

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 Region Led Activities South Asia (SAs)

Activity No. 190					
Activity title		Implementing farmer exchange programs linked to climate analogues in Rupandehi, Nepal and Climate analogue linked germplasm evaluation			
CCAFS Objective (select from drop list)		1.1 Adapted farming systems	CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)		1.1.1 2012 (1)
Activity objectives (what the activity aims to achieve)	Objective 1	To evaluate performance of rice and wheat germplasm across different agro-ecological zones in the IGP			
	Objective 2	To facilitate the process of knowledge exchange through farmers' experimentation network in different sites in the IGP			
	Objective 3	To devise, test and validate the 'Farms of the future' approach built on farmer-to-farmer exchanges to analogue sites as a valuable option to improve adaptive capacity and support knowledge transfer.			
Activity status		Completed			
Insert a small remark to indicate the status of the activity. (2-4 sentences required per activity)		Rice and wheat germplasm was evaluated at sites in a farmer participatory network by our partner Bioversity together with national partners. Germplasm of several crops was georeferenced and mapped for India. Hotspots of climate risks where additional wheat collections need to be done were identified using climate analogues of current and future climate. The Farm of the Future project was implemented in the Beora village of Rupandehi district, Nepal and exchange visits to its analogue sites were completed and feedback from the community captured. (Note: climate analogue linked germplasm has 1.1.1 2014 Milestone and farmer exchange programs linked to climate analogues has 1.1.2 2012 milestone)			
Deliverables status (You may add any unexpected deliverable)	Type	Description	Year	Status	Format
	Capacity	Capacity building of the NARES and other government people in South Asia on the use of spatial and temporal analogues	2011	Completed	Blogpost
	Reports, publications	Farms of the Future methodology to facilitate farmer-to-farmer exchanges, which includes social and gender differentiation and innovative participatory approaches that promote knowledge sharing among farmers communities, and which can be applied to different geographical regions, report on the performance of germplasm evaluated across different agro-ecological zones in the South Asia and farmers' responses	2012	Completed	Document (*.doc, *.odt, *.pdf)
	Reports, publications	A manual on implementing farmer exchange programs in CCAFS sites	2012	Partially completed	Select a format
	Communication products	A blog post on farmers exchange visit to analogue site	2012	Completed	Blogpost
Current Partners	Acronym		Name		
	AI - Academic Institution		University of Adelaide		
			Contact Point Full Name	Contact Point Email	
			Ariella Helfgott	ariella.helfgott@ouce.ox.ac.uk	
	Acronym		Name		
	CG - CGIAR Center		Centro Internacional de Agricultura Tropical		
			Contact Point Full Name	Contact Point Email	
			Andrew Jarvis	a.jarvis@cgiar.org	
	Acronym		Name		
	CG - CGIAR Center		Bioversity International		
			Contact Point Full Name	Contact Point Email	
			Prem Mathur	p.mathur@cgiar.org	

	Acronym NARC		Name Nepal Agricultural Research Council	
	NARES - National agricultural research and extension services			
	Contact Point Full Name Madan Bhatta		Contact Point Email madan_bhatta@yahoo.com	
	Acronym NPBGR		Name National Bureau of Plant Genetic Resources	
	NARES - National agricultural research and extension services			
	Contact Point Full Name Sunil Archak		Contact Point Email sarchak@nbpgr.ernet.in	

Activity No. 191						
Activity title		Analysis of national adaptation policies and institutions and prioritizing adaptation options for various regions				
CCAFS Objective (select from drop list)		1.3 Policies and institutions for adaptation	CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)	1.3.2 2014		
Activity objectives (what the activity aims to achieve)	Objective 1	To document adaptation options, evaluate and prioritize different adaptation options for India, Nepal, Bangladesh and Sri Lanka				
	Objective 2	To make an inventory of major adaptation/mitigation options in different regions and prioritize them based on an analysis of cost:benefit and trade-offs				
Activity status		Partially completed				
Insert a small remark to indicate the status of the activity. (2-4 sentences required per activity)		A documentation of the past and current policies and programs implemented in agriculture, livestock and fisheries sectors in Sri Lanka, India, Nepal and Bangladesh has been completed. Prioritization of adaptation/mitigation options in climate smart villages of Bihar and Haryana has been completed at the farmers scale. A land use planning approach for prioritization has been initiated for Bihar state in india. Initial databases and a bioeconomic model have been developed for this.				
Deliverables status (You may add any unexpected deliverable)		Type Reports, publications	Description A detailed report documenting adaptation options in different countries along with their cost benefit analysis and investment required to implement them in the field	Year 2012	Status Partially completed	Format Document (*.doc, *.odt, *.pdf)
		Reports, publications	A report with critical analysis of national adaptation policies	2012	Completed	Document (*.doc, *.odt, *.pdf)
Current Partners		CG - CGIAR Center	Acronym IFPRI	Name International Food Policy Research Institute		
			Contact Point Full Name Pramod Joshi		Contact Point Email p.joshi@cgiar.org	

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CCAFS Region Led Activities South Asia (SAs)

Activity No. 192																									
Activity title		Climate change adaptation innovation threads in South Asia and Indigenous knowledge to climate change adaptation																							
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	Find out the current innovative adaptive practices and capacity																							
	Objective 2	Assess institutional structures and behaviors that may facilitate innovation and adaptation to climate change																							
	Objective 3	Find out the key dynamics of adaptive innovations, including different actors, role played, networking and knowledge management																							
	Objective 4	To assess the policy and institutional reforms that support or constraint climate adaptive innovation in agriculture																							
Activity status		Completed																							
Insert a small remark to indicate the status of the activity. (2-4 sentences required per activity)		Local knowledge for climate risk management has been documented for several sites in South Asia. Emerging local innovations in a climate change scenarios from CCAFS sites have been identified. An article "Is South Asian agriculture adapting to climate change? Evidence from Indo-Gangetic Plains, South Asia" has been submitted to Journal of Sustainable Agriculture.																							
Deliverables status (You may add any unexpected deliverable)		Type	Description	Year	Status	Format																			
		Reports, publications	A journal paper highlighting adaptation innovation and traditional knowledge to climate change adaptation	2012	Completed	Document (*.doc, *.odt, *.pdf)																			
		Communication products	Blogs, photos and video testimonials, newsletter article	2012	Completed	Blogpost																			
		Reports, publications	A detailed report of all case studies in CCAFS and non-CCAFS sites, listing of all adaptive innovations, their present and future use	2012	Completed	Document (*.doc, *.odt, *.pdf)																			
Current Partners		<table border="1"> <thead> <tr> <th>Acronym</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>SAIS</td> <td>South Asia Institute of Advance Studies</td> </tr> <tr> <td>NGO_DO - Non-governmental organization/Development organization</td> <td></td> </tr> <tr> <th>Contact Point Full Name</th> <th>Contact Point Email</th> </tr> <tr> <td>Hemant Ojha</td> <td>ojhahemant1@googlemail.com</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Acronym</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>CREDA</td> <td>Center for Agro-food Economy and Development</td> </tr> <tr> <td>organization/Development organization</td> <td></td> </tr> <tr> <th>Contact Point Full Name</th> <th>Contact Point Email</th> </tr> <tr> <td>M. G. Rivera-Ferre</td> <td>marta.guadalupe.rivera@upc.edu</td> </tr> </tbody> </table>				Acronym	Name	SAIS	South Asia Institute of Advance Studies	NGO_DO - Non-governmental organization/Development organization		Contact Point Full Name	Contact Point Email	Hemant Ojha	ojhahemant1@googlemail.com	Acronym	Name	CREDA	Center for Agro-food Economy and Development	organization/Development organization		Contact Point Full Name	Contact Point Email	M. G. Rivera-Ferre	marta.guadalupe.rivera@upc.edu
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M. G. Rivera-Ferre	marta.guadalupe.rivera@upc.edu																								

Activity No. 193																													
Activity title		Analysis of weather effects on components of food security (e.g. production, prices, and trade) for India and Nepal																											
CCAFS Objective <i>(select from drop list)</i>		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. <i>(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)</i>		2.1.3 2012 (1)																								
Activity objectives <i>(what the activity aims to achieve)</i>	Objective 1	Analyze the effects of weather on food production, food security and trade																											
	Objective 2	Dynamic analysis to evaluate the relationship between historic and current climatic variability and food security indicators																											
Activity status		Completed																											
Insert a small remark to indicate the status of the activity. <i>(2-4 sentences required per activity)</i>		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. (Note: correct milestone for this activity is 2.2.1 2012)																											
Deliverables status <i>(You may add any unexpected deliverable)</i>		<table border="1"> <thead> <tr> <th>Type</th> <th>Description</th> <th>Year</th> <th>Status</th> <th>Format</th> </tr> </thead> <tbody> <tr> <td>Reports, publications</td> <td>A report outlining the impact of past climatic patterns on food security components at different agro-ecological zones in India and Nepal</td> <td>2012</td> <td>Completed</td> <td>Document (*.doc, *.odt, *.pdf)</td> </tr> <tr> <td>Reports, publications</td> <td>A journal article incorporating long term weather parameters and their effects on crop production and food security in Nepal</td> <td>2012</td> <td>Completed</td> <td>Select a format</td> </tr> <tr> <td>Communication products</td> <td>A blog post on analysis of climate impacts on food security and livelihoods in Nepal</td> <td>2012</td> <td>Completed</td> <td>Blogpost</td> </tr> </tbody> </table>				Type	Description	Year	Status	Format	Reports, publications	A report outlining the impact of past climatic patterns on food security components at different agro-ecological zones in India and Nepal	2012	Completed	Document (*.doc, *.odt, *.pdf)	Reports, publications	A journal article incorporating long term weather parameters and their effects on crop production and food security in Nepal	2012	Completed	Select a format	Communication products	A blog post on analysis of climate impacts on food security and livelihoods in Nepal	2012	Completed	Blogpost				
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		P. Krishna Krishnamurthy	krishna.krishnamurthy@wfp.org																										

Activity No. 194					
Activity title		Crop production forecasting using seasonal weather forecasts and crop models			
CCAFS Objective <i>(select from drop list)</i>		2.3 Support risk management through enhanced prediction of climate impacts on agriculture, and enhanced climate information and services	CCAFS Milestone No. <i>(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)</i>		2.3.1 2012
Activity objectives <i>(what the activity aims to achieve)</i>	Objective 1	Capacity strengthening on seasonal forecasting in South Asia			
	Objective 2	Develop, demonstrate and operationalize the toolkit for crop yield forecasting for targetted crops in Nepal, Pakistan, Bangladesh and Sri Lanka			
	Objective 3	Analyze within season crop environment and crop growth in near real time combining current season and forecasted weather, remote sensing and ground information			
Activity status		Partially completed			
Insert a small remark to indicate the status of the activity. <i>(2-4 sentences required per activity)</i>		Capacity development of the NARES on crop production forecasting was done in 2012 and it will be continued in 2013. Toolkit will be ready for use by the mid of 2013 and will be subsequently tested in Nepal, India, Sri Lanka and Bangladesh. Partners have started collecting data required to run the toolkit.			

