

Each Program Participant must prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives. Length is dependent on budget size so please refer to the table on the explanatory notes.

CCAFS Theme Led Activities

Theme 2. Adaptation through Managing Climate Risk

Theme 2. Adaptation through Managing Climate Risk	
Objective 2.1 Identify and test innovations that enable rural communities to better manage climate-related risk and build more resilient livelihoods	
Outcome 2.1: Systematic technical and policy support by development agencies for farm- to community-level agricultural risk management strategies and actions that buffer against climate shocks and enhance livelihood resilience in at least 20 countries	
Output 2.1.1 Synthesized knowledge and evidence on innovative risk management strategies that foster resilient rural livelihoods and sustain a food secure environment	
Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives	In order to improve the integration of gender and social equity measures into CCAFS Theme 2 work, we contracted a team of researchers from the University of Florida to conduct a review of relevant literature on gender to inform Theme Two's work on climate risk management at PAR sites. Theme Two commissioned a cross-center CGIAR study led by Bioversity that explores climate risk management and diversification in livelihood systems at multiple scales, including genetic, species, landscape, and economic diversification. This analysis was included in a systematic review of over 300 case studies and an online interactive database was created to make the case studies available to researchers. This work will continue as part of the Theme 2 CoP on Diversification. The Theme is also conducting a synthesis and review of indigenous/local knowledge and climate risk management to complement literature reviews conducted at the regional level.
Output 2.1.2 Analytical framework and tools to target and evaluate risk management innovations for resilient rural livelihoods and improved food security	
Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives	A team at ILRI developed a conceptual framework and prototype tools for modeling livelihood resilience of rural households in the face of climate-related risk and management interventions. A prototype model was developed and applied to the Borena benchmark site in Ethiopia. IFPRI led research to model the likely impact of index insurance and other financial instruments on rural communities' resilience to climate related risk, particularly drought. The model generates predictions on optimal design/combinations of index insurance and other innovative financial products for managing climate risk, and the likely impact on agricultural investments and household welfare.
Output 2.1.3 Development; and demonstration of the feasibility, acceptability and impacts; of innovative risk management strategies and actions for socially-differentiated rural communities	
Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives	Together with ICRISAT, Theme 2 is working in twelve villages in Wote, Kenya to evaluate and assess the usefulness of climate information, especially seasonal climate forecasts, in farm level decision-making by smallholder farmers. The team initiated and developed self-help groups of farmers to experiment and evaluate portfolios of risk management strategies that include diversification, weather-based agro-advisories, and index insurance.
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	
Outcome 2.2: Better climate-informed management by key international, regional and national agencies of food crisis response, post-crisis recovery, and food trade and delivery in at least 12 countries	
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	
Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives	In partnership with GeoSAS, MoA, NMA, and EAIR, Theme 2 conducted a consultative review of the decentralized decision-making processes within the Ethiopian government to identify critical decision-making points that impact budget allocation, agricultural planning, and risk management. Key entry-points and timing for the delivery of advance climate information were identified and the government has invited the team as an observer for the regional/national planning and budgetary process in 2013 as a second phase of this study, which will include an evaluation and working groups on information packages for evidence based-policy. A senior WFP food security advisor has joined Theme 2 to explore pathways to include climate information in government and humanitarian planning for food security interventions. CCAFS/CGIAR was invited by the IPC Asia project management team (FAO and WFP) to attend IPC analysis workshops to target specific avenues for the inclusion of climate information in the classification process. A CCAFS/CGIAR Theme 2 representative attended four of the five national IPC analysis workshops to observe the process and liaise with the participants. To complement this intervention, Theme 2 partnered with key national institutions involved in the IPC process to prepare annotated bibliographies and create online mapping tools in Nepal and Pakistan that can feed directly into the IPC process.
Objective 2.3 Support risk management through enhanced prediction of climate impacts on agriculture, and enhanced climate information and services	
Outcome 2.3 Enhanced uptake and use of improved climate information products and services, and of information about agricultural production and biological threats, by resource-poor farmers, particularly vulnerable groups and women, in at least 12 countries	
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	
Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives	A Theme 2 commissioned review of existing crop forecasting tools by Washington State University highlighted the limitations of existing crop forecasting tools for research and operational use in the CCAFS focus regions. The Asia Risk Center was asked to develop a user-friendly, accessible, adaptable software toolkit to support spatial crop production forecasting, to be piloted in South Asia, followed by another round of training and capacity building training in 2013. The IRI developed an online tool to aid analysis of climate variability and seasonal predictability across important agricultural areas in South Asia, taking advantage of a moderately high-resolution (0.25°) daily rainfall data set. Evidence of a promising degree of predictability of summer monsoon rainfall in parts of India and Nepal suggests avenues for developing information tailored to agricultural users in the region. A project by the IRI and NASA-JPL developed and tested methods for assimilating satellite soil moisture and vegetation data into the DSSSAT-CSM model for forecasting maize yields. FutureWater completed an assessment of the added value of high-resolution remote-sensing data for crop forecasting in a smallholder setting. CCAFS and the EU Joint Research Center (JRC) jointly sponsored a workshop on "Combining Crop Models and Remote Sensing For Yield Prediction: Concepts, Applications and Challenges for Heterogeneous, Smallholder Environments" (Ispra, Italy, 13-14 June) that enhanced collaboration and exchange of knowledge among research groups from around the world; summarized the state of knowledge on data assimilation for crop yield forecasting; and articulated the challenges for successful application in heterogeneous, smallholder farming environments. A group of partners, including CGIAR and academic institutes, was commissioned to determine opportunities for synergy between DSS for pest/disease management and weather index insurance based on the common use of weather indices for losses to pests and diseases. The team developed a model framework for DSS/EWS.

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	
Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives	Theme Two partnered with USAID, WMO and the Climate Services Partnership to convene a workshop on "Scaling Up Climate Services for Farmers in Africa and South Asia" (Saly, Senegal, 10-12 December) that convened 110 experts from 30 countries to exchange knowledge and chart a pathway for supporting farming communities with climate information and advisory services. Participants examined existing constraints to the uptake and use of climate services, including barriers to the full participation of women and socially marginalized groups. The workshop featured in-depth studies of national agrometeorological advisory services in India and Mali conducted by CCAFS and partners (USAID, IRI and IER for Mali) in order to provide evidence of use and benefit at the village level; and insights about factors that have contributed to their uptake, impact and sustainability. Workshop participants identified priority actions for overcoming existing climate services constraints, and sponsors committed to support their development into full proposals through mentoring and seed grants. Plans are underway for workshops to develop proposals around the priority actions, and to identify sources of funding to begin implementation.

