

## 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 Center Led Activities World Agroforestry Centre (ICRAF)

Activity No. 80						
<b>Activity title</b>		Identify seed sources better adapted to drought for climate change adaptation planning in Burkina Faso, Mali and Niger				
<b>CCAFS Objective</b> (select from drop list)		1.1 Adapted farming systems	<b>CCAFS Milestone No.</b> (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)		1.1.3 2012 (1)	
<b>Activity objectives</b> (what the activity aims to achieve)	<b>Objective 1</b>	Strengthen the capacity of rural communities and partners in practical aspects of participatory tree domestication (selection of superior trees, nursery production, establishment and evaluation of on-farm provenance/progeny tests) so that rural communities have better adapted tree germplasm for local use and sale.				
<b>Activity status</b>		Partially completed				
<b>Insert a small remark to indicate the status of the activity.</b> (2-4 sentences required per activity)		<p>1. Twelve NARs scientists, forestry extension agents and development project technicians and more than 125 villagers (men and women) trained in tree domestication practices (seed collection and processing; seedling production in nurseries; design, establishment and evaluation of on-farm provenance trials) in Burkina Faso, Mali and Niger.</p> <p>2. Seeds collected by trained villagers and project staff from selected trees from the local seed source (village parklands and woodlands) and from a seed source in a drier location, and seedlings produced in village nurseries in Burkina Faso, Mali and Niger for provenance trials in 2012 and 2013. Species include Adansonia digitata, Parkia biglobosa and Tamarindus indica in Burkina Faso; A. digitata, Balanites aegyptiaca, Faidherbia albida, P. biglobosa, Pterocarpus erinaceus, Vitellaria paradoxa and Ziziphus mauritiana in Mali; F. albida, Guiera senegalensis and Prosopis africana in Niger.</p> <p>3. Provenance trials established on farms by participatory tree domestication teams (NARs scientists, men and women from the villages) in 18 villages located in two regions of Burkina Faso and Mali. Each trial compares the local seed source with the seed source from a drier location. Trials of P. biglobosa and T. indica were established in nine villages in Burkina Faso; and trials of A. digitata, B. aegyptiaca, F. albida, P. biglobosa, P. erinaceus, V. paradoxa and Z. mauritiana were established in nine villages in Mali.</p>				
<b>Deliverables status</b> (You may add any unexpected deliverable)		<b>Type</b>	<b>Description</b>	<b>Year</b>	<b>Status</b>	<b>Format</b>
		Capacity	20 partners from NARs, forestry departments and development projects and 250 men and women farmers trained in participatory tree domestication in Burkina Faso, Mali and Niger;	2014	Select a status	Select a format
		Data	Provenance/progeny tests of five tree species established on farms in four regions in Burkina Faso, Mali and Niger	2013	Select a status	Select a format
		Data	Data on growth and survival collected and analyzed in provenance/progeny tests; data stored in ICRAF database and agtrials.org	2014	Select a status	Select a format
		Reports, publications	Synthesis of results and recommendations	2015	Select a status	Select a format
		<b>Acronym</b>	<b>Name</b>			
		INERA	Institut National de l'Environnement et des Recherches Agricoles			
		<b>Contact Point Full Name</b>		<b>Contact Point Email</b>		
		<b>Acronym</b>	<b>Name</b>			
		PDRD	Programme de Développement Rural Durable			
		<b>Contact Point Full Name</b>		<b>Contact Point Email</b>		
		<b>Acronym</b>	<b>Name</b>			
		PICOFA	Programme d'Investissement Communautaire en Fertilité Agricole			
		<b>Contact Point Full Name</b>		<b>Contact Point Email</b>		

Current Partners

NARES - National agricultural research and extension services

Acronym

IER

Name

Institut d'Économie Rurale

Contact Point Full Name

Contact Point Email

NGO\_DO - Non-governmental organization/Development organization

Acronym

FODESA

Name

Fonds du Développement en Zone Sahélienne

Contact Point Full Name

Contact Point Email

NARES - National agricultural research and extension services

Acronym

INRAN

Name

Institut National de Recherche Agronomique du Niger

Contact Point Full Name

Contact Point Email

NGO\_DO - Non-governmental organization/Development organization

Acronym

PPILDA

Name

Programme de Promotion des Initiatives Paysannes pour le Développement d'Aguié

Contact Point Full Name

Contact Point Email

## 2012 Technical Report per Activity

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### CCAFS Center Led Activities World Agroforestry Centre (ICRAF)