Type	Description	Year	Status	Format
Model tools and software	Crop production forecasting platform design	2012	Partially completed	Other
Capacity	Capacity strengthening at the national level	2012	Completed	Presentation (*.ppt, *.odp)
Data	Database covering area, production, planting and harvesting dates, weather parameters, remote sensing information	2012	Partially completed	Database (*.sql, *.mdb, etc)
Reports, publications	Case study reports at country level	2014	Uncompleted	Select a format

Deliverables status
(You may add any unexpected deliverable)

Acronym	Name	Contact Point Full Name	Contact Point Email
CIMMYT	International Maize and Wheat Improvement Center		
CG - CGIAR Center			
IRI	International Research Institute for Climate and Society		
ARI - Advanced Research Institution		Jim Hansen	jhansen@iri.columbia.edu
ARC	Asia Risk Centre		
PRI - Private Research Institution		Premal Mehta	
NARC	Nepal Agriculture Research Council		
and extension services		Ananda Gautam	akgrp@rediffmail.com
GO - Government office/department	Department of Natural Resource Management, Sri Lanka		
		W Wickeramsinghe	wickey56@ymail.com

Current Partners

Activity No. 195				
Activity title	South-South knowledge exchange			
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 achieve)	Objective 1	To organise a workshop to share lessons and evidence about how climate information and advisory services can be used to improve the lives of smallholder farmers, building on examples of good practice in Africa and South Asia		
Activity status	Completed			
Insert a small remark to indicate the status of the activity. (2-4 sentences required per activity)	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).			
Deliverables status (You may add any unexpected deliverable)	Type	Description	Year	Status
	Reports, publications	Workshop report highlighting in-depth studies of mature advisories, generate and capture of promising ideas during workshop discussions, connection with relevant partners	2012	Completed
	Workshops	South-South knowledge exchange workshop	2012	Completed
				Document (*.doc, *.odt, *.pdf)
				Presentation (*.ppt, *.odp)

Current Partners

Other

Acronym

WMO

World Meteorological Organization

Contact Point Full Name

Contact Point Email

ARI - Advanced Research Institution

Acronym

IRI

International Research Institute for Climate and Society

Contact Point Full Name

Contact Point Email

GO - Government office/department

Acronym

IMD

India Meteorological Department

Contact Point Full Name

Contact Point Email

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CCAFS Region Led Activities South Asia (SAs)

Activity No. 196																														
Activity title		Baseline GHG emissions in key sites in South Asia																												
CCAFS Objective <i>(select from drop list)</i>		3.3 Test and identify desirable on-farm practices and their landscape-level implications	CCAFS Milestone No. <i>(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)</i>		3.2.2 2014																									
Activity objectives <i>(what the activity aims to achieve)</i>	Objective 1	To measure emissions from rice-wheat system in farmers fields																												
	Objective 2	To parameterize the DNDC model and train/validate the remote sensing imagery using survey data and ground truth.																												
	Objective 3	To generate a baseline agro-ecological profile for each site in the region and the region as a whole.																												
	Objective 4	To simulate (15 to 20 years to allow soil carbon pools to stabilize) a range of ecological processes including soil carbon dynamics and carbon dioxide flux, methane flux, and direct and indirect nitrous oxide flux.																												
	Objective 5	To estimate region wide greenhouse gas emissions and develop a range of estimates for emissions.																												
Activity status		Partially completed																												
Insert a small remark to indicate the status of the activity. <i>(2-4 sentences required per activity)</i>		Ground truth data have been collected from Vaishali site of Bihar, India and Rupandehi site of Nepal. Baseline emissions and simulation for Vaishali, Bihar has been completed. Baseline emissions from other sites (Rupandehi of Nepal, Karnal of India and Bagerhat of Bangladesh) will be completed within 2013. Similarly, the first report on baseline emissions from rice-wheat system in Haryana will be made available in 2013. (Note: the correct milestone for this activity is 3.3.1 2012(1))																												
Deliverables status <i>(You may add any unexpected deliverable)</i>		Type	Description	Year	Status	Format																								
		Data	baseline data on GHG emissions	2014	Partially completed	Document (*.doc, *.odt, *.pdf)																								
		Model tools and software	DNDC model validation	2013	Partially completed	Document (*.doc, *.odt, *.pdf)																								
		Reports, publications	A report incorporating DNDC results for the key CCAFS PAR sites in South Asia	2014	Partially completed	Document (*.doc, *.odt, *.pdf)																								
Current Partners		<table border="1"> <thead> <tr> <th>Acronym</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>IRRI</td> <td>International Rice Research Institute</td> </tr> <tr> <td colspan="2">Contact Point Full Name</td> </tr> <tr> <td colspan="2">JK Ladha</td> </tr> <tr> <td colspan="2">Contact Point Email</td> </tr> <tr> <td colspan="2">j.ladha@cgiar.org</td> </tr> <tr> <th>Acronym</th> <th>Name</th> </tr> <tr> <td>AGS</td> <td>Applied Geosolutions LLC</td> </tr> <tr> <td colspan="2">Contact Point Full Name</td> </tr> <tr> <td colspan="2">William Salas</td> </tr> <tr> <td colspan="2">Contact Point Email</td> </tr> <tr> <td colspan="2">wsalas@appliedgeosolutions.com</td> </tr> </tbody> </table>					Acronym	Name	IRRI	International Rice Research Institute	Contact Point Full Name		JK Ladha		Contact Point Email		j.ladha@cgiar.org		Acronym	Name	AGS	Applied Geosolutions LLC	Contact Point Full Name		William Salas		Contact Point Email		wsalas@appliedgeosolutions.com	
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CCAFS Region Led Activities South Asia (SAs)

Activity No. 197													
Activity title		Linking knowledge to action through scenario building at the regional level in South Asia											
CCAFS Objective (select from drop list)		4.1 Explore and jointly apply approaches and methods that enhance knowledge to action linkages with a wide range of partners at local, regional and global levels		CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)	4.1.1 2012								
Activity objectives (what the activity aims to achieve)	Objective 1	To build capacity of the key stakeholders through training and discussion using scenarios approaches											
	Objective 2	To engage with policymakers in South Asian countries/regions, especially those involved in global climate change issues											
Activity status		Completed											
Insert a small remark to indicate the status of the activity. (2-4 sentences required per activity)		A scenario building workshop process was organised in Colombo in 2012 in which 40 participants from different countries (Nepal, India, Bangladesh, Sri Lanka and Pakistan) from diverse sectors of food systems and national and regional planning participated. This resulted in development of five qualitative scenarios for South Asia. A workshop will be organised in 2013 to quantify these scenarios further.											
Deliverables status (You may add any unexpected deliverable)		Type	Description	Year	Status	Format							
		Reports, publications	A plausible set of scenarios to 2030 for South Asia which examine potential development under a changing climate and differing pathways of economic development	2012	Completed	Document (*.doc, *.odt, *.pdf)							
		Workshops	Awareness raising within regional bodies and with national policymakers regarding climate change and regional food security issues and policy and other investment opportunities, through communication efforts associated with scenarios and vulnerability maps	2012	Completed	Select a format							
		Communication products	Future drivers for regional food security and climate adaptation explored by South Asians	2012	Completed	Blogpost							
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Acronym	Name	Contact Point Full Name	Contact Point Email										
AI - Academic Institution	University of Oxford	Joost Vervoort	joost.vervoort@eci.ox.ac.uk										

Activity No. 198					
Activity title		Partnership development and strengthening; establishment of participatory action research activities with key partners in CCAFS regions/sites (climate smart villages)			
CCAFS Objective (select from drop list)		4.1 Explore and jointly apply approaches and methods that enhance knowledge to action linkages with a wide range of partners at local, regional and global levels		CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)	4.1.2 2012
Activity objectives (what the activity aims to achieve)	Objective 1	To identify, test, validate and promote a scalable climate-smart model for agricultural development			
	Objective 2	To develop climate smart villages by promoting smart interventions in participation with the local communities			
	Objective 3	To enhance and strengthen the capacity of rural communities and other stakeholders in relation to climate change			
Activity status		Select a status			
Insert a small remark to indicate the status of the activity. (2-4 sentences required per activity)		Climate smart agriculture villages have been set up in key CCAFS sites in South Asia (Vaishali, Bihar and Karnal, Haryana of India, Rupandehi of Nepal and Bagerhat of Bangladesh). Several activities relating to water, residue, nitrogen management, are being implemented in Vaishali, Bihar. Participatory videos are being employed to upscale these activities in neighbouring region. Similar work, mainly focusing on conservation agriculture and water management interventions has been started in Haryana. Germplasm evaluation, conservation agriculture and water management activities are on-going in Nepal. Smart farm approach is being implemented in Bagerhat of Bangladesh.			