List of publications that acknowledge CCAFS support

(a) Each Program Participant must list all publications that acknowledge CCAFS support. Only include publications that came out in final version in the calendar year. Please do not include journal papers under review (submitted etc) or out in electronic format ahead of print, except of course for electronic-only journals.
(b) Please try to format references in the Harvard style. A clear guide can be found here: http://libweb.anglia.ac.uk/referencing/harvard.htm

(c) For journal articles, please indicate all of the references that are "green open access" with a single asterisk and those that are "gold open access" with a double asterisk. This is now a requirement from CGIAR donors. Green open access means that the authors have made a free copy available on a website. Gold open access means that the journal allows free download (either as standard practice or because the authors paid for it).
(d) For all publications that are up online, please provide a web link if possible. This will help us to advertise your work more widely.

CCAFS Theme Led Activities
Theme 2. Adaptation through Managing Climate Risk

	Type	Citation identifier
Publication 1	Journal papers	http://dx.doi.org/10.1016/j.agrformet.2012.04.018,

Citation

Garrett, K. A., A. D. M. Dobson, J. Kroschel, B. Natarajan, S. Orlandini, H. E. Z. Tonnang, C. Valdivia, 2012. The effects of climate variability and the color of weather time series on agricultural diseases and pests, and on decisions for their management. Agricultural and Forest Meteorology, 170, pp. 216-227. http://www.sciencedirect.com/science/article/pii/S016819231200158X

	Type	Citation identifier
Publication 2	Journal papers	doi: http://dx.doi.org/10.1016/j.envsci.2011.09.003

Citation

Vermeulen, S. J.; Aggarwal, Pramod; Ainslie, A.; Angelone, C.; Campbell, B. M.; Challinor, A. J.; Hansen, J. W.; Ingram, J. S. I.; Jarvis, A.; Kristjanson, P.; Lau, C.; Nelson, G. C.; Thornton, P. K.; Wollenberg, E. 2012. Options for support to agriculture and food security under climate change. Environmental Science and Policy, 15(1), pp. 136-144.

	Type	Citation identifier
Publication 3	Working papers	http://hdl.handle.net/10568/25107

Citation

Braun, M, Saroar, M. 2012. Participatory Action Research on Climate Risk Management, Bangladesh. Studies & Reviews: 2012-39. Penang, Malaysia: WorldFish.

Publication 4

Type	Citation identifier
Working papers	http://hdl.handle.net/10568/21071

Citation

Hurst, M., Jensen, N., Pedersen, S.H., Sharma, A. and Zambriski, J.A. 2012. Changing climate adaptation strategies of Boran pastoralists in southern Ethiopia. CCAFS Working Paper 15. Copenhagen, Denmark: CCAFS.

Publication 5

Type	Citation identifier
Working papers	http://hdl.handle.net/10568/24448

Citation

Chaudhury, M., Kristjanson, P., Kyagazze, F., Naab, J. B. and Neelormi, S. 2012. Participatory gender-sensitive approaches for addressing key climate change- related research issues: Evidence from Bangladesh, Ghana, and Uganda. Working Paper 19. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

Publication 6

Type	Citation identifier
Conference proceedings	http://hdl.handle.net/10568/25135

Citation

Hoefsloot P, Ines A, van Dam J, Duveiller G, Kayitakire F, Hansen J. 2012. Combining Crop Models and Remote Sensing for Yield Prediction: Concepts, Applications and Challenges for Heterogeneous Smallholder Environments. Report of CCFAS-JRC Workshop at Joint Research Centre, Ispra, Italy, June 13-14, 2012. Joint Research Center Technical Report. Luxembourg: Publications Office of the European Union.

Publication 7

Type	Citation identifier
Book chapters	DOI: 10.5772/2568

Citation

Martínez, R., Hemming, D., Malone, L., Bermudez, N., Cockfield, G., Diongue, A., Hansen, J., Hildebrand, A., Ingram, K., Jakeman, G., Kadi, M., McGregor, G.R., Mushtaq, S., Rao, P., Pulwarty, R., Ndiaye, O., Srinivasan, G., Seck, Eh., White N. and Zougmore, R., 2012. Improving climate risk management at local level – Techniques, case studies, good practices and guidelines for World Meteorological Organization members. Pp. 477-532 in: Banaitiene, N. (Ed), Risk Management – Current Issues and Challenges. InTech, New York.

Publication 8

Type	Citation identifier
Journal papers	

Citation

Hansen, J.W., 2012. Meeting climate information needs for agricultural development. World Politics Review, 21 February 2012

2012 Case studies

Number of case studies to be submitted is dependent on budget size so please refer to the table on the explanatory notes. Each case study should be about half a page, and Program Participants are expected to build a portfolio of case studies over the years that demonstrate all different types.

CCAFS Theme Led Activities
Theme 2. Adaptation through Managing Climate Risk

CASE STUDY 1

Title

Workshop on Scaling Up Climate Services for Farmers in Africa and South Asia

Author

James Hansen, Arame Tall

Type

Successful communications activities

Date (DD/MM/YYYY)

Countries

Keywords

Photo URL

Introduction/Objectives (400 characters)

The workshop on "Scaling Up Climate Services for Farmers in Africa and South Asia" (10-12 December 2012, Saly, Senegal) was designed to foster South-South learning and collaboration between sub-Saharan Africa and South Asia, to strengthen and scale-up climate information and advisory services that serve smallholder farmers.

Description of the project,procedures etc. (1100 characters)

A diverse set of 110 experts from 30 countries came together to grapple with the challenges and chart a pathway for supporting farming communities with climate information and advisory services in Africa and South Asia, and to exploit opportunities for South-South learning and collaboration. CCAFS-commissioned evaluations of agrometeorlogical advisory programs in Mali and India, and the practical challenges encountered when scaling up climate services for rural populations. Plenary presentations and working groups dealt with five key that that constrain the benefits of climate services to smallholder farmers if they are not dealt with:

- Ensuring that climate information and advice is salient to farmers' decision-making needs;
- Scalable pathways for reaching "the last mile";
- Giving farmers an effective voice in the design of climate services;
- Ensuring equitable benefits to women and other underserved groups in community;
- Integrating climate services within larger agricultural development support programs to enable management of farm-level risk.