Activity No. 81																																													
<b>Activity title</b>		Select highly climate vulnerable communities in UK, UP and Rajasthan, map them, assess their climate vulnerability and characterize main sources of livelihoods.																																											
<b>CCAFS Objective</b> <i>(select from drop list)</i>		2.1 Identify and test innovations that enable rural communities to better manage climate-related risk and build more resilient livelihoods		<b>CCAFS Milestone No.</b> <i>(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)</i> 2.1.1 2012																																									
<b>Activity objectives</b> <i>(what the activity aims to achieve)</i>	<b>Objective 1</b>	Assess vulnerability and characterize main sources of livelihoods																																											
	<b>Objective 2</b>	Develop / assemble and screen location specific climate change resilient farming interventions, and evaluate the selected options using farmers criteria and their participation																																											
	<b>Objective 3</b>	Build capacity of NARES to deploy the above (i & ii), and of the communities to adopt such practices and systems.																																											
<b>Activity status</b>		<div>Partially completed</div>																																											
<b>Insert a small remark to indicate the status of the activity.</b> <i>(2-4 sentences required per activity)</i>		<p>This activity is closely linked with activity no. 276. A methodology was composed from the literature, which utilizes bio-physical, socio economic and anthropological for assessing the community vulnerability interms of main farming / livelihood systems. Community vulnerability also included livelihoods, income, risk aversion capacity and the vulnerability of the enterprise producing natural resources. Using this methodology, community vulnerability was assessed at two sites, one each in Uttar Pradesh and Rajasthan states. A set of 40 climate smart (resilient) farming interventions was assembled for each case, and this range presented, explained and discussed with the communities for their selection of those interventions that they could apply on their own within their natural, knowledge and social capital. Farmers in both the areas at individual farm - house hold level selected interventions and the project ensured their application and evaluation of performance using pre agreed criteria. Some of the criteria included aspects such as the ease in application, requirement of external support, contribution to food security, income levels, technical success, stable productivity, risk spread, etc. The interventions are being applied and evaluated seasonally. Local staff at both the sites has been provided hands on training on these aspects. The similar work has been recently initiated at the sub-temperate site in Uttara Khand. A South Asian Regional workshop was organized on the Scaling up methodology for Climate Smart Agriculture Practices. Two more such workshops are planned in the near future.</p>																																											
<b>Deliverables status</b> <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 document detailing livelihood systems and vulnerability assessment of the communities, including the methodologies for such an analysis</td> <td>2012</td> <td>Partially completed</td> <td>Document (*.doc, *.odt, *.pdf)</td> </tr> <tr> <td>Reports, publications</td> <td>A catalogue of the climate change resilient strategies and interventions (with detail technology profile), including the ex-ante technology screening and community capacity assessment methodology</td> <td>2012</td> <td>Partially completed</td> <td>Document (*.doc, *.odt, *.pdf)</td> </tr> <tr> <td>Reports, publications</td> <td>A manual on the production of high quality planting material and other techniques</td> <td>2012</td> <td>Partially completed</td> <td>Document (*.doc, *.odt, *.pdf)</td> </tr> <tr> <td>Reports, publications</td> <td>2 training manuals: (1) for enhancing community capacity to implement climate change resilient technological options; (2) along with teaching aides and materials for enhancing NARES capacity for vulnerability assessment and for developing, screening and evaluating specific climate resilient farming options</td> <td>2012</td> <td>Partially completed</td> <td>Document (*.doc, *.odt, *.pdf)</td> </tr> <tr> <td>Capacity</td> <td>Training of 225 farmers + 60 field functionaries</td> <td>2012</td> <td>Partially completed</td> <td>Select a format</td> </tr> <tr> <td>Reports, publications</td> <td>Performance evaluation (productivity, economic and social aspects) and impact assessment report of the implemented interventions</td> <td>2013</td> <td>Select a status</td> <td>Select a format</td> </tr> <tr> <td>Select a data type</td> <td>Farmers rating card along with the justification for adoption or rejection of each tried out intervention</td> <td>2013</td> <td>Select a status</td> <td>Select a format</td> </tr> </tbody> </table>				Type	Description	Year	Status	Format	Reports, publications	A document detailing livelihood systems and vulnerability assessment of the communities, including the methodologies for such an analysis	2012	Partially completed	Document (*.doc, *.odt, *.pdf)	Reports, publications	A catalogue of the climate change resilient strategies and interventions (with detail technology profile), including the ex-ante technology screening and community capacity assessment methodology	2012	Partially completed	Document (*.doc, *.odt, *.pdf)	Reports, publications	A manual on the production of high quality planting material and other techniques	2012	Partially completed	Document (*.doc, *.odt, *.pdf)	Reports, publications	2 training manuals: (1) for enhancing community capacity to implement climate change resilient technological options; (2) along with teaching aides and materials for enhancing NARES capacity for vulnerability assessment and for developing, screening and evaluating specific climate resilient farming options	2012	Partially completed	Document (*.doc, *.odt, *.pdf)	Capacity	Training of 225 farmers + 60 field functionaries	2012	Partially completed	Select a format	Reports, publications	Performance evaluation (productivity, economic and social aspects) and impact assessment report of the implemented interventions	2013	Select a status	Select a format	Select a data type	Farmers rating card along with the justification for adoption or rejection of each tried out intervention	2013	Select a status	Select a format
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Current Partners	Acronym	Name	
	HNB GU	HN Bahuguna Garhwal University	
	AI - Academic Institution	Contact Point Full Name	Contact Point Email
		Dr. N.P.Todaria	nagendra todaria <nptfd@yahoo.com>
	Acronym	Name	
	Utthan	Utthan Centre for Sustainable Development	
	NGO_DO - Non-governmental organization/Development organization	Contact Point Full Name	Contact Point Email
		Dr. D.N.Tewari	dn.tiwari@nic.in
	Acronym	Name	
	MPUAT	Maharana Pratap University of Agriculture and Technology	
AI - Academic Institution	Contact Point Full Name	Contact Point Email	
	Dr. Manmohan Dobrial	<manmohandobriyal@gmail.com>	

## Activity No. 82

Activity title	Analysis of smallholders' adaptation strategies to climate change and the role of tree crops in local adaptations to climate variability in mountain region		
CCAFS Objective (select from drop list)	2.1 Identify and test innovations that enable rural communities to better manage climate-related risk and build more resilient livelihoods	CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)	2.1.1 2012
Activity objectives (what the activity aims to achieve)	Objective 1	To document adaptation strategies at local or community level to climate change induced constraints and hazards related to water in mountain region.	
	Objective 2	To improve better understanding of the impacts of climate change on tree crops on farms.	
	Objective 3	To identify and document a few cases where tree crops have contributed to improved climate resilience of farming households and/or communities.	
	Objective 4	To improve the understanding of the policy context in which tree crops are used as an agricultural dimension to achieve more resilient farming communities.	
	Objective 5	To share experiences and learning among different countries within the region	
Activity status	Completed		
Insert a small remark to indicate the status of the activity. (2-4 sentences required per activity)	This activity has been successfully completed according to the plans. A project report has been finished, one peer-reviewed journal articles has been published, and a journal articles has been submitted. More importantly, we have done a case study on adaptation and resilience to water related hazards: analyzing gendered responses to climate change, and hope we can have a journal article ready in 2013.		

Type	Description	Year	Status	Format
Reports, publications	Tree crops as an adaptation to climate Variability: Cases in China, Nepal and Pakistan	2012	Completed	Document (*.doc, *.odt, *.pdf)
Reports, publications	Integrating local hybrid knowledge and state support for climate change adaptation in Asian's Highlands	2013	Partially completed	Document (*.doc, *.odt, *.pdf)
Reports, publications	A Case Study on Adaptation and Resilience to Water Related Hazards: Analyzing Gendered Responses to Climate Change in Yunnan Province, China	2012	Partially completed	Presentation (*.ppt, *.odp)
Reports, publications	Coping with climate-induced water stresses through time and space in the mountains of Southwest China	2012	Completed	Plain text (*.txt)

Current Partners	Acronym	Name	
	KIB	Kunming Institute of Botany	
	AI - Academic Institution	Contact Point Full Name	Contact Point Email
		Fu Yao	fuyao@mail.kib.ac.cn
	Acronym	Name	
		Baoshan Forestry Department	
	GO - Government office/department	Contact Point Full Name	Contact Point Email
		Yang Yanping	
	Acronym	Name	
	ICIMOD	International Centre for Integrated Mountain Development	
AI - Academic Institution	Contact Point Full Name	Contact Point Email	
	Neera Pradhan	nspradhan@icimod.org	