Type	Description	Year	Status	Format
Capacity	participatory action research is carried out along with several training components aiming to develop capacity of the farmers	2012	Completed	Blogpost
Communication products	success cases to be incorporated in the blogs, video recording and dissemination to other villages	2012	Completed	Blogpost
Reports, publications	reports from each site highlighting the activities done, results found and any amendment needed, Participatory Action Research process established in 4 focus sites and gender-sensitive activities related to risk management, adaptation and mitigation implemented, with engagement and communication strategies aimed at users of the knowledge generated pursued, and scaling up mechanisms in place	2012	Completed	Document (*.doc, *.odt, *.pdf)
Reports, publications	journal article covering cross site issues, level of achievement and cross site variability	2014	Uncompleted	Select a format
Workshops	outcome sharing and planning workshops at the end of each year, Policy and key partner (NGOs and gov'ts) strategy development workshops held to identify key target beneficiaries, research issues and interventions	2014	Uncompleted	Select a format

Deliverables status
(You may add any unexpected deliverable)

Acronym	Name
NARC	Nepal Agricultural Research Council
NARES - National agricultural research and extension services Contact Point Full Name Janmejai Tripathi Contact Point Email jtripathi.narc@yahoo.com	
Acronym	Name
IWMI	International Water Management Institute
CG - CGIAR Center Contact Point Full Name SA Prathapar Contact Point Email s.prathapar@cgiar.org	
Acronym	Name
CIMMYT	International Maize and Wheat Improvement Center
CG - CGIAR Center Contact Point Full Name Andrew McDonald Contact Point Email a.mcdonald@cgiar.org	
Acronym	Name
	WorldFish
CG - CGIAR Center Contact Point Full Name Melody Braun Contact Point Email m.braun@cgiar.org	
Acronym	Name
IFFCO	Indian Farmers Fertiliser Cooperative Foundation
NGO_DO - Non-governmental organization/Development organization Contact Point Full Name SN Sharma Contact Point Email snsharma_agro@yahoo.com	

Current Partners

Activity No. 199																													
Activity title		Empowering rural women to adapt for food security in South Asia																											
CCAFS Objective (select from drop list)		4.1 Explore and jointly apply approaches and methods that enhance knowledge to action linkages with a wide range of partners at local, regional and global levels	CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)	4.1.3 2012																									
Activity objectives (what the activity aims to achieve)	Objective 1	Contextualise the existing CCAFS South Asia Manual on Gender, Climate Change, Agriculture and Food Security for Training of Trainers																											
	Objective 2	Bring out an accompanying practical tool, a Gender and Adaptation Training Manual (GATM) in English and the relevant Country language for imparting training to rural women																											
	Objective 3	Identify womens' vulnerability during the period of stress, their coping strategies and their participation in decision making																											
Activity status		Completed																											
Insert a small remark to indicate the status of the activity. (2-4 sentences required per activity)		A training of the trainers (TOT) was conducted in Bihar state of India in which 50 women leaders from 20 districts of Bihar actively participated and in the subsequent phases these trainers in turn trained about 1750 other rural women in 17 districts. Gender and climate change manual has been finalized and a summary manual in different languages (English, Hindi, Nepali and Bangla) has been produced.																											
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Activity No. 200																																							
Activity title		Enhancing regional engagement and communication																																					
CCAFS Objective (select from drop list)		4.1 Explore and jointly apply approaches and methods that enhance knowledge to action linkages with a wide range of partners at local, regional and global levels	CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)	4.1.4 2012 (1)																																			
Activity objectives (what the activity aims to achieve)	Objective 1	Learn about the key issues and approaches needed for climate smart agriculture from farmers, policymakers and other stakeholders																																					
	Objective 2	Sensitize actors in several sectors of agriculture about climate change, agriculture and food security issues in South Asia and key policy required to make agriculture more resilient																																					
	Objective 3	Establish a forum for regular exchange of ideas between scientists, policy makers and advisors and political leadership on issues related to climate change, agriculture and food security																																					
Activity status		Completed																																					
Insert a small remark to indicate the status of the activity. (2-4 sentences required per activity)		Several meetings (formal and informal), workshops and interactions were made in 2012 with policy makers, researchers, private entrepreneurs, I/N/Gos in the region. High level policy engagement on climate smart agriculture was organized in Bangkok together with APAARI, a rigorous interaction with Members of Parliament in Nepal followed by a two days workshop on Science-Policy-People Interface on Climate Change, Agriculture and Food Security in Nepal were organized in 2012. Climate smart Agriculture Learning Platform for South Asia was inaugurated by His Excellency President of Nepal in 2012.																																					
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Activity No. 201							
Activity title		Completing baseline surveys in CCAFS sites					
CCAFS Objective (select from drop list)		4.2 Assemble data and tools for analysis and planning	CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)	4.1.4 2012 (1)			
Activity objectives (what the activity aims to achieve)	Objective 1	To conduct baseline surveys to examine ex-ante the impact of climate change shocks, the effect of adaptation strategies and mitigation strategies on farming households and the environment, measured by various livelihood and emissions related indicators					
	Objective 2	Prepare a detailed database on household and farm resource available, adaptation strategies at the farm level and key climate change issues faced by different sections of the society					
Activity status		Partially completed					
Insert a small remark to indicate the status of the activity. (2-4 sentences required per activity)		All household baseline surveys have been completed in all sites. Village and organizational baselines in Karnal, Haryana; and organizational baseline in Vaishali and Bagerhat are on and will be completed in 2013.					
Deliverables status (You may add any unexpected deliverable)		Type	Description	Year	Status	Format	
		Data	baseline data from each surveyed sites, production systems	2012	Completed	Document (*.doc, *.odt, *.pdf)	
		Communication products	blogs on interesting cases, photos and videos	2012	Completed	Document (*.doc, *.odt, *.pdf)	
		Reports, publications	detailed reports on different levels of surveys conducted in different sites	2012	Completed	Document (*.doc, *.odt, *.pdf)	
		Reports, publications	Journal paper focusing on livelihood strategies and climatic risk adaptation in IGP	2013	Partially completed	Select a format	
Current Partners		CG - CGIAR Center		Acronym	ILRI	Name	International Livestock Research Institute
				Contact Point Full Name	Mariana Rufino	Contact Point Email	m.rufino@cgiar.org
		NGO_DO - Non-governmental organization/Development organization		Acronym	CEAPRED	Name	Center for Environmental and Agricultural Policy Research, Extension and Development
				Contact Point Full Name	Krishna Shrestha	Contact Point Email	krishna.shrestha@ceapred.org.np
		NGO_DO - Non-governmental organization/Development organization		Acronym		Name	Livelihood Solutions
				Contact Point Full Name	Girish Bhardwaj	Contact Point Email	girish@livelihoodsolutions.org
		Other		Acronym		Name	Independent Consultant
				Contact Point Full Name	RKP Singh	Contact Point Email	rkpsingh2k3@rediffmail.com

Activity No. 202																									
Activity title		Mapping Flood Inundation in Indo-Gangetic plain using Multi-temporal MODIS Images																							
CCAFS Objective (select from drop list)		4.2 Assemble data and tools for analysis and planning	CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)		4.2.1 2012 (3)																				
Activity objectives (what the activity aims to achieve)	Objective 1	Review of current flood hazard databases																							
	Objective 2	Review of flood inundation using optical and microwave satellite datasets																							
	Objective 3	Detect water surface using MODIS data																							
Activity status		Completed																							
Insert a small remark to indicate the status of the activity. (2-4 sentences required per activity)		A map of flood occurrence and its duration has been prepared for South Asia using MODIS composite data from 2001 to 2010 with a spatial resolution of approximately 500 m with atmospheric correction. Inundation maps produced using ALOS PALSAR (Microwave), ALOS AVINIR (Optical) and Landsat TM5 (optical) were used as a reference to evaluate the estimates derived from MODIS data. Detailed analysis of floods has been done for the Indo-Gangetic plain in the period from 1985 to 2011.																							
Deliverables status (You may add any unexpected deliverable)		<table> <tr> <th>Type</th> <th>Description</th> <th>Year</th> <th>Status</th> <th>Format</th> </tr> <tr> <td>Data</td> <td>baseline data on number of flood events occurred in the IGP region</td> <td>2012</td> <td>Completed</td> <td>Document (*.doc, *.odt, *.pdf)</td> </tr> <tr> <td>Communication products</td> <td>flood hotspots in the IGP</td> <td>2012</td> <td>Completed</td> <td>Blogpost</td> </tr> <tr> <td>Reports, publications</td> <td>report incorporating global flood analysis, IGP flood event analysis, methodology validation, spatio-temporal variations in floods</td> <td>2012</td> <td>Completed</td> <td>Document (*.doc, *.odt, *.pdf)</td> </tr> </table>				Type	Description	Year	Status	Format	Data	baseline data on number of flood events occurred in the IGP region	2012	Completed	Document (*.doc, *.odt, *.pdf)	Communication products	flood hotspots in the IGP	2012	Completed	Blogpost	Reports, publications	report incorporating global flood analysis, IGP flood event analysis, methodology validation, spatio-temporal variations in floods	2012	Completed	Document (*.doc, *.odt, *.pdf)
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	Amarnath Giriraj	a.giriraj@cgiar.org																							

Activity No. 203																				
Activity title		Regional database on soils, historic climate parameters and crop management and tools for impact assessment of climate change on crops																		
CCAFS Objective (select from drop list)		4.2 Assemble data and tools for analysis and planning	CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)		4.2.1 2012 (2)															
Activity objectives (what the activity aims to achieve)	Objective 1	Develop a database covering soils, historic climate parameters and crop management practices																		
Activity status		Completed																		
Insert a small remark to indicate the status of the activity. (2-4 sentences required per activity)		Global irrigated area map, released a few years ago, has been updated for South Asia by using the available advanced remote sensing techniques and relatively higher resolution datasets and validated using the latest high resolution satellite data through Google earth and country wise datasets. Regional database on agricultural statistics, historic climate parameters and crop management has been completed.																		
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	Salman Siddiqui	s.siddiqui@cgiar.org																		

Activity No. 204					
Activity title		Impact assessment of climate change on specific crops in South Asia			
CCAFS Objective (select from drop list)		4.2 Assemble data and tools for analysis and planning	CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)	4.2.1 2013 (5)	
Activity objectives (what the activity aims to achieve)	Objective 1	Analyse the impact of climate change scenarios on major cereals viz; wheat, rice and maize			
	Objective 2	Develop a user friendly tool to accelerate spatial simulation of climate change impacts on crops			
Activity status		Partially completed			
Insert a small remark to indicate the status of the activity. (2-4 sentences required per activity)		A user friendly interface has been developed to automate the process of running DSSAT model for climate change impact studies. This is currently being employed to analyse the impact of climate change on major crops in South Asia.			
Deliverables status (You may add any unexpected deliverable)	Type	Description	Year	Status	Format
	Data	database developed	2012	Completed	Select a format
	Communication products	blog post showing the impact of climate change on key crops	2012	Partially completed	Select a format
	Reports, publications	journal paper incorporating the impact of climate change on key crops	2013	Uncompleted	Select a format
	Model tools and software	Climate-crop modelling tool	2012	Completed	Select a format
Current Partners	Acronym		Name		
	CG - CGIAR Center				
	Contact Point Full Name		Contact Point Email		