Sixteen case studies of innovative approaches to deal with these challenges informed potential solutions. Regional working groups identified priority needs and opportunities in West Africa, Eastern and Southern Africa, and South Asia.

Project results (be concrete as possible), innovate findings, novel outcomes and short discussion on the implication of these results (1100 characters)

The workshop took initial steps to identify a set of priority actions for overcoming existing constraints and enabling climate services to have a greater impact on smallholder farming communities in sub-Saharan Africa and South Asia. Following a competitive "marketplace" approach, participants rallied around seven ideas (two each from West, and Eastern plus Southern Africa; one from South Asia; and two involving cross-regional collaboration), and formed ad-hoc working groups to develop them further. In the closing session, workshop sponsors committed to follow up with participants on these proposed actions through mentoring and seed grants to help further develop the concepts, and through help with mobilizing resources to at-least begin to implement the actions. Plans are underway for small workshops to strengthen the proposed actions and develop project proposals around them, and to identify sources of funding to begin implementation.

Partners involved and their role (250 characters)

The workshop was organized and co-funded by CCAFS (Theme 2; ICRISAT; and the East Africa, West Africa and South Asia Regional Programs), World Meteorological Organization (WMO), United States Agency for International Development (USAID), and the Climate Services Partnership (CSP).

Links/Sources for further information

http://ccafs.cgiar.org/events/10/dec/2012/scaling-climate-services-farmers-africa-and-south-asia
http://scalingup.iri.columbia.edu/index.html

CASE STUDY 2

Title
India Agrometeorological Advisory Services evaluation

Author
Alexa Jay, Arame Tall

Type
nnovative non-research partnership

Date (DD/MM/YYYY)

Countries
India

Keywords

Photo URL

Introduction/Objectives (400 characters)

CCAFS Theme 2 partnered with the Indian Meteorological Department (IMD) and ICRISAT to assess the village-level impact of IMD's Agro-meteorological Advisory Services. The overall objective of the case study was to strengthen evidence of the use and benefit of climate services via farmers' perceptions and capture knowledge on the factors that have contributed to their uptake, impact and sustainability, with the aim of offering transferable lessons that can guide the implementation of similar programs elsewhere in the world.

Description of the project,, procedures etc. (1100 characters)

AAS aims to provide a variety of services to farmers including weather observation and forecasting, agricultural advisories, extension services offering two-way communication with users, and information dissemination through media and other local agencies. Village-level assessments were conducted in six states (Himachal Pradesh, Gujarat, Punjab, West Bengal, Andhra Pradesh and Tamil Nadu) across three randomly selected villages in different agro-climatic and production zones in each state. Through focus group discussions separated by gender and individual interviews, researchers gathered farmers' perspectives on the products provided by the program in terms of their reliability, relevance and utility. Discussions were also held with IMD staff at various levels and other institutional representatives involved in the development and dissemination of advisories. Services were assessed in terms of:

- Credibility/Skill: providing access to accurate climate information and services for remote rural communities with marginal infrastructure;
- Salience: tailoring content, scale and format to farm-level decision-making;
- Legitimacy: giving farmers an effective voice in the design and delivery of climate services;
- Equity: ensuring that women and socially marginalized groups are served.

Project results (be concrete as possible), innovate findings, novel outcomes and short discussion on the implication of these results (1100 characters)

Results supported several conclusions: Communication and usability are improved by multiple targeted efforts at the village level (e.g., posting advisories in strategic public places, announcements over loudspeakers, enlisting NGOs to help communicate; translation of advisories into local languages). Greater engagement of local farmers in every aspect of the program increases trust and ownership of the program. When women farmers are fully engaged, the uptake and use of AAS information is maximized. "Progressive" farmers can be utilized as change agents; as they are able to use their own resources to engage other farmers. Downscaling and value-addition to advisories is critical to ensure salience to local farmer needs and usability by farmers. Credibility and uptake of information is enhanced by demonstration of its economic benefit.

Partners involved and their role (250 characters)

A team of researchers from CCAFS Theme 2 and ICRISAT conducted the village-level assessment. IMD staff at various levels assisted in the selection of target states and villages to ensure representation across agro-climatic and production zones, and provided information about the development of forecast advisories and their dissemination.

Links/Sources for further information

http://scalingup.iri.columbia.edu/india-agromet-case-study.html
http://ccafs.cgiar.org/blog/how-useful-climate-information-smallholder-farmers-india

CASE STUDY 3

Title
Linking the IPC with climate services

Author
Michael Sheinkman

Type
nnovative non-research partnership

Date (DD/MM/YYYY)

Countries
Nepal, Pakistan, Bangladesh, Philipines, and Cambodia

Keywords
Food Security, Integrated Phase Clasification, Humanitarian Aid

Photo URL

Introduction/Objectives (400 characters)

The objective of this project is to engage key international and national food security decision-making processes and identify appropriate mechanisms to facilitate access to advance information when seasonal climate variability is likely to have adverse effects on agricultural production and/or household food security. Integrated Food Security Phase Classification (IPC) is a set of analytical tools and consensus-building processes that are used to analyze and classify the severity of a food security situation, creating an international standard that allows for comparability across countries and over time. Resulting classifiations provide decision makers in the international humanitarian community and national governments with a rigorous analysis of food insecurity along with objectivse for response in both emergency and development contexts. However, the IPC does not include indicators relevant to seasonal climate variability. Theme Two sees IPC engagement on this topic as a unique opportunity to upscale CGIAR research on climate variability, food security, and seasonal prediction.

Description of the project,, procedures etc. (1100 characters)

The IPC Asia project invited CCAFS to attend five IPC analysis workshops in Asia during 2012. A CCAFS/CGIAR Theme 2 representative attended four of the five IPC analysis workshops to observe the process and liaise with the participants, including a meteorologist from the Department of Meteorology and Hydrology at the Nepal workshop and a senior staff member from the Philippines meteorological agency (PAGASA) at the Philippines workshop. An independent researcher delivered a presentation on observed seasonal climate variability and potential impacts of progressive climate change at the IPC analysis workshop in Pakistan. Theme Two commissioned local research institutes in two IPC countries (Nepal and Pakistan) to write annotated bibliographies of relevant research on food security and vulnerability to climate variability. The same groups, in partnership with the WFP, were also commissioned to create online decision support tools that incorporate climate information into food security analysis. The IPC Asia team (FAO and WFP) have requested assistance from CCAFS/CGIAR to identify relevant indicators and appropriate thresholds that will integrate seasonal climate variability into the IPC analytical framework.