Activity No. 83																																			
Activity title		Adaptation benefits of AF systems compared to conventional management; Analysis of effects of different interventions in agroforestry systems on mitigating the effects of extreme events; e.g. effects of inter-annual variation in rainfall and occurrence of extreme events on water use efficiency, role of fertilizer trees																																	
CCAFS Objective <small>(select from drop list)</small>		2.1 Identify and test innovations that enable rural communities to better manage climate-related risk and build more resilient livelihoods	CCAFS Milestone No. <small>(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)</small>	2.1.1 2012																															
Activity objectives <small>(what the activity aims to achieve)</small>	Objective 1	These studies will use household modeling to test the impact of agroforestry species on climate change adaptability of smallholder households, test various forms of auctions to determine farmer's willingness to provide public goods in carbon marketing, analyze data from long-term agroforestry trials in Zambia and Malawi to provide evidence of best practices for smallholder agriculture, and have nalyzed improvements in rain use efficiency and crop yield stability under agroforestry in Malawi and Nigeria.																																	
Activity status		Partially completed																																	
Insert a small remark to indicate the status of the activity. <small>(2-4 sentences required per activity)</small>		<p>1. IMPACT HH modeling – this deliverable was not completed in 2012. Data will be gathered in 2013 which can be used to run the Housenoid IMPACT model.</p> <p>2. Testing innovative insurance and finance mechanisms and farmer WTP. Some of the work on the deliverable will be undertaken in 2013. Testing may need to extend over medium to long term period.</p> <p>3. Data from long-term experiments in Zambia and Malawi and long-term climatic data will be analyzed concurrently to provide evidence for choice of best practices for smallholder agriculture. Deliverable completed, some of results included in published journal article</p> <p>4. Desktop analysis of long-term experimental data. Completed, some of the results included in published journal article</p> <p>5. Various analytical tools applied to assess yield stability. Completed, some of the results included in published journal article</p>																																	
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Activity No. 84																				
Activity title		Adapting to extreme events in Southeast Asia through sustainable land management systems (2012-14)																		
CCAFS Objective <small>(select from drop list)</small>		2.1 Identify and test innovations that enable rural communities to better manage climate-related risk and build more resilient livelihoods	CCAFS Milestone No. <small>(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)</small>	2.1.1 2012																
Activity objectives <small>(what the activity aims to achieve)</small>	Objective 1	Document indigenous agroforestry systems that farmers use in areas prone to extreme climatic events in Southeast Asia																		
	Objective 2	Analyze the strengths and weaknesses of agroforestry systems in areas prone to extreme climatic events.																		
	Objective 3	Design agroforestry systems with improved capacity to cope with extreme climatic events																		
Activity status		Partially completed																		
Insert a small remark to indicate the status of the activity. <small>(2-4 sentences required per activity)</small>		For 2012, activity objective 1 has been achieved through focus group discussions/workshops with smallholder farmers and various stakeholders in Philippines and Vietnam. Documentation of agroforestry systems also included household surveys and training needs assessment activities which have been completed for the Philippines in two study sites, Peñaflanca in Cagayan province (750 hh) and Ligao City in Albay (292 hh). For Vietnam, household surveys are to be carried out from January to March 2013 in Luc Yen district in Yen Bai province and Ky Anh district in the northcentral coastal parts of Vietnam . Activity objectives 2 and 3 are expected to be attained for Y2 (2013) and Y3 (2014) of the project.																		
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Capacity	training of smallholder farmers in sustainable landuse systems to build resilience to extreme weather events (workshops on training needs)	2012	Completed	Document (*.doc, *.odt, *.pdf)																

	Workshops	assisting local government units in landuse planning (workshops with national and local government partners)	2012-13	Partially completed	Document (*.doc, *.odt, *.pdf)
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Current Partners	AI - Academic Institution	<div>Acronym</div> <div>UPLB-CFNR</div>	<div>Name</div> <div>University of the Philippines Los Baños - College of Forestry and Natural Resources</div>
		<div>Contact Point Full Name</div> <div>Dr. Juan Pulhin</div>	<div>Contact Point Email</div> <div>jpulhin@yahoo.com</div>
	CG - CGIAR Center	<div>Acronym</div> <div>ICRAF-Vietnam</div>	<div>Name</div> <div>World Agroforestry Center Vietnam</div>
		<div>Contact Point Full Name</div> <div>Dr. Elisabeth Simelton</div>	<div>Contact Point Email</div> <div>e.simelton@cgiar.org</div>
	ARI - Advanced Research Institution	<div>Acronym</div> <div>CCVPED</div>	<div>Name</div> <div>Center for Cagayan Valley Programme on Environment and Development (Philippines)</div>
		<div>Contact Point Full Name</div> <div>Dr. Mercedes Masipiqueña</div>	<div>Contact Point Email</div> <div>cavapped@yahoo.com</div>
	NGO_DO - Non-governmental organization/Development organization	<div>Acronym</div> <div>CAVAPPED</div>	<div>Name</div> <div>Cagayan Valley People's Programme on Environment and Development (Philippines)</div>
		<div>Contact Point Full Name</div> <div>Ms. Perla Visorro</div>	<div>Contact Point Email</div> <div>cavapped@yahoo.com</div>
	Other	<div>Acronym</div> <div>LGU Peñablanca</div>	<div>Name</div> <div>Local Government Unit of Peñablanca in Cagayan Province (Philippines)</div>
		<div>Contact Point Full Name</div> <div>Hon. Marlyn Taguinod</div>	<div>Contact Point Email</div>
	Other	<div>Acronym</div> <div>LGU Ligao City</div>	<div>Name</div> <div>Local Government Unit of Ligao City in Albay Province (Philippines)</div>
		<div>Contact Point Full Name</div> <div>Hon. Linda Gonzalez</div>	<div>Contact Point Email</div>
	GO - Government office/department	<div>Acronym</div> <div>DONRE</div>	<div>Name</div> <div>Department of Natural Resources and the Environment (Vietnam)</div>
		<div>Contact Point Full Name</div>	<div>Contact Point Email</div>

Activity No. 85						
Activity title		Exploring resilience to climate variability of <i>Faidherbia albida</i> to enable informed decision in promoting Evergreen Agriculture in the face of climate changes in Malawi				
CCAFS Objective <i>(select from drop list)</i>		2.1 Identify and test innovations that enable rural communities to better manage climate-related risk and build more resilient livelihoods	CCAFS Milestone No. <i>(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)</i>	2.1.1 2012		
Activity objectives <i>(what the activity aims to achieve)</i>	Objective 1	To develop scientifically rigorous data concerning water use efficiency of <i>F. albida</i> , across contrasting upland and lowland landscape positions over decades.				
	Objective 2	To publish at least two papers in refereed journals with analysis of the water use efficiency of <i>F. albida</i> and implications for recommendation domains of these species and associations in farming systems in different agro-ecological zones in Malawi and bordering areas of Mozambique and Zambia.				
	Objective 3	To develop manuals in English and local languages for the use of smallholder farmers, government and NGO extension services guiding use and expectations for <i>Faidherbia albida</i> in different agro-ecological zones.				
Activity status		Partially completed				
Insert a small remark to indicate the status of the activity. <i>(2-4 sentences required per activity)</i>		Sample collection across contrasting sites from Malawi finalised. Deacdes long intra and inter annual d 18 O and d 13 C composition measured. We are on the stage of data analysis and the preliminary results are very interesting and promising.				
Deliverables status <i>(You may add any unexpected deliverable)</i>		Type	Description	Year	Status	Format
		Data	Datasets contrasting oxygen isotope distributions across upland and lowland landscape positions over decades	2012	Partially completed	Spreadsheet (*.xls, *.ods)
		Reports, publications	One journal article and manual in English	2013	Select a status	Select a format

	Reports, publications	One journal article and manual translated into local languages	2014	Select a status	Select a format
Current Partners					
		Acronym	Name		
			Institute of Geography, university of Erlangen, Germany		
	AI - Academic Institution	Contact Point Full Name		Contact Point Email	
		Prof Dr. Achim Bräuning		abraeuning@geographie.uni-erlangen.de	
		Acronym	Name		
			Malawi Dept. Of Forestry		
GO - Government office/department	Contact Point Full Name		Contact Point Email		