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 Region Led Activities South Asia (SAs)

Theme 1. Adaptation to Progressive Climate Change	
Objective 1.1 Analyze and design processes to support adaptation of farming systems in the face of future uncertainties of climate in space and time	
Outcome 1.1: Agricultural and food security strategies that are adapted towards predicted conditions of climate change promoted and communicated by the key development and funding agencies (national and international), civil society organizations and private sector in at least 20 countries	
Output 1.1.1 Development of farming systems and production technologies adapted to climate change conditions in time and space through design of tools for improving crops, livestock, agronomic and natural resource management practices	
<i>Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives</i>	*This study has initially focused on wheat crop in India, crucial for the country's food security. Passport data for wheat ex situ germplasm collections was extracted from the databases of GENESYS, Bioversity (IBPGR) collecting missions' database, SINGER, EURISCO, and GRIN-Global and India's National Bureau of Plant Genetic Resources (NBPGR). The filtered data was first geo-referenced and mapped over India and their climate probability matching done for current and future climate (A1B and B2 scenarios of UKMO-HadCM3-2010-2039 and 2020-2049, and the CSIRO-Mk3.0 GCM -2020s and 2040s). The climate matching analysis was done by the Maxent tool using monthly data for the wheat growing period of November to March for maximum temperature and minimum temperature. In both the scenarios, it was noted that the highly matching areas for wheat suitability (probability >0.8) is shrinking from the 2020s to the 2040s. Also, within the area of matching, it was noted that the penninsular and southern India will gradually be less suitable for wheat cultivation in future climate scenarios. In such a scenario, there are chances that germplasm collection in these regions would be lost. Hence there is a strong need to systematically collect the entire available diversity in these regions before it is lost forever. Based on this research, the Indian national gene bank is proposing to again collect germplasm and data from the most vulnerable areas. *The Farm of the Future project was implemented in the Beora village of Rupandehi district, Nepal in which a diagnostic workshop was designed to check the appropriateness of exchange, gain knowledge of forms of social differentiation and to guide the subsequent steps of participant selection and exchange program to ensure socially, culturally, economically, politically and environmentally appropriate exchanges. Several tools of participatory approach were tested in the community to capture the responses and to build up the capacity of the participants. Farmers exchange visits were made in the analogue sites after providing rigorous training to them. The exchange visit along with rigorous exercises for capacity building helped local farmers understand climate change conditions and to some extent prepared them to adapt to long term climate change. The final report has been submitted and a blog highlighting the key results from the field published in the CCAFS website.
Objective 1.3 Integrate adaptation strategies for agricultural and food systems into policy and institutional frameworks	
Outcome 1.3: Improved adaptation policies from local to international level supporting farming communities, rural institutions and food system actors adapted to future climate conditions in at least 20 countries.	
Output 1.3.2 Public and private sector policies and strategies at the national level to enable farming communities and the food system to adapt to predicted future conditions	
<i>Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives</i>	*A review of the past and present policies was done from a climate-lens for four South Asian countries, namely Bangladesh, India, Nepal and Sri Lanka. The study reviewed six intervention areas - water, energy, carbon, nitrogen, weather, and knowledge, which have direct or indirect bearings on agriculture and crucial for any potential transformation toward climate-smart agriculture. The review observed that policies for progressive climate change in South Asian countries have started emerging only recently with the onset of international negotiations. However, there have been several government policies and programmes in place with substantial public investments and these have potential to influence climatic risk management in agricultural sector. It emerged that there are policies related to the subsidies on fertilizer, irrigation and power in all countries. Often, these subsidies were responsible for inefficient use of nutrients, water and energy. In India, most of these subsidies were used to produce crops like rice, wheat, sugarcane and cotton in favourable and irrigated areas. In Bangladesh and Nepal, most of these subsidies are used for rice crop. These subsidies have adversely affected agricultural production and have also contributed to increase in GHG emissions, especially from rice fields. Agricultural insurance in India and Sri Lanka for climate risk management is being pushed by the government but is yet to be streamlined for larger area. *Prioritization of adaptation/mitigation options in agriculture was done in western and eastern IGP which have contrasting characteristics with respect to level of agriculture and socio-economic development, resource endowments, and frequency and magnitude of climate risks. A composite index was developed to prioritize climate-smart interventions. The results from eastern IGP (represented by Bihar) revealed that the 'systems of rice intensification' (SRI) for rice has the highest composite index followed by 'direct seeded rice' (DSR). Though the composite index for SRI was high, its efficiency and environmental indices were lower than the DSR. More work is needed to fully understand the value of different options in increasing climatic resilience/adaptation/mitigation.

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	
<i>Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives</i>	We commissioned studies on indigenous innovations that could be of use under climate change condition in different South Asian countries. Eight case study sites and 14 household sites, mostly overlapping in the CCAFS sites were selected for this study. The key focus was to see changes taking place in the agricultural practices, the connections between such changes and climatic drivers and see whether any changes have adaptation dimension. A number of responses have evolved from farm level to agricultural policy; however, all of these responses are not necessarily climate adaptive and socially equitable, as they are not fully informed by longer-term trends and projected scenarios of climate change and political economy. Ipso facto, farmers have been exploring several adaptation strategies in agriculture and some of these strategies are robust enough. The key issue in promoting such innovation is that each of the supporting and regulating institutions consider only one aspect of the agro-ecological system and fail to apply integrated approach. Further research is needed to see institutional aspects of the innovations emerging amid climate change context.
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	
<i>Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives</i>	A study was done to evaluate the impact of past and projected future rainfall on demand, supply and prices of major agricultural commodities (rice, pearl millet, sorghum, groundnut, pigeonpea, and cotton) in India. For this, a partial equilibrium model was developed to simulate the effects of monthly changes in absolute amount of rainfall and number of rainy days on area, yield, production, demand and prices. State-wise time series data from 1980 to 2008 was used for assessing the effect of deficit rainfall on production, demand and prices of important food and non-food commodities. Initial results did not indicate any significant effect of temperature on the monsoon crops and hence was ignored. The results showed as expected that July rainfall was more crucial for acreage and yield of rice, sorghum and pearl millet whereas the number of rainy days during August, September and October was found significant for crop yield response. It was noted that rice production will be severely affected with deficit rainfall followed by pearl millet, sorghum and cotton. The elasticity of production with respect to deficit rainfall showed that cereal production will fall by 5-10 per cent in a situation of 10 per cent deficit rainfall due to decline in area as well as yield. Lower production of different crops will have inflationary pressure on the prices of agricultural commodities and adversely affect their demand. It is projected that the price of rice will go up by 23 per cent and by 13-16 per cent in respect of coarse cereals in a situation of 10 per cent deficit rainfall. As a consequence of this a 5.5 per cent decline in demand for rice, 6.9 per cent for cotton and between 2 and 3 per cent for other commodities is projected.
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	
<i>Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives</i>	In order to raise the capacity in South Asia on seasonal weather forecasting linked forecasts of pre-harvest crop production, a workshop was organised to assess the current state of knowledge, institutional interest and availability of data and models in the South Asian countries for this study. A consortium consisting of South Asia representatives, CCAFS and well established global yield forecasting agencies was developed for implementation over next 2 years. A toolkit development has been commissioned to provide in a user-friendly, customized form using a crop simulation model integrated with spatial data of weather, soil, crop management practices, crop distribution and crop parameters, to provide spatial estimates of qualitative and quantitative crop status for South Asian countries. This prototype will be piloted in South Asia followed by another round of capacity building training in 2013.
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	
<i>Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives</i>	A South-South knowledge exchange workshop on climatic services for different stakeholders was organised in Dakar, Senegal which drew together 110 experts from both policy and research (met services and NARES). The workshop was successful in capturing and sharing the lessons and evidence about how climate information and advisory services can be used to improve the lives of smallholder farmers, building on examples of good practice in Africa and South Asia and identifying critical gaps in the design, delivery and effective use of climate-related information for risk management among smallholder farmers in sub-Saharan Africa and South Asia.
Theme 3. Pro-Poor Climate Change Mitigation	
Objective 3.2 Identify institutional arrangements and incentives that enable smallholder farmers and common-pool resource users to reduce GHGs and improve livelihoods	
Outcome 3.2: Improved knowledge about incentives and institutional arrangements for mitigation practices by resource-poor smallholders (including farmers' organizations), project developers and policy makers in at least 10 countries	
Output 3.2.2 Improved capacity to increase the uptake and improve the design of incentives mechanisms and institutional arrangements to deliver benefits to poor farmers and women	
<i>Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives</i>	Efforts are being made to develop baseline emission estimates from CCAFS sites in South Asia using DNDC model. The key activities in this project are to generate baseline agro-ecological profile in the CCAFS sites, to simulate soil carbon dynamics and methane and nitrous oxide fluxes and to develop a range of estimates for emissions for each of the four sites. The very preliminary results from Vaishali, Bihar, India indicate that approximately 82,000 t CO₂eq of greenhouse gases were emitted from agriculture in the 14,300 ha study site. The uncertainties associated with the land use mapping component of the analysis indicated that the emissions actually ranged from 68,000 to 96,000 t CO₂eq. Work is in progress about other sites and will be completed in 2013.