Project results (be concrete as possible), innovate findings, novel outcomes and short discussion on the implication of these results (1100 characters)

The project resulted in an opportunity for CCAFS/CGIAR to identify indicators that can facilitate the use of seasonal climate forecasts and analytical products derived from historical climate data in food security decision making. FAO and WFP have indicated that they will provide CCAFS/CGIAR with opportunities to pilot test the indicators and thresholds in one or more countries in Asia in 2013. The project also created an opportunity for CGIAR to participate in the IPC process in 2013 through membership in the Technical Working Group established in each of the five pilot countries, which must approve the workshop results before the reports and maps are disseminated to the public. Membership in the Technical Working Group includes government, international organizations, and civil society. The project has also secured an opportunity for CGIAR staff to participate in IPC training sessions organized by IPC Asia in 2013.

Partners involved and their role (250 characters)

The IPC Asia project was implemented by FAO with financial support from the European Commission. WFP contributed data and VAM analytical capacity. The IPC process was led by national governments in Nepal, Pakistan, Bangladesh, Philippines, and Cambodia.

Links/Sources for further information

FURTHER INFO IPC Website: www.ipcinfo.org Factsheet: http://www.ipcinfo.org/fileadmin/user_upload/ipcinfo/docs/IPC-Factsheet.pdf Example: Pakistan workshop report and maps are available for download at following URL: http://www.ipcinfo.org/fileadmin/user_upload/ipcinfo/docs/IPC_Acute_FS_Pak_Oct12.pdf

2012 Outcome report

Frequency of reporting outcomes is dependent on budget size so please refer to the table on the explanatory notes. (max 1 page)

CCAFS Theme Led Activities
Theme 2. Adaptation through Managing Climate Risk

OUTCOME 1

What is the outcome of the research (use of research results by non-research partners)?

CCAFS has played a key role in the recent surge of interest in climate services globally. Theme Two has made strong connections with several of the major organizations and programs investing in climate services. CCAFS is a sponsoring partner of the Climate Services Partnership (CSP), which provides a mechanism to engage a global network of organizations, researchers and donors with shared interests. In 2012, Theme 2 research and communication efforts had a tangible influence on strategic direction or investment priorities of the CSP, and of two core partners (USAID, World Vision) within the CSP network, leading to increased emphasis on targeting smallholder farmers and influencing how they do so.

What outputs produced in the three preceding years resulted in that outcome?

CCAFS outputs and communication efforts that collectively led to this outcome include: (a) participation in USAID West Africa regional stakeholder workshops in 2010 and 2011; (b) participatory action research on seasonal forecast communication at Kaffrine, Senegal; (c) evaluations of national agrometeorlogical advisory programs in Mali and India; and (d) the jointly-sponsored workshop on "Scaling Up Climate Services for Farmers in Africa and South Asia. " These research outputs provided content and credibility for presentations and informal discussions with key organizations.

What partners helped in producing the outcome?

USAID, the IRI and IER contributed to the Mali evaluation. CSP, USAID and WMO co-sponsored the Saly workshop. The Senegal national meteorological agency (ANAMS) played a lead role in the pilot work at Kaffrine.

Who used the output?

World Vision, USAID, and the Climate Services Partnership (CSP) made tangible changes to their strategies in response to CCAFS outputs and interactions.

How was the output used?

USAID adopted the idea, advanced by CCAFS and other participants at a USAID-sponsored regional stakeholder workshop, of using an evaluation of Mali's innovative agrometeorological advisory program to inform a strategy for strengthening climate services in West Africa. CCAFS partnered with USAID and the IRI in the Mali evaluation, leading the institutional component of the study and implementing survey and focus groups in sampled villages. USAID followed up by co-sponsoring the Saly workshop (which featured the Mali and India evaluations), and by providing proposal development funds and start-up grants for ideas that workshop participants proposed for strengthening climate services for farmers in Africa and South Asia.

The CSP identified distillation of knowledge and evidence from case studies and evaluations of existing climate service initiatives as a core part of its strategic contribution to its network of partners. As a high-profile activity at the start of the CSP (date?), the rigor that CCAFS brought to the Mali evaluation influenced the CSP's strategy for collecting evidence from case studies, leading to an ongoing effort to formulate good practice guidelines for obtaining credible evidence of the strengths, weakness and impacts of existing climate services. More importantly, the evaluation and jointly sponsored workshop on climate services for farmer led the CSP to highlight rural communities as an important target for investment in climate services, and work toward broadening a community of practice focused on strengthening climate services for smallholder farmers.

World Vision's Secure the Future program in East Africa seeks to foster resilient rural livelihoods in the face of climate and other stresses. Following meetings at COP16, ICCS2, World Vision's East Africa Planning Workshop 2012, COP17, and a visit to IRI by the WV Executive Director Secure the Future East Africa at World Vision International, results from CCAFS' PAR work at Kaffrine and Wote contributed to plans to include climate services for farmers among the resilience-building interventions within this program.

What is the evidence for this outcome: Specifically, what kind of study was conducted to show the connection between the research and the outcome? Who conducted it? Please provide a reference or source.

Letters from contacts at each of the three organizations (USAID, World Visions, and CSP), and strategy documents from CSP and World Vision, document how CCAFS outputs and interactions has shaped their priorities, strategies and investments.

Gender and Social Differentiation related activities summary report - 2012

CRPs that have presented their Gender Strategy to the Consortium in 2012 should show progress in 2013 in relation to implementing the Strategy. Therefore it is expected from Program Participants that findings of gender and social differentiation activities and their significance to be referred in this summary report. It is essential to relate progress towards outcomes to the baseline gender-differentiated conditions being used to measure change. This report should also refer specifically to what is being learnt about gender and how this knowledge is being used to inform research priority-setting and approach. If none or few of your activities integrate gender please explain why it is not relevant to your research portfolio.