## 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 Center Led Activities World Agroforestry Centre (ICRAF)

Activity No. 86					
<b>Activity title</b>	National level backstopping of science and policy through the development of methodologies, tools and incentive schemes.				
<b>CCAFS Objective</b> <i>(select from drop list)</i>	3.1 Inform decision makers about the impacts of alternative agricultural development pathways	<b>CCAFS Milestone No.</b> <i>(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)</i>	3.1.2 2012		
<b>Activity objectives</b> <i>(what the activity aims to achieve)</i>	<b>Objective 1</b>	Backstop country level planning and implementation of REDD +through the provision of methods, tools and relevant training at multiple levels within the framework of multi-lateral initiatives such as the Forest Carbon Partnership Facility (FCPF) and UN-REDD			
<b>Activity status</b>	Partially completed				
<b>Insert a small remark to indicate the status of the activity.</b> <i>(2-4 sentences required per activity)</i>	The activity involved a global process of reviewing REDD tools and methods and REDD capacity and training needs at national level in Peru, Cameroon, Indonesia and Vietnam. The four countries developed and trialed a landscape level land use planning approach for emission reductions including REDD+ called LUWES (Land-Use Planning for Low Emissions Development Strategy). More than 10 Trainings of at least 25 persons were held in various countries on Land use planning, Carbon measurements, opportunity costs, rapid tenure analysis and drivers of land use change analysis.				
<b>Deliverables status</b> <i>(You may add any unexpected deliverable)</i>	<b>Type</b>	<b>Description</b>	<b>Year</b>	<b>Status</b>	<b>Format</b>
	Reports, publications	Training manual	2012	Completed	Document (*.doc, *.odt, *.pdf)
	Reports, publications	Webpage on Tools	2013	Partially completed	Blogpost
	Workshops	Methodology workshops on tools for REDD+/REALU	2011	Completed	Document (*.doc, *.odt, *.pdf)
	Workshops	Methodology workshops on incentives	2012	Completed	Document (*.doc, *.odt, *.pdf)
	Workshops	Training on land use planning for low emission strategies and monitoring, reporting and verification	2013	Partially completed	Document (*.doc, *.odt, *.pdf)
	Capacity	Training needs identified jointly with national REDD institutions	2011	Completed	Document (*.doc, *.odt, *.pdf)
	Capacity	training needs identified jointly with national REDD institutions	2011	Completed	Document (*.doc, *.odt, *.pdf)
Capacity	Support to national REDD Readiness processes	2012	Completed	Document (*.doc, *.odt, *.pdf)	
<b>Partners</b>	<b>Acronym</b>	<b>Name</b>			
	ASB	Alternatives to Slash-and-Burn			
	CRP - Challenge Research Program	<b>Contact Point Full Name</b>	<b>Contact Point Email</b>		
		Peter Minang	a.minang@cgiar.org		
	<b>Acronym</b>	<b>Name</b>			
	IITA	International Institute of Tropical Agriculture			
	CG - CGIAR Center	<b>Contact Point Full Name</b>	<b>Contact Point Email</b>		
	<b>Acronym</b>	<b>Name</b>			
	IRAD	Institut de Recherche agricole pour le Développement Cameroun			
	GO - Government office/department	<b>Contact Point Full Name</b>	<b>Contact Point Email</b>		
	<b>Acronym</b>	<b>Name</b>			
	IIAP	Instituto de investigaciones de la Amazonia peruana			
	Select a partner.	<b>Contact Point Full Name</b>	<b>Contact Point Email</b>		



Current Partners	Acronym		Name	
	ISRIC		International Soil Reference and Information Centre	
	Research_Network - Research network		Contact Point Full Name	Contact Point Email
	Acronym		Name	
	MARD		Ministry of Agriculture and Rural Development	
	GO - Government office/department		Contact Point Full Name	Contact Point Email
	Acronym		Name	
	MONRE		Ministry of Natural Resources and Environment	
	GO - Government office/department		Contact Point Full Name	Contact Point Email
	Acronym		Name	
	ICRAF		World Agroforestry Centre	
	CG - CGIAR Center		Contact Point Full Name	Contact Point Email
Acronym		Name		
CIAT		Centro Internacional de agricultura Tropical		
CG - CGIAR Center		Contact Point Full Name	Contact Point Email	

Activity No. 87						
Activity title		(1) International experiences with Payments for Environmental Services (carbon) in different systems, including capacity building at national and local levels; (2) Assessment of biocarbon project costs and institutions				
CCAFS Objective (select from drop list)		3.2 Identify institutional arrangements and incentives that enable smallholder farmers and common-pool resource users to reduce GHGs and improve livelihoods		CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)	3.2.1 2012 (1)	
Activity objectives (what the activity aims to achieve)	Objective 1	to assess financial viability and governance structures of biocarbon projects in EA in order to improve projects implementation and outcomes for farmers				
Activity status		Partially completed				
Insert a small remark to indicate the status of the activity. (2-4 sentences required per activity)		(1) An online survey was carried out to identify the benefits of PES projects. (2) Seven biocarbon projects in East Africa were assessed via questionnaires and interviews to identify the financial viability (NPV, IRR) and governane structures of these projects.				
Deliverables status (You may add any unexpected deliverable)		Type	Description	Year	Status	Format
		Reports, publications	An overview and discussion of design issues/scientific publications, policy briefs to inform access to C finance; capacity building of farmers in pilot projects	2012	Completed	Document (*.doc, *.odt, *.pdf)
		Model tools and software	Use of C-finance models to assess 'business models' of successful biocarbon projects; interviews with project developers; paper and policy brief	2012	Completed	Spreadsheet (*.xls, *.ods)
Current Partners		Acronym		Name		
		FAO		Food and Agriculture Organization of the United Nations		
NGO_DO - Non-governmental organization/Development organization		Contact Point Full Name	Contact Point Email			
		Acronym		Name		
		CARE				
NGO_DO - Non-governmental organization/Development organization		Contact Point Full Name	Contact Point Email			
		Acronym		Name		
		TIST		The International Small Group Tree Planting Program		
NGO_DO - Non-governmental organization/Development organization		Contact Point Full Name	Contact Point Email			

	Acronym		Name	
			Vi-Agroforestry	
	NGO_DO - Non-governmental organization/Development organization			
	Contact Point Full Name		Contact Point Email	
	Acronym		Name	
			Wildlife Works	
	NGO_DO - Non-governmental organization/Development organization			
	Contact Point Full Name		Contact Point Email	
	Acronym		Name	
			PlanVivo	
Donors - Donors				
Contact Point Full Name		Contact Point Email		

### Activity No. 88

Activity title		Analysis of mitigation biophysical and socioeconomic feasibility for different agricultural practices and regions, and impacts on emissions, livelihoods and food security (2012-13)	
CCAFS Objective (select from drop list)		3.3 Test and identify desirable on-farm practices and their landscape-level implications	CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet) 3.3.1 2012 (1)
Activity objectives (what the activity aims to achieve)	Objective 1	The solution being tested is whether existing or potential biomass on smallholder farms and in communities could make a significant difference in meeting the energy demand of rural communities. This requires an assessment of existing biomass and the value of its uses, expected prices paid for biomass to produce liquid energy, and the potential for increasing biomass production.	
Activity status		Partially completed	

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

The activity is further along than anticipated in that there is already a study and report on energy use and potential demand for biofuels from commercial centers in western Kenya. Data collection is ongoing on large producers / potential users of biomass namely sugar, tea and rice producers in the region. Data has also been collected on biomass availability and use on farms and as foreseen, the paper will be ready in 2013.