Theme 4. Integration for Decision Making	
Objective 4.1 Explore and jointly apply approaches and methods that enhance knowledge to action linkages with a wide range of partners at local, regional and global levels	
Outcome 4.1: Appropriate adaptation and mitigation strategies mainstreamed into national policies in at least 20 countries, in the development plans of at least five economic areas (e.g. ECOWAS, EAC, South Asia) covering each of the target regions, and in the key global processes related to food security and climate change	
Output 4.1.1 Future economic development scenarios taking climate change into account, and vulnerability maps and analyses incorporating a changing climate and food security issues shared with decision-makers at national, regional and global levels and informing regional economic development and national food security plans and policies	
<i>Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives</i>	An international workshop was organized in late November in Colombo, Sri Lanka, wherein regional facilitators from governments, private sector, academia, media and civil society related to food systems and environments met to explore key uncertainties for future food security, environments and livelihoods in South Asia up to 2050. Participants came from Pakistan, India, Sri Lanka, Bangladesh and Nepal to join the workshop and collaborated intensively. The participants went through an extensive process of combining various future states of important drivers. The high-spirited and highly engaged group of participants developed five plausible scenarios, exploring how different events and changes would lead to the end state of their scenario in 2050. Each of these combined scenarios offers very different challenges to decision-makers and researchers. These scenarios are the beginning of a longer process – next step involve the quantification of the scenarios through two agricultural economic models, IMPACT and GLOBIOM, where the socio-economic scenarios will be combined with quantitative climate scenarios. Once these quantified combinations have been made, the scenarios will be used by decision-makers in governments, the private sector and civil society for strategic interactions to develop adaptive policies, agenda setting and investment planning – and by researchers to test the viability of various technologies and interventions. The scenarios will also be disseminated through various analogue and digital media to engage and interact with larger audiences around these future challenges.
Output 4.1.2 Evidence on, testing and communication of, successful strategies, approaches, policies, and investments contributing to improved science-informed climate change-agricultural development-food security policies and decision making	
<i>Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives</i>	Climate smart agriculture activities have been started in key CCAFS sites in South Asia (Vaishali, Bihar and Karnal, Haryana of India; Rupandehi of Nepal; and Bagerhat of Bangladesh). The working approach of this participatory action research in CCAFS sites is to constitute self-help farmers groups, including women members, with whom several risk management strategies are piloted in a participatory mode. On-farm testing of wheat and rice germplasm, mung bean incorporation in the cropping pattern, need based nitrogen application methods, residue incorporation in the field, agro-forestry plantations, weather forecast and agro-advisories via cell phones, index based insurance and gender empowerment are some of the key interventions in Vaishali in which farmers showed keen interest. Zero tillage of wheat, participatory varietal testing and evaluation of rice, wheat, potatoes and fodder, laser leveling and need based nitrogen application in rice and wheat gave promising results in Rupandehi, Nepal. The assessment framework for understanding gendered differences in climate risk comes as a part of the 'Smart Farm' project in Bangladesh where there is a strong community buy-in to the 'Fish Ring' component of the project. There is also strong evidence of women's involvement in these projects. Conservation agriculture in Karnal is picking up. Farmer's fairday is organized twice a year in these sites to showcase the interventions to neighbouring farmers, extension agents, government institutions, private agencies and media. Technology dissemination through participatory videos has been very successful and a large number of farmers have shown their deep interest to practice these climate smart technologies in Bihar.
Output 4.1.3 Analyses providing evidence of the benefits of, strategies for, and enhanced regional capacity developed in, gender and pro-poor climate change research approaches that will increase the likelihood that CCAFS-related research will benefit women and other vulnerable as well as socially differentiated groups	
<i>Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives</i>	Women comprise up to 70% of the agricultural workforce in South Asia. Yet, they lack equitable access to a wide range of agricultural resources such as land, livestock, additional farm labour, education, extension services, credit, fertilizers and mechanical equipment which will help them improve agriculture in the wake of climate change impacts and ensure better food security for their homes. To raise the awareness of rural women about climate change issues in rural setting, especially of elected leaders of local self-governance structures, CCAFS designed a Training of Trainers course for the South Asia region. The ToT aims at building knowledge and capacities of rural women on why the seasons are changing so unpredictably and what this means for agriculture and food security; and how women and men need to play an equally important role to tackle these challenges. A summary manual on Gender, Climate Change, Agriculture and Food Security was designed and produced to quickly help rural women leaders to learn the training skills which they can use in their local areas to train other women on improving food security. The manual applies to the Indo-Gangetic Plains of India, Nepal and Bangladesh and is available in regional languages (http://ccafs.cgiar.org/blog/Creating_empowerment_India_Training_women_climate%20adaptation). In the first phase, CCAFS started a course in Bihar state of India where a total of 60 women leaders representing 20 districts of the state were trained. Each of these trainers then in turn trained through 51 course 1750 women covering 17 districts of Bihar (http://ccafs.cgiar.org/blog/hundreds-elected-women-rural-bihar-get-trained-climate-change-and-food-security). The emphasis was on disseminating knowledge on climate change, smart agriculture interventions and gender relations in the most pragmatic way incorporating examples from their day-to-day activities. The capacity building activities in Bihar showed that training and capacitating smallholder women farmers can be a successful means of empowering women to adapt to climate resilient farming practices. Moreover, since these women leaders represent rural leadership community, the training program was instrumental to provide them idea on how to get access to government programs related to climate change and how to raise issues on climate change in their respective constituency. South Asia also employed participatory videos of climate smart villages to disseminate knowledge about technological interventions through local weekly markets, farmers fairs and schools, places where farmers including women farmers gather and hence they got the first hand information. Furthermore, our strategy of implementing participatory action research to work with the disadvantaged groups including women farmers helped reach hundreds of female farmers in different sites in the region. In Bihar, for instance, there is a women's SHG implementing climate smart interventions. Our additional activity such as incorporation of mungbean as diversification strategy in the cropping pattern has helped raise nutritional status of the women farmers and increase their income. In Nepal, CCAFS-South Asia focused on raising awareness of 20 female Member of the Parliament in Nepal during Science-Policy-People Interface. Our partnership with AAS in coastal areas of Bangladesh focuses on developing integrated strategies to optimize the use and productivity of the homestead area through vertical gardens, which has direct implication on food and nutritional security of the women.
Output 4.1.4 Strengthening capacities to effectively engage in global policy processes and mainstreaming risk, adaptation and mitigation strategies into national policies, agricultural development plans, and key regional and global processes related to agriculture and rural development, food security and climate change	
<i>Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives</i>	CCAFS has initiated a Climate Smart Agriculture Learning Platform (CSALP) to improve communication between scientists, policy makers, political leaderships, farmers and other stakeholders on the appropriate "climate smart" farming practices for South Asia, one of the most vulnerable regions of the world to climatic risks. His Excellency, the President of Nepal formally launched the Climate Smart Agriculture Learning Platform for South Asia (CSALP) on 20th April 2012 in Kathmandu. Three newsletters were published in 2012 which received widespread attention in South Asia. A two day workshop on climate smart agriculture and climate change policies in Nepal was organised by CSALP that brought attention of the Minister of Agriculture, Minister of Environment, policy makers from the line ministries, 40 Members of Parliament, several media and other related stakeholders. This was the first workshop with high level engagement of the policy makers and political leaderships that has widely sown the seed of climate smart agriculture in Nepal. CSALP also organised a workshop for 30 young members of the Nepal's parliament including 12 women members to raise their awareness on climate change, its effect on agriculture and food security and issues critical for discussion in various policy forums. Several radio/TV interviews with Nepal's cabinet ministers, policy makers, farmers, parliamentarians and CCAFS staff were organised. Four TV channels, 11 newspapers and 6 FM radios covered the event and disseminated the outcome to wide spectrum of their audience. Kantipur Television, one of the most popular channels in Nepal, took a 30-minute interview of Pramod Aggarwal on its "Rise and Shine" popular show which is being watched regularly by millions of the people in Nepal.

Objective 4.2 Assemble data and tools for analysis and planning

Outcome 4.2 Improved frameworks, databases and methods for planning responses to climate change used by national agencies in at least 20 countries and by at least 10 key international and regional agencies

Output 4.2.1 Integrated assessment framework, toolkits and databases to assess climate change impacts on agricultural systems and their supporting natural resources

Regional site and baseline characterization

Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives

*Household baseline surveys in Sangrur, Punjab; Vaishali, Bihar and Karnal, Haryana; village baseline surveys in Vaishali, Bihar; Rupandehi, Nepal; and Bagerhat, Bangladesh and organizational surveys in Rupandehi, Nepal; Khulna, Bangladesh have been completed. IMPACTLite surveys in Rupandehi, Haryana, Vaishali and Bagerhat have also been completed. All remaining surveys (village baseline in Haryana, organizational baseline in Haryana, Bagerhat and Vaishali) will be completed this year. A journal article focusing on climate change adaptation and farmers' livelihoods along rainfall gradient across different sites in the IGP has been prepared and is currently being finalised for submission.

*South Asia is prone to climatic extremes resulting in occurrence of floods and droughts every year in some parts. Such events are likely to increase with global climate change. Detailed sub-national and national comprehensive, standardized and detailed information about the historic flood events including their frequency, intensity/severity and societal impacts is needed for understanding their magnitude, impacts and adaptation strategies. Similarly there is a need to upgrade the Global Irrigated Area Map (GIAM), focusing on the irrigation map of South Asia, crucial to the regions food security. Global irrigated area map, released a few years ago has been updated for South Asia by using the available advanced remote sensing techniques and relatively higher resolution datasets and validated using the latest high resolution satellite data through Google earth and country wise datasets. The flood mapping work involves an analysis of MODIS composite data acquired from 2001 to 2010 with a spatial resolution of approximately 500 m with atmospheric correction. Inundation maps produced using ALOS PALSAR (Microwave), ALOS AVINIR (Optical) and Landsat TMS (optical) were used as a reference to evaluate the estimates derived from MODIS data. A revised 56 meter land cover and irrigated area maps for the South Asian countries has now been developed. The total irrigated area calculated for entire South Asia is 206.74 million hectares and separately for Nepal, Pakistan, Sri Lanka, India, Bhutan and Bangladesh has been calculated as 4, 21, 1.6, 169, 0.2 and 10 (million hectares) respectively. A web application using open geospatial consortium (OGC) framework and specifications, which provides seamless access to the results, option to compare with the existing commercial maps like Google maps, basic navigation tools, can be viewed and accessed through the IWMI Data Portal for South Asia.