CCAFS Theme Led Activities
Theme 2. Adaptation through Managing Climate Risk

A gender research team from the University of Florida (UF) was commissioned to guide research and methodology on gender equity issues in the context of participatory action research on climate risk management. A desktop review of the structure and function of CCAFS within CGIAR, and how gender enters work at CCAFS research sites, highlighted opportunities for those working on gender to share and leverages findings and resources to the benefit of CCAFS projects. The team reviewed literature on gender and social equity challenges in the delivery of climate information services. They coordinated a Theme 3 team undertaking a similar review; and worked with a Theme 1 postdoc at CIAT to assess the baseline data collection instrument and the available data from CCAFS sites, identifying gaps with respect to gender information. Assessments of where and how gender is being integrated at CCAFS sites will be carried out in 2013. Data collected during site visits will allow for identification of successes and gaps in the participatory action methodologies and strategies currently being employed. This work serves to improve participatory research methodologies and ensure appropriate integration of gender and other measures of social equity into Theme 2 work. Gaps identified and the resulting negative impacts on climate risk management can inform changes to research priority setting and approach.

One of the themes of the workshop on “Scaling Up Climate Services for Farmers in Africa and South Asia” was on the challenge of reaching women and socially marginalized groups with effective climate services. A gender side event offered additional opportunity for discussion and knowledge exchange. The challenges of ensuring gender equity when scaling up climate services came out of CCAFS-sponsored evaluations of agrometeorological services in India and Mali, which were featured at the workshop. From the India assessment, although overall awareness of agromet services was lower among women, the uptake and use of the services is highest in villages where women are fully involved in the production and communication of information.

Work in Kaffrine, Senegal built upon Arame Tall’s 2011 research, funded by a Theme 4 competitive gender grant, to identify gender-specific climate vulnerabilities, climate services needs, and obstacles to information access in three agricultural communities prone to hydro-meteorological disasters. Researchers introduced a climate forecast for the first time in 2011 and 2012, and tested for its added value among men and women farmers through a Participatory Action Research model. Further analysis of the benefits of climate information use for each gender is forthcoming. Research on the delivery and use of climate information for risk management in Kenya and in Zimbabwe is also addressing gender equity issues, and disaggregating evaluation results by gender.

Theme Leader Summary by Output - 2012

Theme Leaders will report on the same categories before, following the reporting depth of "Medium" in the explanatory notes. In addition, Theme Leaders will provide a synthesis of all Program Participant activities, arranged by Output as per the CCAFS logframe. These reports will be 3-5 pages.

Theme 2. Adaptation through Managing Climate Risk	
Objective 2.1 Identify and test innovations that enable rural communities to better manage climate-related risk and build more resilient livelihoods	
Outcome 2.1: Systematic technical and policy support by development agencies for farm- to community-level agricultural risk management strategies and actions that buffer against climate shocks and enhance livelihood resilience in at least 20 countries	
Output 2.1.1 Synthesized knowledge and evidence on innovative risk management strategies that foster resilient rural livelihoods and sustain a food secure environment	
Provide a synthesis of all Program Participant activities pertaining to this output as per the CCAFS logframe. These reports will be 3-5 pages long (max. 30,000 characters).	Synthesis of knowledge on risk management interventions focused on traditional knowledge, gender equity in the context of climate information use, livelihood diversification, index-based insurance and agroforestry. The South Asia Regional Program commissioned a set of 8 case studies to understand how changing agricultural practices address climate risk management. Responses have evolved from the farm level to agricultural policy, but not all are climate adaptive and socially equitable. The key issue in promoting local innovations is that each of the supporting and regulating institutions considers only one aspect of the agro-ecological system, without being fully informed by longer-term climate and socioeconomic trends and projections. In Eastern Africa, case studies of innovative traditional risk management approaches are identifying promising opportunities for further research and intervention. Integration of scientific and indigenous approaches to weather and climate prediction has contributed to timely, downscaled consensus forecasts for farmers in Tanzania; and informed plans to strengthen weather information communication networks in Uganda. An Ethiopian case study focused on the contribution of rangeland enclosures and community action groups to adaptive capacity of pastoral communities. A fourth case study focused on climate related opportunities for agricultural adaptation in Semi-Arid Eastern Kenya. ICRISAT documented farmers' strategies for dealing with climate variability in arid and semi-arid India, based on a synthesis of nearly 30 years of village-, farm- and plot-level research. This research offers guidance on enabling locally appropriate adaptation to climate variability. A literature review and synthesis report, "Investigating Climate Information Services through a Gendered Lens," by the University of Florida, addresses the challenges and opportunities in delivering gender-equitable rural climate information and advisory services. The report shows how women farmers are particularly vulnerable to climate-related shocks yet are overwhelmingly left out of many forms of communication channels, and identifies avenues for overcoming these gaps. A cross-Center study, led by Bioveristy, synthesized knowledge and identified research needs about the role of diversification – including genetic, species, landscape and economic diversification; across scales – in resilience to climate-related risk. This study included a systematic review of over 300 case studies, and an online interactive database created to make the case studies available to researchers. This work will continue as part of the Theme 2 CoP on Diversification. IFPRI reviewed determinants of uptake of index-based insurance products within several pilot programs, in order to improve the design of programs and fill gaps in evidence about impacts of innovative insurance schemes by documenting the effects of several demand drivers on final insurance purchase. Additional evidence came from a modeling study showing that three types of financial products studied (weather index insurance, savings accounts, insured agricultural loans) benefit farmers, but that poorer farm households benefit most from index insurance as long as pricing is fair and basis risk is low. A set of ICRAF-led activities contributed to the body of knowledge on the role of trees in the resilience of farming systems to climate-related risk. An ongoing comparative study of the resilience of agroforestry and conventional farming systems to rainfall variability in Zambia and Malawi included analysis of long-term climate records and experimental data, and assessed yield stability. ICRAF documented indigenous agroforestry systems that farmers use in areas prone to extreme climatic events in the Philippines and Vietnam, and completed household surveys and a training needs assessment in the Philippines. A study on agricultural diversification in mountain locations in China, Nepal and Pakistan provided evidence of the contribution of trees to resilience to weather- and water-related hazards, and recommendations to guide investment in agroforestry for resilience in mountain environments. This Output includes characterization of climate-related agricultural risks. AfricaRice investigated the vulnerability of rural communities in Senegal and Mali to climatic risks.
Output 2.1.2 Analytical framework and tools to target and evaluate risk management innovations for resilient rural livelihoods and improved food security	
Provide a synthesis of all Program Participant activities pertaining to this output as per the CCAFS logframe. These reports will be 3-5 pages long (max. 30,000 characters).	Following a literature review of approaches to modeling farmer response to risk, ILRI developed a prototype tool for modeling the resilience of smallholder farming households to climate-related risk and applied it to the CCAFS research site in Borana, Ethiopia. The bioeconomic household model simulates production, food availability, food in storage, cash availability, income, assets and soil fertility in response to climate and prices. Well-grounded modeling analyses in 2013 will build on household characterization data and methods to analyze institutional arrangements and land use. CIMMYT is exploring several complementary modeling approaches to studying the likely impacts of increasing climate variability on farm household welfare in Kenya and Ethiopia, and how current adaptation strategies and policy interventions could help buffer against it. One approach estimates maize and wheat yields under current and future climate, and another models the farm-level impact of climate adaptation practices at a site in Ethiopia. Lessons from this work are being used to inform the development of a bio-economic framework for maize/legume-based households in Kenya. IFPRI developed a dynamic stochastic model to quantify the impacts of alternative financial risk transfer products on consumption, investment and welfare of agricultural households. The modeling study used input data from two weather insurance pilot study sites, and calibration data from experimental games on risk and time preferences. The results of the research have provided insights about the relative benefits of alternative financial products, and provide predictions to test within randomized control trials planned in Bangladesh and Ethiopia.