Type	Description	Year	Status	Format
Reports, publications	Quantitative measurement of biomass on smallholder farms and detailed accounting of the current uses and values of the biomass, including by gender (research paper). This will be analysed across different climatic zones and for different farmer typologies (e.g. farmsize and those with dairy animals and those without)	2012	Completed	Document (*.doc, *.odt, *.pdf)
Data	Data collection	2012	Completed	Database (*.sql, *.mdb, etc)
Reports, publications	Publication	2013	Uncompleted	Select a format

Current Partners	Acronym		Name	
			Cornell University	
	AI - Academic Institution			
	Contact Point Full Name		Contact Point Email	
	David Lee (prof) and Julia Berazneva (student)		drl5@cornell.edu (prof)	
	Acronym		Name	
			Cork University	
	AI - Academic Institution			
Contact Point Full Name		Contact Point Email		
Edward Lahiff (prof) and Lilian O'Sullivan (student)		E.Lahiff@ucc.ie (prof)		

### Activity No. 89

Activity title		Framework for quantifying error propagation and cost error trade-offs in soil carbon stocks measurements	
CCAFS Objective (select from drop list)		3.3 Test and identify desirable on-farm practices and their landscape-level implications	CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet) 3.3.1 2012 (1)
Activity objectives (what the activity aims to achieve)	Objective 1	Develop a Bayesian analytical approach for representing uncertainties in soil carbon stock estimations.	
	Objective 2	Provide updated guidelines on soil carbon monitoring in landscapes, including tool for calculating cost-error trade-offs.	
	Objective 3	Test alternative ways of calculating soil carbon stock-depth relationships.	
	Objective 4	Use the framework to identify which are the largest sources of error, using the western Kenya data set and some example AFSIS data sets,	
	Objective 5	Establish the cost-precision trade-off for monitoring soil carbon stock changes.	

Activity status	Partially completed				
Insert a small remark to indicate the status of the activity. (2-4 sentences required per activity)	A web based soil carbon measurment and monitoring tool is developed				
Deliverables status (You may add any unexpected deliverable)	Type	Description	Year	Status	Format
	Reports, publications	project reports assessing land health and GHG fluxes in two development projects in Kenya and Tanzania	2012	Partially completed	Document (*.doc, *.odt, *.pdf)
	Data	Georeferenced databases on carbon stocks and soil health for 40 sentinel sites in Africa contributing to AFSIS	2012	Partially completed	Other
	Capacity	On-the job training and scientific and technical backstopping of students and national partners in land health surveillance methods	2012	Partially completed	Other
Current Partners	Acronym		Name		
	AI - Academic Institution		Earth Institute- University of Columbia		
	Contact Point Full Name		Contact Point Email		
	Markus Walsh		markusgwals@gmail.com		
	Acronym		Name		
	CG - CGIAR Center	CIAT	Centro Internacional de agricultura Tropical		
	Contact Point Full Name		Contact Point Email		
	Acronym		Name		
	AI - Academic Institution		Earth Inistitute		
	Contact Point Full Name		Contact Point Email		
Acronym		Name			
AI - Academic Institution		Columbia University			
Contact Point Full Name		Contact Point Email			
Acronym		Name			
NGO_DO - Non-governmental organization/Development organization	ISRIC	International Soil Reference and Information Centre			
Contact Point Full Name		Contact Point Email			

Activity No. 90					
Activity title	Tools, measurement and monitoring protocols for GHG flux measurements and C-sequestration in complex agro-ecological landscapes with and without trees; including biochar effects on emissions, algorithms for remote sensing above-ground biomass and carbon				
CCAFS Objective (select from drop list)	3.3 Test and identify desirable on-farm practices and their landscape-level implications	CCAFS Milestone No. (select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)	3.3.2 2012		
Activity objectives (what the activity aims to achieve)	Objective 1	compare GHG fluxes of different land use practices, including conventional cropping, improved fallow and agroforestry practices with N2-fixing species and identify their drivers; and c) model the measured GHG fluxes with mechanistic and statistical modelling approaches.			
Activity status	Partially completed				
Insert a small remark to indicate the status of the activity. (2-4 sentences required per activity)	ICRAF is currently in the middle of identifying and verifying desirable on-farm practices in terms of greenhouse gas mitigation and livelihood enhancement in Western Kenya and Tanzanian sites. We have one season of data at this point and will take measurements throughout 2013.				
Deliverables status (You may add any unexpected deliverable)	Type	Description	Year	Status	Format
	Model tools and software	GHG flux measurements; C-sequestration assessment; LHSF biophysical baseline assessment	2012	Partially completed	Spreadsheet (*.xls, *.ods)
	Model tools and software	IMPACT HH modelling baseline;	2012	Completed	Spreadsheet (*.xls, *.ods)
	Data	estimate relationships between management systems and GHGs	2012	Uncompleted	Select a format
	Capacity	train national technical staff; field and pot trials of GHG fluxes using different biochars, N application rates, water content	2012	Completed	Document (*.doc, *.odt, *.pdf)
	Reports, publications	Journal paper	2012	Partially completed	Document (*.doc, *.odt, *.pdf)

	Model tools and software	Protocol and standard operating procedures for soil carbon measurement updated (Version 2).	2012	Completed	Document (*.doc, *.odt, *.pdf)
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Current Partners	CG - CGIAR Center	<b>Acronym</b> CIFOR	<b>Name</b> Center for International Forestry Research	<b>Contact Point Full Name</b> 	<b>Contact Point Email</b> 
	Other	<b>Acronym</b> MICCA	<b>Name</b> Mitigation of Climate Change in Agriculture	<b>Contact Point Full Name</b> 	<b>Contact Point Email</b> 
	AI - Academic Institution	<b>Acronym</b> 	<b>Name</b> Cornell University	<b>Contact Point Full Name</b> 	<b>Contact Point Email</b> 
	NGO_DO - Non-governmental organization/Development organization	<b>Acronym</b> WWF	<b>Name</b> World Wildlife Foundation	<b>Contact Point Full Name</b> 	<b>Contact Point Email</b> 
	AI - Academic Institution	<b>Acronym</b> MSU	<b>Name</b> Michigan State University	<b>Contact Point Full Name</b> 	<b>Contact Point Email</b> 
	AI - Academic Institution	<b>Acronym</b> CSU	<b>Name</b> Colorado State University	<b>Contact Point Full Name</b> 	<b>Contact Point Email</b> 
	NGO_DO - Non-governmental organization/Development organization	<b>Acronym</b> UNEP	<b>Name</b> United Nations Environment Programme	<b>Contact Point Full Name</b> 	<b>Contact Point Email</b> 

Activity No. 91					
Activity title	(1) Spatial and Statistical Diversity in Agricultural Patterns and Practices: Implications for Agricultural Mitigation in Southwest China; (2) Development of toolbox for carbon benefits in NRM projects				
CCAFS Objective <i>(select from drop list)</i>	3.3 Test and identify desirable on-farm practices and their landscape-level implications	<b>CCAFS Milestone No.</b> <i>(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)</i>	3.3.2 2012		
Activity objectives <i>(what the activity aims to achieve)</i>	Objective 1	Growing number of field-based studies have demonstrated the potential to reduce chemical N and P fertilizer use while maintaining yields. However, household use of chemical fertilizers in China remains poorly understood. Main research questions including: <ul style="list-style-type: none"> <li>• What are main drivers of fertilizer use across Yunnan Province?</li> <li>• What explains large differences in chemical N fertilizer use across households?</li> <li>• What role should policy play in minimizing negative impacts of chemical fertilizer use?</li> </ul>			
Activity status	Completed				
Insert a small remark to indicate the status of the activity. <i>(2-4 sentences required per activity)</i>	(1) This activity has been successfully completed according to the plans. More importantly, three peer-reviewed journal articles have been published, which is more than we expected. We should be able to have more journal articles ready in the next two years. (2) The protocol was developed and communicated to GEF but the online tool is still under development				
Deliverables status <i>(You may add any unexpected deliverable)</i>	<b>Type</b> Reports, publications	<b>Description</b> Fertilizer use patterns in Yunnan Province, China: Implications for agricultural and environmental policy	<b>Year</b> 2012	<b>Status</b> Completed	<b>Format</b> Document (*.doc, *.odt, *.pdf)
	Model tools and software	Online project developer tool for carbon accounting	2012	Partially completed	Other
	Reports, publications	Incentives for carbon sequestration and energy production in low productivity collective forests in Southwest China	2012	Completed	Document (*.doc, *.odt, *.pdf)
	Reports, publications	Large or small? Rethinking China's forest bioenergy policies	2012	Completed	Document (*.doc, *.odt, *.pdf)