*The flood mapping results showed that there were 157 flood occurrences in the Indo-Gangetic plain in the period 1985 to 2011. India (56) ranks highest with the number of flood occurrences, followed by Pakistan (47), Nepal (35) and Bangladesh (19). At the basin level flood occurrences for the Ganges accounts for 94 and for the Indus it is 63. There has been an increase in the number of floods between 2006-2011 (53) compared to the previous years from 1985-2005. The results also showed that majority of the floods in IGP are relatively shorter floods with an average value of 3-5 days. Flood duration with 20-60 days having 20 flood occurrence and more than 60 days had only 7 flood events. It was observed that flood events start increasing during June (18) and reach a peak in July (50) and August (42).

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 Region Led Activities South Asia (SAs)

Publication 1	Type	Citation identifier
	Journal papers	http://www.world-
	Citation	
	Aggarwal, P.K., Palanisami, K., Khanna, M. and Kakumanu, K.R.2012. Climate change and food security of India: Adaptation strategies in the irrigation sector. World Agriculture, 3: 20-26.	
Publication 2	Type	Citation identifier
	Journal papers	http://dx.doi.org/10.1016/j.cosust.2012.01.00
	Citation	
	Misselhorn, A., Aggarwal, P.K., Ericksen, P., Gregory, P., Phathanothai, L., Ingram, J.C., Wiebe, K. 2012. A vision for attaining food security. Current Opinion in Environmental Sustainability, 4: 7-17.	
Publication 3	Type	Citation identifier
	Journal papers	http://dx.doi.org/10.1016/j.agee.2011.10.019
	Citation	
	Grace, P.R., Antle, J., Aggarwal, P.K., Ogle, S., Paustian, K., Basso, B. 2012. Soil carbon sequestration and associated economic costs for farming systems of the Indo-Gangetic Plain: A meta-analysis. Agriculture, Ecosystems & Environment, 146: 137-146.	

Publication 4	Type Journal papers	Citation identifier http://dx.doi.org/10.1016/j.cosust.2011.12.00
	Citation Vermeulen, S., Zougmore, R., Wollenberg, E., Thornton, P., Nelson, G.C., Kristjanson, P., Kinyangi, K., Jarvis, A., Hansen, J.W., Challinor, A., Campbell, B., Aggarwal, P.K. 2012. Climate change, agriculture and food security: a global partnership to link research and action for low-income agricultural producers and consumers. Current Opinion in Environmental Sustainability, 4:128-133.	
Publication 5	Type Journal papers	Citation identifier http://dx.doi.org/10.1016/j.envsci.2011.09.00
	Citation Vermeulen, S.J., Aggarwal, P.K., Ainslie, A., Angelone, C., Campbell, B.M. Challinor, A.J., Hansen, J.W., Ingram, J.S.I., Jarvis, A, Kristjanson, P., Lau, C., Nelson, G.C., Thornton, P.k., Wollenberg, E. 2012. Options for support to agriculture and food security under climate change. Environ. Science and Policy, 15:136-144.	
Publication 6	Type Select a type	Citation identifier http://dx.doi.org/10.1117/12.974653
	Citation Giriraj A. ; Ameer, M. ; Aggarwal, P.K. ; Smakhtin, V. 2012. Detecting spatio-temporal changes in the extent of seasonal and annual flooding in South Asia using multi-resolution satellite data. Proc. SPIE 8538, Earth Resources and Environmental Remote Sensing/GIS Applications III, 853818 (October 25, 2012); doi:10.1117/12.974653	
Publication 7	Type Journal papers	Citation identifier http://www.currentscience.ac.in/cs/Volumes/
	Citation Chakrabarti, B., Singh, S.D., Naresh Kumar, S., Aggarwal, P.K., Pathak, H., and Nagarajan, S. 2012. Low-cost facility for assessing impact of carbon dioxide on crops. Current Science: 102:1035-1040.	
Publication 8	Type Journal papers	Citation identifier 10.1002/ghg.1272
	Citation Bhatia A, Aggarwal PK, Jain N and Pathak H (2012) Greenhouse gas emission from rice and wheat-growing areas in India: Spatial analysis and upscaling. Greenhouse Gas Science and Technol. 2:115–125.	
Publication 9	Type Books	Citation identifier http://www.nicra.iari.res.in/Data/Climate%20C
	Citation Pathak H, Aggarwal PK and Singh SD (Eds.) (2012). Climate Change Impact, Adaptation and Mitigation in Agriculture: Methodology for Assessment and Applications. Indian Agricultural Research Institute, New Delhi. p302.	
Publication 10	Type Working papers	Citation identifier http://www.nicra.iari.res.in/Data/Climate%20C
	Citation	

Publication 10

Pathak H and Aggarwal PK (Eds.) (2012) Low carbon technologies for agriculture: A study on rice and wheat production systems in the Indo-Gangetic plains. Indian Agricultural Research Institute, New Delhi, p. 78.

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 Region Led Activities South Asia (SAs)

CASE STUDY 1

Title		Author	
Climate Smart Agriculture Learning Platform for South Asia		PK Aggarwal and GD Bhatta	
Type	Date (DD/MM/YYYY)	Countries	
Successful communications activity	00/00/2012	India, Pakistan, Bhutan, Nepal, Bangladesh, Sri Lanka	
Keywords		Photo URL	
Climate smart agriculture, science-policy interface, Policies, Nepal			
Introduction/Objectives (400 characters)			
CCAFS has initiated a Climate Smart Agriculture Learning Platform (CSALP) to improve communication between scientists, policy makers, political leaderships, farmers and other stakeholders on the appropriate "climate smart" farming practices for South Asia, one of the most vulnerable regions of the world to climatic risks.			
Description of the project, procedures etc. (1100 characters)			
Substantial knowledge gap exists between farmers, researchers, policy makers, politicians and other stakeholders and the way stakeholders perceive climate change is different across the group. The concept of establishing climate smart agriculture learning platform in South Asia in general is that it aims at promoting the integration of climate smart agricultural activities into agricultural research and policy agendas, and making climate change science more comprehensible to policymakers, scientists, political leaders, rural communities and the private sector. Through focused discussions on climatic resilience, adaptation and mitigation in a multidimensional platform			
Project results (be concrete as possible), innovate findings, novel outcomes and short discussion on the implication of these results (1100 characters)			
His Excellency, the President of Nepal formally launched the Climate Smart Agriculture Learning Platform for South Asia (CSALP) on 20th April 2012 in Kathmandu. Three newsletters were published in 2012 which received widespread attention in South Asia. A two day workshop on climate smart agriculture and climate change policies in Nepal was organised by CSALP that brought attention of the Minister of Agriculture, Minister of Environment, policy makers from the line ministries, 40 Members of Parliament, several media and other related stakeholders. This was the first workshop with high level engagement of the policy makers and political leaderships that has			
Partners involved and their role (250 characters)			
Himalayan Initiative on Climate Change (HIMICCA), an NGO which made an intensive networking with parliamentarians, policy makers and other stakeholders. Next Generation Parliamentarian Group (NGPG), a group of young Members of Parliament who are raising environmental issues within the parliament, coordinated with all MPs within the group and assured their participation in pre-workshop and final workshop. The Communicator, a private agency, initiated dialogue with the key media and encouraged their attention on the event we organized. Ministry of Environment, Government of Nepal actively participated in the pre-consultation meeting and the			
Links/Sources for further information			
http://www.gorkhapatra.org.np/rising-detail.php?article_id=65624&cat_id=4 ; http://www.nepalnews.com/archive/2012/apr/apr11/news02.php ; http://www.nepalnews.com/archive/2012/apr/apr21/news02.php ; http://www.hamrakura.com/np/?p=44402 ; https://www.youtube.com/watch?v=NS4hQCeRFhg&list=PLmATng7lKk6Uj1NFWZh2JQvUrDL5w2Bma&index=9 ; http://ccafs.cgiar.org/blog/learning-platform-climate-smart-agriculture-getting-increased-attention ; http://ccafs.cgiar.org/blog/science-officer-gopal-bhatta-talks-president-nepal-about-climate-smart-agriculture			

CASE STUDY 2

Title		Author	
Revised flood and irrigation maps for South Asia		Giriraj, Salman Siddiqui, Vladimir Smakhtin and Pramod Aggarwal	
Type	Date (DD/MM/YYYY)	Countries	
Inter-center collaboration	12/12/2012	India, Pakistan, Bhutan, Nepal, Bangladesh, Sri Lanka	
Keywords		Photo URL	
Irrigated Area Map, climate change, remote sensing, floods, South Asia		http://ccafs.cgiar.org/sites/default/files/assets/docs/maps_sa.pdf	
Introduction/Objectives (400 characters)			
South Asia is prone to climatic extremes resulting in occurrence of floods and droughts every year in some parts. Such events are likely to increase with global climate change. Detailed sub-national and national comprehensive, standardized and detailed information about the historic flood events including their frequency, intensity/severity and societal impacts is needed for understanding their magnitude, impacts and adaptation strategies. Similarly there is a need to upgrade the Global Irrigated Area Map (GIAM) focusing on the irrigation map of South Asia, crucial to the regions food security.			
Description of the project, procedures etc. (1100 characters)			
Global irrigated area map, released a few years ago, has been updated for South Asia by using the available advanced remote sensing techniques and relatively higher resolution datasets and validated using the latest high resolution satellite data through Google earth and country wise datasets. The flood mapping work involves an analysis of MODIS composite data acquired from 2001 to 2010 with a spatial resolution of approximately 500 m with atmospheric correction. Inundation maps produced using ATOS PALSAR (Microwave), ATOS AVINIR (Optical) and Landsat TMS (Optical) were used as a reference to evaluate the estimates derived from MODIS data.			
Project results (be concrete as possible), innovate findings, novel outcomes and short discussion on the implication of these results (1100 characters)			
A revised 30 meter land cover and irrigated area maps for the South Asian countries has now been developed. The total irrigated area calculated for entire South Asia is 206.74 million hectares and separately for Nepal, Pakistan, Sri Lanka, India, Bhutan and Bangladesh has been calculated as 4, 21, 1.6, 169, 0.2 and 10 (million hectares) respectively. A web application using open geospatial consortium (OGC) framework and specifications, which provides seamless access to the results, option to compare with the existing commercial maps like Google maps, basic navigation tools, can be viewed and accessed through the IWMI Data Portal for South Asia.			
Partners involved and their role (250 characters)			
International Water Management Institute (IWMI) and CCAFS-South Asia unit.			
Links/Sources for further information			
http://ccafs.cgiar.org/blog/global-flood-hotspots			