Output 2.1.3 Development; and demonstration of the feasibility, acceptability and impacts; of innovative risk management strategies and actions for socially-differentiated rural communities

Provide a synthesis of all Program Participant activities pertaining to this output as per the CCAFS logframe. These reports will be 3-5 pages long (max. 30,000 characters).

Researchers from national and international institutions and development organizations are working with communities across CCAFS sites in East Africa to test portfolios of climate risk management strategies. At the Makuene site in Eastern Kenya, ICRISAT, KARI and other partners are testing the effectiveness of different methods of communicating downscaled, probabilistic seasonal climate forecast information and its impact on management and productivity of smallholder farms. A randomized, gender-disaggregated experimental design was formulated to evaluate training workshops to help farmers understand forecast information; and agro-advisories that combine forecast information with advice on potential management options – alone and in combination. Both communication approaches led to significant differences in the way farmers plan and manage their farms. The effort is coordinated with similar work in Kaffrine, Senegal. Participatory research in Eastern Kenya also addressed water management techniques and drought tolerant-crops combined with integrated soil fertility management. Farmer awareness activities and farm trials were initiated in 2012 for participatory evaluation and promotion of integrated sorghum - legume technologies. Participatory action research in Nyando, Kenya, focused on on-farm diversification of livelihoods. Building on three years of work in Kenya, ILRI and partners extended Index-Based Livestock Insurance (IBLI) into the Borana CCAFS site in southern Ethiopia, in partnership with Oromia Insurance. The project succeeded in designing and launching a commercial insurance contract for pastoralists.

In West Africa, participatory action research focused on fostering climate-resilient rural livelihoods through a package of locally relevant seasonal forecast information, training and guidance. Senegal's national meteorological agency (ANAMS) developed downscaled seasonal forecast information products and led an effort to engage stakeholders in the Kaffrine district through training workshops. Involving a broad group of stakeholders and working across scales from the onset led to strong interest in scaling up beyond Kaffrine. The successful approach that was started in Kaffrine in 2011 has been extended to the Tougou (Burkina Faso) and Ségou (Mali) CCAFS sites, in partnership with AGRHYMET.

The South Asia regional program documented local knowledge and innovation for dealing with climate-related risks, in preparation for participatory development and evaluation of risk management strategies within the network of Climate-Smart Villages. A CIMMYT household survey on farmers' access to agricultural information sources and analysis of the role of mobile phones will support planned work on communication and use of climate-related information and advisories. Under their new "Smart Farm" initiative, WorldFish completed an analysis of historical adaptation options, and adaptation needs analysis based on climate, hydrology, land use policy options, water management policy options in south western coastal Bangladesh including the Khulna CCAFS research site.

CIMMYT is leading participatory action research in South Asia and East Africa to understand what practices farmers currently use to reduce the risks of climatic variability and how climate information services can enhance these strategies. Under the SIMLESA project in East Africa, field trials of crop management practices are being conducted. In South Asia, CIMMYT is working with farmers' groups and cooperatives to enable farmers to collectively learn about risk management strategies such as crop diversification, no-tillage and residue retention. These participatory strategic trials are serving as learning modules for a large number of stakeholders including farmers, extension agents, researchers and policy planners.

In Zimbabwe, ICRISAT tested the impacts of the communication of probabilistic climate forecast information to farmers and their support agents. When provided with climate information, farmers moved away from traditional risk management strategies and were able to increase farm productivity and income. Farmers indicated that they mostly receive seasonal forecasts via radio and say that they take them into consideration in decision-making. Women farmers appear to have less access to information.

CIP led a participatory study in ten communities in Peru that examined perceptions of vulnerability to climatic hazards and the role of weather and climate information in

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

Outcome 2.2: Better climate-informed management by key international, regional and national agencies of food crisis response, post-crisis recovery, and food trade and delivery in at least 12 countries

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

Provide a synthesis of all Program Participant activities pertaining to this output as per the CCAFS logframe. These reports will be 3-5 pages long (max. 30,000 characters).

In partnership with GEOSAS, MoA, NMA, and EAIR, Theme 2 conducted a consultative review of the decentralized decision-making processes within the Ethiopian government to identify critical decision-making points that impact budget allocation, agricultural planning, and risk management. Key entry-points and timing for the delivery of advanced information were identified and the government has invited the team as an observer for the regional/national planning and budgetary process in 2013 as a second phase of this study, which will include an evaluation and working groups on information packages for evidence based-policy.

A senior WFP food security advisor has joined Theme 2 to explore pathways to include climate information in government and humanitarian planning for food security interventions. CCAFS/CGIAR was invited by the IPC Asia project management team (FAO and WFP) to attend IPC analysis workshops to target specific avenues for the inclusion of climate information in the classification process. A CCAFS/CGIAR Theme 2 representative attended four of the five national IPC analysis workshops to observe the process and liaise with the participants. To complement this intervention, Theme 2 partnered with key national institutions involved in the IPC process to prepare annotated bibliographies and create online mapping tools in Nepal and Pakistan that can feed directly into the IPC process.