	Reports, publications	A protocol for measurement and monitoring soil carbon stocks in Tropical landscapes	2012	Completed	Document (*.doc, *.odt, *.pdf)
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Current Partners		<b>Acronym</b>	<b>Name</b>
			University of California
	AI - Academic Institution	<b>Contact Point Full Name</b>	<b>Contact Point Email</b>
		<b>Acronym</b>	<b>Name</b>
			Yunnan Provincial Agricultural Department
	GO - Government office/department	<b>Contact Point Full Name</b>	<b>Contact Point Email</b>
		<b>Acronym</b>	<b>Name</b>
			Kunming Institute of Botany
	GO - Government office/department	<b>Contact Point Full Name</b>	<b>Contact Point Email</b>
		<b>Acronym</b>	<b>Name</b>
		WWF	World Wildlife Fundation
	NGO_DO - Non-governmental organization/Development organization	<b>Contact Point Full Name</b>	<b>Contact Point Email</b>
	Dirk Joldersma	Dirk.joldersma@wwfus.org	
	<b>Acronym</b>	<b>Name</b>	
	MSU	Michigan State University	
AI - Academic Institution	<b>Contact Point Full Name</b>	<b>Contact Point Email</b>	
	Mike Smalligan	smallig2@msu.edu	
	<b>Acronym</b>	<b>Name</b>	
	UNEP	United Nations Environment Programme	
NGO_DO - Non-governmental organization/Development organization	<b>Contact Point Full Name</b>	<b>Contact Point Email</b>	
	Gemma Shepherd	Gemma.Shepherd@unep.org	

## 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.

### CCAFA Center Led Activities World Agroforestry Centre (ICRAF)

Activity No. 276																																	
<b>Activity title</b>		Development of global agroforestry suitability maps in a changed climate																															
<b>CCAFA Objective</b> (select from drop list)		4.2 Assemble data and tools for analysis and planning	<b>CCAFA Milestone No.</b> (select from drop list / for further details go to CCAFA 2012 - 2015 LOGFRAME sheet)		4.2.1 2012 (3)																												
<b>Activity objectives</b> (what the activity aims to achieve)	<b>Objective 1</b>	to develop a methodology for agroforestry suitability analysis using selected bio-physical and socio-economic criteria																															
	<b>Objective 2</b>	To select a target area and characterize it in terms of bio-physical & socio-economic parameters and government support & regulatory mechanisms*																															
	<b>Objective 3</b>	To identify widely practiced agroforestry system (s) and develop its detailed technology profile **																															
	<b>Objective 4</b>	To classify the homologous zones into different categories of suitability of the identified agroforestry system and map the suitability classes																															
	<b>Objective 5</b>	To train the national staff on the above methodology as on the job training.																															
<b>Activity status</b>		Partially completed																															
<b>Insert a small remark to indicate the status of the activity.</b> (2-4 sentences required per activity)		<p>This activity is closely linked with activity no. 81. A methodology was assembled using selected bio-physical and socio economic parameters, especially for trees in the agricultural production landscapes (including the livestock), as mapping and characterizing units of farming / livelihood systems detailed profiling of the selected technologies. The gamut of this protocol and procedures assembled in a tool box, tested and refined for technology suitability and extrapolation purposes and for training the selected national staff on these aspects. Two sites, one in each of Uttar Pradesh and Rajasthan, selected as potential target area have been characterized in terms of key bio-physical and socio-economic parameters. Widely practiced agroforestry systems, including the fodder shrubs and tree systems were identified, and their production &amp; utilization practices catalogued. The production and utilization practices were profiled in detail for all the selected technologies. This provided technology utilization requirements (TURs). At the same time , farmers (producers) resource base analysis was done within the potential target area using selected biophysical and socio economic parameters, to come up with the target area qualities (TAQs). The potential target area is being classified into homologous zones and the matching of the TURs with the TAQs in a quantitative manner. Similar work has been recently initiated at the sub-temperate site in Uttara Khand. Selected national staff has been trained on all these aspects at the two sites, and the third site training will be taken up soon. A South Asian Regional workshop was organized on the Scaling up methodology for Climate Smart Agriculture Practices. Two more such workshops are planned in the near future.</p>																															
<b>Deliverables status</b> (You may add any unexpected deliverable)		<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>Model tools and software</td> <td>A methodology for determining the application domain of the preferred technology (agroforestry systems / practices), including the characterization of the potential area for technology extrapolation and developing the detailed profile of the selected technologies (4th Q, 2012).</td> <td>2012</td> <td>Partially completed</td> <td>Select a format</td> </tr> <tr> <td>Data</td> <td>Delineated agro-ecological zones and technology suitability maps of the selected site where agroforestry system / practice are intended to be applied (4th Q, 2012; two target areas, one in the rainfed and the other one in irrigated lands).</td> <td>2012</td> <td>Select a status</td> <td>Select a format</td> </tr> <tr> <td>Capacity</td> <td>Trained national staff on the methodology for technology extrapolation and application domains (4th Q, 2012; 8 staff).</td> <td>2012</td> <td>Partially completed</td> <td>Select a format</td> </tr> </tbody> </table>				Type	Description	Year	Status	Format	Model tools and software	A methodology for determining the application domain of the preferred technology (agroforestry systems / practices), including the characterization of the potential area for technology extrapolation and developing the detailed profile of the selected technologies (4th Q, 2012).	2012	Partially completed	Select a format	Data	Delineated agro-ecological zones and technology suitability maps of the selected site where agroforestry system / practice are intended to be applied (4th Q, 2012; two target areas, one in the rainfed and the other one in irrigated lands).	2012	Select a status	Select a format	Capacity	Trained national staff on the methodology for technology extrapolation and application domains (4th Q, 2012; 8 staff).	2012	Partially completed	Select a format								
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Acronym	Name	Contact Point Full Name	Contact Point Email																														
AI - Academic Institution	HNB GU	HN Bahuguna Garhwal University																															
		Dr. N.P.Todaria	nagendra todaria <nptfd@yahoo.com>																														
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		Dr. D.N.Tewari	dn.tiwari@nic.in																														
AI - Academic Institution	MPUAT	Maharana Pratap University of Agriculture and Technology																															
		Dr. Manmohan Dobrial	manmohandobriyal@gmail.com																														