CASE STUDY 3	Title			Author		
	Prioritization of adaptation/mitigation options in agriculture			PK Joshi and Pramod Aggarwal		
	Type		Date (DD/MM/YYYY)		Countries	
	Inter-center collaboration				India	
	Keywords			Photo URL		
	Climate smart agriculture, prioritization, adaptation, climate change, Bihar					
	Introduction/Objectives (400 characters) A number of technological, management practices and knowledge products are available to reduce the risk of climate change. Their economic, social and environmental feasibility varies depending upon their traits, resource endowments and socio-economic constraints. This study aims at prioritizing the available and potential interventions in agriculture in western and eastern IGP. These regions have contrasting characteristics with respect to level of agriculture and socio-economic development, resource endowments, and frequency and magnitude of climate risks.					
	Description of the project,, procedures etc. (1100 characters) An inventory of climate-smart available and potential interventions was developed and prioritized based on various indicators, namely efficiency, equity, gender, sustainability of natural resources and GHGs emissions. In each indicator, some proxies were used (efficiency: cost benefit, productivity, unit production cost and profit; equity: employment generation, additional calorie produced; gender: female participation on technology use; sustainability: nitrogen, energy and water use efficiency and GHG emissions: carbon concentration and GHG emission potential). Baseline data for the study was taken from the 'Comprehensive Cost of Cultivation Scheme'.					
	Project results (be concrete as possible), innovate findings, novel outcomes and short discussion on the implication of these results (1100 characters) The results from eastern IGP (represented by binary) revealed that the 'systems of rice intensification' (SRI) for rice has the highest composite index followed by 'direct seeded rice' (DSR). Though the composite index for SRI is higher, its efficiency and environmental indices are lower than the DSR. It is because of the lower equity benefits (especially for employment) attained from DSR compared to SRI. Other interventions, such as 'precision water application', 'alternate wet-and-dry system', and 'stress tolerant varieties' have also higher composite index next to SRI and DSR. Based on farmers' willingness to pay and scoring their preferences, it is noted that SRI					
	Partners involved and their role (250 characters) International Food Policy Research Institute (IFPRI), CIMMYT and CCAFS-South Asia.					
Links/Sources for further information						

CASE STUDY 4	Title			Author		
	Using climate analogues to identify priority hotspots for wheat germplasm collection			Prem Mathur, Sunil Archak, KC Bansal and Pramod Aggarwal		
	Type		Date (DD/MM/YYYY)		Countries	
	Policy advocacy		00/00/2012		India	
	Keywords			Photo URL		
	Germplasm conservation, wheat, analogues, climate scenarios					
	Introduction/Objectives (400 characters) Earlier studies have shown that climate change will have differential impact on crop distribution and production in the tropics. Farmers may no longer find appropriate seeds for climate change adaptation in existing local seed systems. In order to adapt, farmers would need crop varieties with greater tolerance to stresses such as drought and heat, excess soil moisture, as well as photo- and thermal-insensitive varieties. It is imperative to increase the diversity of germplasm used in breeding for sustainable production in climate change scenarios. It is also important to identify the regions that would see major changes in climate and would become unsuitable for					
	Description of the project,, procedures etc. (1100 characters) This study has initially focused on wheat crop in India, crucial for the country's food security. Passport data for wheat ex situ germplasm collections was extracted from the databases of GENESYS, Bioversity (IBPGR) collecting missions' database, SINGER, EURISCO, and GRIN-Global and India's National Bureau of Plant Genetic Resources (NBPGR). The filtered data was first geo-referenced and mapped over India and their climate probability matching done for current and future climate (A1B and B2 scenarios of UKMO-HadCM3-2010-2039 and 2020-2049 and the CSIRO-Mk3.0 GCM-2020s and 2040s). The climate matching analysis was done by the Maxent tool using					
	Project results (be concrete as possible), innovate findings, novel outcomes and short discussion on the implication of these results (1100 characters) In both the scenarios, it was noted that the highly matching areas for wheat suitability (probability >0.8) is shrinking from the 2020s to the 2040s. Also, within the area of matching, it was noted that the peninsular and southern India will gradually be less suitable for wheat collection in future climate scenarios. In such a scenario, there are chances that germplasm collection in these regions would be lost. Hence there is a strong need to systematically collect the entire available diversity in these regions before it is lost forever. Based on this research, the Indian national genebank is proposing to again collect germplasm and data from the most vulnerable areas.					
	Partners involved and their role (250 characters) Bioversity, India's National Bureau of Plant Genetic Resources, and CCAFS South Asia					
Links/Sources for further information						

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 Region Led Activities South Asia (SAs)

OUTCOME 1

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

CCAFS South Asia has introduced participatory Climate Smart Villages (CSVs) at its benchmark sites in which a range of climate smart interventions are tested on-farm by the farmers. The CSVs aim at raising awareness and capacity of the farm communities about various technological, institutional and policy options that have potential to increase climatic resilience, adaptation and farm productivity while also reducing emissions of greenhouse gases. Several interventions related to carbon, nitrogen, weather, water and knowledge management implemented in a participatory mode with the farmers from mid-2011 in Vaishali, Bihar of India have

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

The establishment of Climate Smart Villages in Bihar, which started in 2011 with the farmers self-help groups (SHGs) evaluating various climate smart technological interventions started this. Innovative partnership across various CGIAR centers, NARS, industry, NGOs, and farmers helped in the process. These provided evidence based support for the climate smart interventions (see related blogs) and the development of a participatory strategic research platform at the village level to serve as capacity building for different stakeholders. Organization of rural fairs led to exposure of hundreds of non-participating farmers and make them aware of the

What partners helped in producing the outcome?

Farmers Self Help Groups (SHGs), Bigg Shift Communications, IFFCO Foundation, Indian Kishan Sanchar Ltd (IKSL), IFFCO Tokio Insurance Company, Indian Meteorological Department, IWMI, Bioversity International, Alternative Futures, Bihar Mahila Samakhyia Samiti

Who used the output?

The outputs are largely used by individual farmers, farmers' groups, district and village level women leaders

How was the output used?

Several farmers in the region are now adopting mungbean as a diversification strategy, are using mobile phone based dissemination of weather forecasts and related agro-advisories for agricultural management. A large number of farmers is now aware of the benefits of index insurance and are using this for climatic risk management. General awareness about climate change issues in agriculture and their management has benefited several thousand farmers and rural women leaders

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.

It is early to cite a formal evidence for this process that started only in mid-2011. However, visits to the site by several partners as well non-participating partners, increase in the number of farmers using climate smart technologies, visit of state government officials to these villages and an informal report from a visiting World Bank official provide initial evidence for the success of this concept.

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.

2

CCAFS Region Led Activities South Asia (SAs)

Women comprise up to 70% of the agricultural workforce in South Asia. Yet, they lack equitable access to a wide range of agricultural resources such as land, livestock, additional farm labour, education, extension services, credit, fertilizers and mechanical equipment which will help them improve agriculture in the wake of climate change impacts and ensure better food security for their homes. To raise the awareness of rural women about climate change issues in rural setting, especially of elected leaders of local self-governance structures, CCAFS designed a Training of Trainers course for the South Asia region. The ToT aims at building knowledge and capacities of rural women on why the seasons are changing so unpredictably and what this means for agriculture and food security; and how women and men need to play an equally important role to tackle these challenges. A Summary Manual on Gender, Climate Change, Agriculture and Food Security was designed and produced to quickly help rural women leaders learn training skills which they can use in their local areas to train other women on improving food security. The manual applies to the Indo-Gangetic Plains of Bihar, India, Nepal and Bangladesh and is available in regional languages (http://ccaafs.cgiar.org/blog/Creating_empowerment_India_Training_women_climate%20adaptation).

In the first phase, CCAFS started a course in Bihar state of India where a total of 60 women leaders representing 20 districts of the state were trained. Each of these trainers then in turn trained through 51 training events 1750 women covering 17 districts of Bihar (<http://ccaafs.cgiar.org/blog/hundreds-elected-women-rural-bihar-get-trained-climate-change-and-food-security>). The emphasis in these events was on disseminating knowledge on climate change, smart agriculture interventions and gender relations in the most pragmatic way incorporating examples from their day-to-day activities.

The capacity building activities in Bihar showed that training and capacitating smallholder women farmers can be a successful means of empowering women to adapt to climate resilient farming practices. Moreover, since these women leaders represent rural leadership community, the training program was instrumental to provide them idea on how to get access to government programs related to climate change and how to raise issues on climate change in their respective constituency.

South Asia also employed participatory videos of climate smart villages to disseminate knowledge about technological interventions through local weekly markets, farmers fairs and schools, places where farmers including women gather and hence they got the first hand information. Furthermore, our strategy of implementing participatory action research to work with the disadvantaged groups including women farmers helped reach hundreds of female farmers in different sites in the region. In Bihar, for instance, there is a women's SHG implementing climate smart interventions.

Our additional activity such as incorporation of mungbean as diversification strategy in the cropping pattern has helped raise nutritional status of the women farmers and increase their income.

In Nepal, CCAFS-South Asia focused on raising awareness of 20 female Member of the Parliament in Nepal during Science-Policy-People Interface.

Our partnership with AAS in coastal areas of Bangladesh focuses on developing integrated strategies to optimize the use and productivity of the homestead area through vertical gardens which has direct implication on food and nutritional security of the women.

Regional Program Leader Synthesis Report - 2012

Regional Program Leaders will report on the same categories before, following the reporting depth of “Medium” in the explanatory notes. In addition Regional Program Leaders will provide a synthesis of all Program Participant activities, arranged as follows:

Provide a synthesis of research activities at CCAFS sites (max. 5,000 characters).

CCAFS's research strategy in South Asia includes working with local, national, CGIAR and Future Earth partners to supplement regional research leading to the development of climate smart farming communities. This is to be attained through focused social, biophysical and policy research, supporting the formulation of enhanced adaptation and mitigation plans, strengthening the regional capacity, and developing; and demonstrating the sustainable intensification technologies, institutions and policies.