A South Asia regional program study evaluated the impact of past and projected future rainfall on demand, supply and prices of major agricultural commodities in India. A partial equilibrium model was developed to simulate the effects of monthly changes in rainfall on area, yield, production, demand and prices. No significant temperature effects were found. Modeled rice production was severely affected by rainfall deficits, as was production of pearl millet, sorghum and cotton to a lesser degree.

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

Outcome 2.3 Enhanced uptake and use of improved climate information products and services, and of information about agricultural production and biological threats, by resource-poor farmers, particularly vulnerable groups and women, in at least 12 countries

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

Provide a synthesis of all Program Participant activities pertaining to this output as per the CCAFS logframe. These reports will be 3-5 pages long (max. 30,000 characters).

A Theme 2 commissioned review of existing crop forecasting tools by Washington State University that highlighted the limitations of existing crop forecasting tools for research and operational use in the CCAFS focus regions. The Asia Risk Center was asked to develop a user-friendly, accessible, adaptable software toolkit to support spatial crop production forecasting. The CCAFS Regional Agricultural Forecasting Toolbox (CRAFT) supports spatial data management, spatial simulation, integration of seasonal climate forecasts, spatial aggregation, probabilistic analysis, calibration with historic agricultural statistics, and visualization. The initial prototype will be piloted in South Asia, followed by another round of training and capacity building training in 2013.

The IRI developed an online tool to aid analysis of rainfall variability and seasonal predictability across South Asia, taking advantage of a moderately high-resolution (0.25°) daily rainfall data set. The tool provides a more complete picture of how rainfall predictability maps onto important agricultural areas in South Asia. Evidence of a promising degree of predictability of summer monsoon rainfall in parts of India and Nepal suggests avenues for developing information tailored to agricultural users in the region.

A project by the IRI and NASA-JPL has developed and tested methods for assimilating satellite soil moisture and vegetation data into the DSSSAT-CSM model for forecasting maize yields. FutureWater completed an assessment of the added value of high-resolution remote-sensing data for crop forecasting in a smallholder setting. CCAFS and the EU Joint Research Center (JRC) jointly sponsored a workshop on "Combining Crop Models and Remote Sensing For Yield Prediction: Concepts, Applications and Challenges for Heterogeneous, Smallholder Environments" (JRC, Ispra, Italy, 13-14 June) that enhanced collaboration and exchange of knowledge among research groups from around the world. The workshop summarized the state of knowledge on data assimilation for crop yield forecasting; and articulated the challenges for successful applications of data assimilation in forecasting crop yields in heterogeneous, smallholder farming environments.

Theme Two commissioned a group of partners, including CGIAR and academic institutes, to determine opportunities for synergy between DSS for pest/disease management and weather index insurance based on the common use of weather indices for losses to pests and diseases. The team developed a model framework for DSS/EWS.

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	
Provide a synthesis of all Program Participant activities pertaining to this output as per the CCAFS logframe. These reports will be 3-5 pages long (max. 30,000 characters).	CCAFS partnered with USAID, WMO and the Climate Services Partnership to convene a workshop on "Scaling Up Climate Services for Farmers in Africa and South Asia" (Saly, Senegal, 10-12 December) that convened 110 experts from 30 countries to exchange knowledge and chart a pathway for supporting farming communities with climate information and advisory services. Participants examined existing constraints to the uptake and use of climate services, including barriers to the full participation of women and socially marginalized groups. A side event provided opportunity to more fully discuss with gender experts the role of gender in climate services. Workshop participants identified priority actions for overcoming existing climate services constraints, and sponsors committed to support their development into full proposals through mentoring and seed grants. Plans are underway for workshops to develop proposals around the priority actions, and to identify sources of funding to begin implementation. The Saly workshop featured in-depth studies of national agrometeorological advisory services in India and Mali. CCAFS and partners (USAID, IRI and IER for Mali) conducted these studies in order to provide evidence of use and benefit at the village level; and insights about factors that have contributed to their uptake, impact and sustainability. An ongoing IWMI-IFAD project is developing novel ways of using technology to provide water-related information services to farmers in Egypt, Ethiopia and the Sudan. A prototype mobile phone-based service, which provides farmers with information derived from remote sensing, will be established in 3 countries by 2014. The effort included capacity building programs on the use of ICT for weather and water information for farmers in Egypt and Ethiopia, and surveys and field visits to understand farmers' needs. An IWMI household survey in South Asia showed that farmers obtain agrometeorological information from multiple sources: more than 90% obtain information from other farmers, and 99% have access to mobile phones. Mobile phones encourage market participation and diversification towards high-value crops amongst poor farmers, helping to increase earnings. Poorer farmers face barriers to benefitting mobile phones, including limited access to markets, storage and irrigation; and availability of critical inputs.

Milestone Status Report - 2012

MILESTONE REPORT 1

Theme	Milestone	Milestone Status
Theme 2	2.1.1 2012	Completed

Theme Leader comments on Milestone status

Knowledge synthesis reports and related research activities in 2012 cover 5 areas of climate risk management innovation: traditional knowledge

Regional Program Leader comments on Milestone status

SAS:
CCAFS has completed exploratory studies of local knowledge/innovation for climate risk management in IGP, ICRAF characterized two sites, one in each of Uttar Pradesh and Rajasthan of India in terms of key bio-physical and socio-economic parameters for their main farming/livelihood systems, it has also analysed smallholders' adaptation strategies to climate change and the role of tree crops in local adaptations to climate variability in mountain regions of Nepal and Pakistan, ICRISAT completed social vulnerability index and produced maps incorporating historic and current climatic risks and livelihood options in dry lands of India, 'Smartfarm' for managing climatic risk has been initiated by Worldfish in CCAFS benchmark sites. Local knowledge and gaps have been identified but there seems some redundancies in different centers.

EA:
Commissioned case studies have been completed in Ethiopia, Tanzania, and Uganda. In Tanzania and Uganda, case studies focussed on evaluating integration of scientific weather and climate forecasting and indigenous knowledge to provide downscaled accurate, timely and easily accessible forecasts to inform farm-level decision making. The case study in Ethiopia focussed on documenting the status, utilization, benefits, challenges and opportunities of rangeland enclosures and community action groups (CAGs) to understand their implications on improving adaptive capacity of pastoral communities. In Kenya, the activity focused on documenting the climate related opportunities for agricultural adaptation in Semi-Arid Eastern Kenya.