Activity No. 277

Activity title		Climate change impact projection and adaptation planning framework			
CCAFS Objective <small>(select from drop list)</small>		4.2 Assemble data and tools for analysis and planning	CCAFS Milestone No. <small>(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)</small>	4.2.1 2012 (5)	
Activity objectives <small>(what the activity aims to achieve)</small>	Objective 1	Establish a framework for production of high-resolution weather records for climate change analysis.			
	Objective 2	Combine this with information on soils and agronomic practice for high-throughput modeling of adaptation option.			
	Objective 3	Set all processes up in an automated fashion to facilitate efficient deployment of the framework in a wide range of circumstances			
Activity status		<div>Partially completed</div>			
Insert a small remark to indicate the status of the activity. <small>(2-4 sentences required per activity)</small>		The modeling framework is functional. However, the code still needs to be cleaned up and packaged for distribution. Writing of the journal paper has been delayed.			
Deliverables status <small>(You may add any unexpected deliverable)</small>	Type	Description	Year	Status	Format
	Model tools and software	Modelling framework	2012	Completed	Other
	Reports, publications	Journal paper	2012	Partially completed	Other

Activity No. 278					
Activity title		Response of grassland growth to climate change on the Tibetan Plateau (TP)			
CCAFS Objective <small>(select from drop list)</small>		4.2 Assemble data and tools for analysis and planning	CCAFS Milestone No. <small>(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)</small>	4.2.1 2012 (3)	
Activity objectives <small>(what the activity aims to achieve)</small>	Objective 1	The aim of this study is to investigate the interannual change trend of grassland growth on the TP, monthly temperature and precipitation, clarify how seasonal grassland growth responds to climate change and the linkages between grassland growth and phenological events from 1982 to 2006.			
Activity status		<div>Completed</div>			
Insert a small remark to indicate the status of the activity. <small>(2-4 sentences required per activity)</small>		This study is co-funded by National Science foundation of China. It has completed and one paper was published. In this paper, the timing and grassland activity of vegetation stages have been analyzed by evaluating remotely sensed Normalized Difference Vegetation Index (NDVI) data. All vegetation variables were linked with datasets of monthly temperature and precipitation.			
Deliverables status <small>(You may add any unexpected deliverable)</small>	Type	Description	Year	Status	Format
	Data	Maps of vegetation index and climate factors of TP	2012	Completed	Plain text (*.txt)
	Reports, publications	Seasonal Response of Grasslands to Climate Change on the Tibetan Plateau	2012	Completed	Plain text (*.txt)

Activity No. 245					
Activity title		Continue work on methods for improving CGIAR modeling capability in agro-forestry and other natural resource management intervention areas that improve climate change resilience. This may involve the direct enhancement of global models like IMPACT or the enhancement of other models that could be linked up (e.g. DSSAT), 2012 funds			
CCAFS Objective <small>(select from drop list)</small>		4.3 Refine frameworks for policy analysis	CCAFS Milestone No. <small>(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)</small>	4.3.1 2012 (1)	
Activity objectives <small>(what the activity aims to achieve)</small>	Objective 1				
Activity status		<div>Select a status</div>			
Insert a small remark to indicate the status of the activity. <small>(2-4 sentences required per activity)</small>		??			
Deliverables status <small>(You may add any unexpected deliverable)</small>	Type	Description	Year	Status	Format
	Reports, publications	Paper prepared for inclusion in a journal special issue	2012	Select a status	Select a format

Activity No. 336					
Activity title		Developing community-based climate smart agriculture through participatory action research in five benchmark sites in West Africa			
CCAFS Objective <small>(select from drop list)</small>		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. <small>(select from drop list / for further details go to CCAFS 2012 - 2015 LOGFRAME sheet)</small>	4.1.2 2012	
Activity objectives <small>(what the activity aims to achieve)</small>	Objective 1	To test and validate, in partnership with rural communities and other stakeholders, a scalable climate-smart model for agricultural development that integrates a range of innovative agricultural risk management strategies.			
Activity status		<div>Partially completed</div>			

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

This project is a joint initiative of CCAFS-West Africa program and ICRAF-WCA. The initiative started with the development of project document by ICRAF and accepted by the CCAFS-West Africa which served as the basis of the signature of an agreement in December 2011 between ICRISAT (hosting CCAFS-West Africa) and ICRAF. According to this agreement the first activity was a regional workshop which took place in Bamako, Mali on 15-16 February 2012. The workshop was attended by 20 participants including scientists from NARS (Institut de l'Environnement et de Recherches Agricoles (INERA),- Savanna Research Institute-Council for Scientific and Industrial Research (SARI-CSIR), Institut d'Economie Rurale (IER), IUCN Burkina Faso, AGRHYMET Niger, ANAMS Senegal, AFSIS-CIAT, ICRISAT, ICRAF and development agents from TreeAid-West Africa Office, Association Mallienne d'Eveil au Développement Durable (AMEDD), and Langmaal Center of Ghana. An important output of the workshop was a national workplan developed for each of the three participating countries that are Burkina Faso, Ghana and Mali. National workshops involving local key stakeholders were later held in each country to refine and validate the workplans developed during the regional workshop. Activities planned in these workplans and implemented during the first year in the three countries included: baseline studies, land reclamation trials, natural assisted regeneration, tree planting, crop varieties testing, training activities (more than 50 farmers trained, 2 MSC students trained), 3 farmers' exchange visits conducted.

Deliverables status  
(You may add any unexpected deliverable)

Type	Description	Year	Status	Format
Workshops	Workshops to refine and validate the workplan in each countries	2012	Completed	Select a format
Data	Establishment of land restoration trials combining anti-erosion structures with assisted natural regeneration of local species involving 20 farmers	2012	Completed	Select a format
Data	Field trials in Jatropha	2012	Completed	Select a format
Data	Integrated soil fertility management trials established on farmers' fields + soil samples in Ghana and Mali + tree seedling planted in Ghana	2012	Completed	Select a format
Capacity	Burkina and Ghana team trained by IUCN on the tools for PM&E of the project	2012	Completed	Select a format
Data	Socio-economic data, carbon stocks, GHGs in the 5 countries	2013	Select a status	Select a format
Capacity	Farmers and students	2013	Select a status	Select a format

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## 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 Center Led Activities World Agroforestry Centre (ICRAF)