Provide a synthesis of cross-center activities (max. 5,000 characters).

Since these are early years of newly initiated CRPs in the CGIAR system, there are only a few examples of cross-centre activities in South Asia. In 2011, CCAFS South Asia unit started evaluating climatic risk management interventions by forming farmer's self-help group in climate smart villages (CSVs). These CSVs provide an early example of success of CGIAR reform process and highlight the potential of inter-centre collaboration and synergies for addressing agricultural problems. Let us take the example of these villages in Vaishali district of Bihar in

Provide a synthesis of regional engagement and communications activities (max. 5,000 characters).

CCAFS South Asia regularly engages researchers, policy makers, investment partners, development institutions, farmers, political leaderships and related stakeholders on various issues related to the climatic resilience, adaptation and mitigation in agriculture. During 2012, our key engagement efforts comprised meetings and dialogues with various senior officials from World Bank, FAO, DFID, several I/NGOs operating in different countries in South Asia and national policy planners, as well as a number of civil society research and development

Provide a synthesis of activities related to decision support systems and tools (max. 5,000 characters).

There are several activities across major CGIAR centers where DSS/databases/tools are being developed for climate risk management/climate analysis /vulnerability assessment. In particular there have been several new data products. IWMI has analyzed trends in various climatic and hydrological variables and has also estimated actual evapotranspiration estimates for the 2050s at fine grid resolution for 3 IPCC SRES scenarios: A1B, A2 and B1 using downscaled data from two GCMs: CNRM-CM3 and MIROC MEDRES. They have also developed a new

Milestone Status Report - 2012

MILESTONE REPORT 1	Theme Theme 1	Milestone 1.1.1 2012 (1)	Milestone Status Completed
	Theme Leader comments on Milestone status 		
	Regional Program Leader comments on Milestone status CCAFS in partnership with Bioversity and national partners evaluated rice and wheat germplasm in India, hotspots or climate risks were identified using climate analogues of current and future climate, ICRISAT identified and characterized analogue locations for evaluation, testing and germplasm sampling in S Asia, IWMI produced vulnerability map of mid hill watersheds of Nepal incorporating a number of bio-physical, climatic and socio-economic indicators. CIMMYT has collected data from various long-term trials (from completed as well as on-going farmers' field and on-		
MILESTONE REPORT 2	Theme Theme 1	Milestone 1.1.2 2012	Milestone Status Completed
	Theme Leader comments on Milestone status 		
	Regional Program Leader comments on Milestone status CCAFS in partnership with CIAT and Oxford university successfully organized the farmers exchange on climate analogue sites in Nepal which was a great success providing ideal learning opportunity for the farmers from their analogue locations. This was one of the successful activities with the farmers in 2012.		
MILESTONE REPORT 3	Theme Theme 1	Milestone 1.1.3 2012 (1)	Milestone Status Partially completed
	Theme Leader comments on Milestone status 		
	Regional Program Leader comments on Milestone status Bioversity International partially completed the development of methodologies for surveys of communities in Nepal to assess the relative tolerance of traditional crops to climate change, has analysed gender disaggregate data on perception, crop/varieties use and management and their relation to climate change adaption in Nepal and India, CIMMYT identified key phenotyping sites for maize in IGP, including a semi-controlled managed heat stress screening facility/FATE at a suitable location in IGP. Further step is required to come up with specific recommendation on		
MILESTONE REPORT 4	Theme Theme 1	Milestone 1.2.1 2012	Milestone Status Partially completed
	Theme Leader comments on Milestone status 		
	Regional Program Leader comments on Milestone status ICRISAT used long-term experiment data to calibrate APSIM for sorghum, maize and chickpea, and simulations of systems run with historical data, ICARDA monitored major changes in population structures of insect pests and diseases of cereals and legumes in Nepal and Bangladesh. Development of climate-proof crops requires concerted efforts from Breeding institutions.		

MILESTONE REPORT 5	Theme Theme 1	Milestone 1.3.2 2012	Milestone Status Partially completed
	Theme Leader comments on Milestone status Regional Program Leader comments on Milestone status CCAFS in partnership with IFPRI completed a documentation of the past and current policies and programs implemented in agriculture, livestock and fisheries sectors in Sri Lanka, India, Nepal and Bangladesh. Prioritization of adaptation/mitigation options in climate smart villages of Bihar and Haryana has been completed at the farmers scale. It will continue in Nepal, Bangladesh and other parts of India. Concrete finding based on these studies has yet to come.		
MILESTONE REPORT 6	Theme Theme 1	Milestone 1.3.3 2015	Milestone Status Partially completed
	Theme Leader comments on Milestone status Regional Program Leader comments on Milestone status biodiversity international organized national meetings in Nepal and India. In Nepal, the report from the planning workshop to kick-off the project, "Strengthening national capacities to implement the International Treaty on Plant Genetic Resources for Food and Agriculture" has been finalized. Research papers were generated by the research partners in India and the Treaty Secretariat. Since it is a long term project with several round of discussions required with policy makers, the milestone is obviously partially completed.		
MILESTONE REPORT 7	Theme Theme 2	Milestone 2.1.1 2012	Milestone Status Completed
	Theme Leader comments on Milestone status Regional Program Leader comments on Milestone status CCAFS has completed exploratory studies of local knowledge/innovation for climate risk management in IGP, IGPAR 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. ICRIAT completed social vulnerability index and produced maps incorporating historic and		
MILESTONE REPORT 8	Theme Theme 2	Milestone 2.1.3 2012 (1)	Milestone Status Completed
	Theme Leader comments on Milestone status Regional Program Leader comments on Milestone status woriorism 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		
MILESTONE REPORT 9	Theme Theme 2	Milestone 2.2.1 2012	Milestone Status Completed
	Theme Leader comments on Milestone status Regional Program Leader comments on Milestone status 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 10	Theme Theme 2	Milestone 2.3.1 2012	Milestone Status Completed
	Theme Leader comments on Milestone status		
	Regional Program Leader comments on Milestone status 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		
MILESTONE REPORT 11	Theme Theme 2	Milestone 2.3.2 2012	Milestone Status Completed
	Theme Leader comments on Milestone status		
	Regional Program Leader comments on Milestone status 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 Kurnool and Anantapur 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		
MILESTONE REPORT 12	Theme Theme 3	Milestone 3.2.1 2012 (1)	Milestone Status Partially completed
	Theme Leader comments on Milestone status		
	Regional Program Leader comments on Milestone status CIMMYT has completed an assessment of the determinants of the adoption of conservation agriculture by farmers in the IGP using primary data collected from 972 farm households in Nepal, India and Bangladesh, it has completed an analysis of the economic and environmental benefits of no-till wheat using farm trial data from the north-west region of India, it has also assessed the C-sequestration potentials of different management practices in different cropping systems, soil types and ecologies. However, since this is an on-going activity linked with milestone to 2013 and		
MILESTONE REPORT 13	Theme Theme 3	Milestone 3.3.1 2012 (1)	Milestone Status Partially completed
	Theme Leader comments on Milestone status		
	Regional Program Leader comments on Milestone status Baseline emissions and simulation for Vaishali, Bihar (CCAFS site) has been completed, it will be will be completed for other sites within 2013, IRRI started monitoring emissions from rice-wheat system in Haryana, CIMMYT is also working in measuring emissions from rice-wheat systems in Haryana.		
MILESTONE REPORT 14	Theme Theme 4.1	Milestone 4.1.1 2012	Milestone Status Completed
	Theme Leader comments on Milestone status		
	Regional Program Leader comments on Milestone status CCAFS together with Oxford University organized a scenario building workshop process in Colombo in 2012 and came up with five qualitative scenarios for South Asia. These scenarios will be further considered for detailed quantification and modeling in 2013.		

MILESTONE
REPORT 15

Theme	Milestone	Milestone Status
Theme 4.1	4.1.2 2012	Completed

Theme Leader comments on Milestone status

Regional Program Leader comments on Milestone status
CCAFS has set climate smart agriculture villages in key CCAFS sites in South Asia (Vainali, Binar and Karnai, Haryana of India, Rupandehi of Nepal and Bagerhat of Bangladesh). Several activities relating to water, residue, nitrogen management, are being implemented in these sites and participatory videos are being employed to upscale these activities in neighbouring region. Various centres are working in the CCAFS sites. However, still inter-centre collaboration is not up to the mark.

MILESTONE
REPORT 16

Theme	Milestone	Milestone Status
Theme 4.1	4.1.3 2012	Completed

Theme Leader comments on Milestone status

Regional Program Leader comments on Milestone status
CCAFS in partnership with local NGO engaged women leaders and farmers in Bihar of India through several round of training events in several districts of Bihar, IFPRI developed a survey instrument to collect gender-disaggregated data on climate change perceptions, impacts (on assets), and adaptation and coping responses from the gender sentinel site of CCAFS in Bangladesh and actual survey has not started.

MILESTONE
REPORT 17

Theme	Milestone	Milestone Status
Theme 4.1	4.1.4 2012 (1)	Completed

Theme Leader comments on Milestone status

Regional Program Leader comments on Milestone status
High level policy engagement on climate smart agriculture was organized in Bangkok together with APAARI, a rigorous interaction with members of Parliament in Nepal followed by a workshop on Science-Policy-People Interface on Climate Change, Agriculture and Food Security in Nepal, inauguration of Climate smart Agriculture Learning Platform for South Asia by His Excellency President of Nepal in 2012 was done by CCAFS together with local partners etc affirm that milestone has taken a proper shape in 2012.

MILESTONE
REPORT 18

Theme	Milestone	Milestone Status
Theme 4.2	4.2.1 2012 (1)	Partially completed

Theme Leader comments on Milestone status

Regional Program Leader comments on Milestone status
All household baseline surveys have been completed in all sites, village and organizational baselines in Karnai, Haryana; and organizational baseline in Vaishali and Bagerhat are on, ICRISAT has developed pixel-wise climate data for use in models but software to process gridded data for rainfall probability, water balance and LGP has not made ready for use, Trade-off Analysis model for Multi-Dimensional impact assessment (TOA-MD) developed and adapted as an integrated assessment framework for regional analysis of climate change and adaptation impacts. IWMI prepared.