MILESTONE REPORT 2

Theme	Milestone	Milestone Status
Theme 2	2.1.2 2012	Partially completed

Theme Leader comments on Milestone status

Theme-comissioned work (co-funded by Theme 4) produced an initial prototype of a household modeling tool that is compatible with IMPACT-L

Regional Program Leader comments on Milestone status

MILESTONE REPORT 3

Theme	Milestone	Milestone Status
Theme 2	2.1.3 2012 (1)	Completed

Theme Leader comments on Milestone status

Participatory action research on suites of climate risk management strategies, under the "Climate-Smart Village" model, was implemented to some extent in CCAFS sites in at-least 6 countries (Kenya, Uganda, Tanzania, Senegal, Bangladesh, India). Co-locating place-based participatory research by Centers, so portfolios of multiple risk management innovations could be evaluated at CCAFS sites, has progressed more slowly than anticipated. Because of resource limitations and the varying capacity and approaches of partners, expectations of applying fully

Regional Program Leader comments on Milestone status

SAs: WorldFish has completed an analysis of main adaptation options pursued by people in the past, and adaptation needs analysis based on climate, hydrology, land use policy options, water management policy options in south western coastal Bangladesh, CIMMYT has been engaged household survey in IGP on farmers' access to agricultural information sources and completed an analysis of the role of mobile phones in reducing information search costs and asymmetries, and increasing market efficiencies, CCAFS has documented local knowledge and innovation emerging under climate change context. Sufficient works have been done in this milestone.

EA:Across CCAFS sites in East Africa, researchers from the national and international institutions and development partners are working with communities to test a portfolio of climate risk management strategies. These include diversification of livelihoods through bee-keeping in Nyando, testing the design and communication of downscaled, probabilistic seasonal forecasts and evaluating their impact on farmers' management and livelihood outcomes in Wote, Eastern Kenya (by ICRISAT)

MILESTONE REPORT 4

Theme	Milestone	Milestone Status
Theme 2	2.2.1 2012	Completed

Theme Leader comments on Milestone status

Studies of the impacts of climate fluctuations on food security and its components have been reported for Nepal, Pakistan, India, Senegal and Et

Regional Program Leader comments on Milestone status

SAs: An analysis of weather effects on major annual agro-commodities (rice, sorghum, pearl millet, maize, pigeon pea, groundnut and cotton) in India has been completed in collaboration with IFPRI. Earlier, a similar analysis was done for Nepal to quantify the relationship between historic and current climatic variability and food security indicators. This research has huge policy significance.

MILESTONE REPORT 5

Theme	Milestone	Milestone Status
Theme 2	2.3.1 2012	Completed

Theme Leader comments on Milestone status

Progress was made on analysis to support seasonal climate prediction in SAs, on methods and capacity to use satellite data to fill gaps in meteor

Regional Program Leader comments on Milestone status

SAs:
Capacity development of the NARES on crop production forecasting was done in 2012, toolkit will be ready for use by the mid of 2013 and will be subsequently tested in Nepal, India, Sri Lanka and Bangladesh, sufficient volume of data have been already collected in S Asia to run the toolkit, IFPRI developed farm level hydro-bio-economic modeling of climate risk coping strategies in the IGP and a report on drought characterization, statistical relationships between droughts and agricultural production, and drought mitigation options selected using risk-based decision modelling, CIMMYT produced maps of wheat yield sensitivity to warming in India, with identification of hotspots, including comparison of results between statistical and process-based models. This milestone is covered completely.

EA:
As part of the Agricultural Model Inter-comparison project (AgMIP), four regional multidisciplinary teams comprising of climate, crop, economic and IT experts were formed in Sub-Saharan Africa (SSA). In Eastern Africa, country teams were formed in Kenya, Ethiopia, Tanzania and Uganda with ICRISAT as the coordinating agency.

WA:
Capacity on seasonal forecasting enhanced and communication approach evaluated in three sites (Kaffrine in Senegal, Yatenga in Burkina Faso and Segou in Mali). Approaches for up-scaling to be developed during 2013

MILESTONE REPORT 6

Theme	Milestone	Milestone Status
Theme 2	2.3.2 2012	Completed

Theme Leader comments on Milestone status

Work on climate services for agriculture and food security advanced rapidly, with the hire of Arame Tall (through ICRISAT), and CCAFS participati

Regional Program Leader comments on Milestone status

SAs:
A South-South Exchange was conducted in Dakar, Senegal which drew together 110 experts from both policy and research (met services and NARES) communities of practice along with farmer representatives, for a total of more than 30 countries and 50 institutions represented (including 5 CG centers), ICRISAT successfully developed seasonal forecasts for SW monsoon for Kurnol and Anatapur Districts from IITM GCM-downscaled forecast and delivered to farmers with crop management options. South South Exchange was instrumental to further refine gender and socially equitable information delivery mechanism learning lessons from different regions.

WA:
Climate information delivery mechanisms demonstrated and evaluated with representatives of different stakeholders groups at Kaffrine in Senegal

MILESTONE REPORT 7

Theme	Milestone	Milestone Status
Theme 2	2.1.3 2012 (2)	Completed

Theme Leader comments on Milestone status

CIMMYT and ICRAF reported work (Ethiopia, Kenya, Tanzania, Nigeria, Malawi, China) that focuses in part on transferring specific production technologies. Their reporting notes the role of the new technology within broader livelihood strategies. Note that Milestones 2.1.3 X (2) were added in 2011 to capture ongoing work by Centers focused on assessing or transferring particular production technologies. An apparent decline of Center activity under this milestone series appears to reflect a shift toward work that is increasingly co-located and integrated (i.e.

Regional Program Leader comments on Milestone status

MILESTONE REPORT 8

Theme	Milestone	Milestone Status
Theme 2	2.1.3 2012 (3)	Completed

Theme Leader comments on Milestone status

Index insurance work has been supported by IFPRI and ILRI. In Ethiopia, the first sales period for ILRI's IBLI project was initiated in 2012. In West Africa, work on fostering and evaluating use of seasonal forecasts by farmers was extended to cover Senegal, Burkina Faso and Mali. CIMMYT, ICRISAT, and CIP are using ICT and participatory studies to deliver climate information in Zimbabwe, Peru, and Ethiopia.

Regional Program Leader comments on Milestone status