Theme 1. Adaptation to Progressive Climate Change	
<b>Objective 1.1</b> Analyze and design processes to support adaptation of farming systems in the face of future uncertainties of climate in space and time	
<b>Output 1.1.3</b> New knowledge, guidelines and access to germplasm are provided for using genetic and species diversity to enhance adaptation, productivity and resilience to changing climate with benefits for socially marginal groups.	
Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives	<p>12 NARs scientists, forestry extension agents and development project technicians and more than 125 villagers (men and women) have been trained in tree domestication practices (seed collection and processing; seedling production in nurseries; design, establishment and evaluation of on-farm provenance trials) in Burkina Faso, Mali and Niger. Seeds collected by trained villagers and project staff from selected trees from the local seed source (village parklands and woodlands) and from a seed source in a drier location, and seedlings produced in village nurseries in Burkina Faso, Mali and Niger for provenance trials in 2012 and 2013.</p> <p>Provenance trials established on farms by participatory tree domestication teams (NARs scientists, men and women from the villages) in 18 villages located in two regions of Burkina Faso and Mali. Each trial compares the local seed source with the seed source from a drier location.</p> <p>All the concrete deliverables will be done in the next 3 years of the project.</p>
Theme 2. Adaptation through Managing Climate Risk	
<b>Objective 2.1</b> Identify and test innovations that enable rural communities to better manage climate-related risk and build more resilient livelihoods	
<b>Outcome 2.1:</b> 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	
<b>Output 2.1.1</b> Synthesized knowledge and evidence on innovative risk management strategies that foster resilient rural livelihoods and sustain a food secure environment	
Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives	<p>The Centre has 5 activities dealing with this Output 2.1.1. In general, these activities are partially completed.</p> <p>Only 2 activities were supposed to be completed by end of December 2012 but still need to finalize several deliverables. The 3 other activities are still on-going.</p> <p>Deliverables are in various formats (database, documents, presentations, spreadsheets etc.). In 2012, this output can count having 1 project report, 2 journal articles published and 1 submitted, 1 interesting case study, an analysis on gender, 2 data collection, 2 workshops and 1 training.</p>
Theme 3. Pro-Poor Climate Change Mitigation	
<b>Objective 3.1</b> Inform decision makers about the impacts of alternative agricultural development pathways	
<b>Outcome 3.1:</b> Enhanced knowledge and tools about agricultural development pathways that lead to better decisions for climate mitigation, poverty alleviation, food security and environmental health, used by national agencies in at least 20 countries	
<b>Output 3.1.2</b> Enhanced tools, data and analytic capacity in regional and national policy and research organizations to analyze mitigation sectors and agricultural development options	
Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives	<p>ICRAF only has 1 activity falling under the output 7.3.1. dealing with REDD+ and land use. This activity is still on-going. In 2012, the activity involved a global process of reviewing REDD+ tools and methods. More than 10 Trainings of at least 25 persons were held in various countries on Land use planning, Carbon measurements, opportunity costs, rapid tenure analysis and drivers of land use change analysis. Peru, Cameroon, Indonesia and Vietnam developed and trialed a landscape level land use planning approach for emission reductions including REDD+ called LUWES (Land-Use Planning for Low Emissions Development Strategy).</p>
<b>Objective 3.2</b> Identify institutional arrangements and incentives that enable smallholder farmers and common-pool resource users to reduce GHGs and improve livelihoods	
<b>Outcome 3.2:</b> 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	
<b>Output 3.2.1</b> Evidence, analysis and trials to support institutional designs, policy and finance that will deliver benefits to poor farmers and women, and reduce GHG emissions	
Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives	<p>One activity including 2 projects is dealing with the output 7.3.2. The first project provided a online survey to identify the benefits of PES projects. The second project assessed 7 biocarbon projects in East Africa via questionnaires and interviews in order to identify the financial viability (NPV, IRR) and governance structures of these projects. A C-finance model to assess 'business models' of successful biocarbon projects is under construction.</p>
<b>Objective 3.3</b> Test and identify desirable on-farm practices and their landscape-level implications	
<b>Outcome 3.3:</b> Key agencies dealing with climate mitigation in at least 10 countries promoting technically and economically feasible agricultural mitigation practices that have co-benefits for resource-poor farmers, particularly vulnerable groups and women	
<b>Output 3.3.1</b> Analysis of mitigation biophysical and socioeconomic feasibility for different agricultural practices and regions, and impacts on emissions, livelihoods and food security	
Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives	<p>2 activities are working on the Output 7.3.3.1. Concerning the biofuel activity: The activity is further along than anticipated in that there is already a study and report on energy use and potential demand for biofuels from commercial centers in western Kenya. Data collection is ongoing on large producers / potential users of biomass namely sugar, tea and rice producers in the region. Data has also been collected on biomass availability and use on farms and as foreseen, the paper will be ready in 2013. Concerning the activity on the "framework for quantifying error propagation and cost error trade-offs in soil carbon stocks measurements", the web based soil carbon measurement and monitoring tool is developed.</p>
<b>Output 3.3.2</b> Methods developed and validated for GHG monitoring and accounting at farm and landscape level to contribute to compliance and voluntary market standards	
Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives	<p>2 activities are working on the Output 7.3.3.2. The MICCA project is currently in the middle of identifying and verifying desirable on-farm practices in terms of greenhouse gas mitigation and livelihood enhancement in Western Kenya and Tanzanian sites. They have one season of data at this point and will take measurements throughout 2013. In SouthWest China, the project has been successfully completed according to the plans (3 peer-reviewed journal articles have been published). More journal articles to be coming in the next two years. Eventually the carbon benefits project has developed its protocol and communicated it to GEF; however, the online tool is still under development</p>

Theme 4. Integration for Decision Making	
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	3 activities are working on the Output 7.4.2. A modeling framework on climate change impact projection and adaptation planning is now functional, though codes still needs to be cleaned up and packaged for distribution. A Journal paper will be published in 2013 In the Tibetan Plateau, maps of vegetation index and climate factors is completed and 1 paper has been published.
Objective 4.3 Refine frameworks for policy analysis	
Outcome 4.3 New knowledge on how alternate policy and program options impact agriculture and food security under climate change incorporated into strategy development by national agencies in at least 20 countries and by at least 10 key international and regional agenciesat least 10 key international and regional agencies	
Output 4.3.1 Climate change impacts assessed at global and regional levels on agricultural systems (socially and gender differentiated producers and consumers, and their natural resources), national/regional economies, and international transactions and potential of international and regional policy changes to enhance adaption and support agricultural greenhouse gas emissions mitigation	
Prepare a succinct summary of activities and deliverables, organised by Output level of the CCAFS objectives	

## 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 Center Led Activities World Agroforestry Centre (ICRAF)

Publication 1	<b>Type</b> Book chapters	<b>Citation identifier</b> ISBN-10: 1612335586
	<b>Citation</b> Sotelo Montes, C., Weber, J.C., Silva, D.A., Muñiz, G.I.B., Garcia, R.A. 2012. Variation in fuelwood properties of five tree/shrub species in the Sahelian and Sudanian ecozones of Mali: relationships with rainfall, regions, land-use and soil types. In: A. Méndez-Vilas, ed. Fuelling the future: advances in science and technologies for energy generation, transmission and storage. Boca Raton: BrownWalker Press, pp. 133-137.	
Publication 2	<b>Type</b> Working papers	<b>Citation identifier</b> ISBN: 978-92-9059-315-7
	<b>Citation</b> Boureima, M., Abasse, A.T., Sotelo Montes, C., Weber, J.C., Katkoré, B., Mounkoro, B., Dakouo, J-M., Samaké, O., Sigué, H., Bationo, B.A., Diallo, B.O. 2012. Analyse participative de la vulnérabilité et de l'adaptation aux changements climatiques: un guide méthodologique. Occasional Paper No. 19. Nairobi: World Agroforestry Centre	
Publication 3	<b>Type</b> Journal papers	<b>Citation identifier</b> <a href="http://www.sciencedirect.com/science/article/">http://www.sciencedirect.com/science/article/</a>
	<b>Citation</b> Kahl F, et al., Incentives for carbon sequestration and energy production in low productivity collective forests in Southwest China. Biomass and Bioenergy (2012), doi:10.1016/j.biombioe.2012.01.043	

Publication 4	<b>Type</b>	<b>Citation identifier</b>
	Journal papers	<a href="http://www.sciencedirect.com/science/article/">http://www.sciencedirect.com/science/article/</a>
	<b>Citation</b> Kahrh F, et al., Large or small? Rethinking China's forest bioenergy policies, Biomass and Bioenergy (2012), doi:10.1016/j.biombioe.2012.01.042	
Publication 5	<b>Type</b>	<b>Citation identifier</b>
	Journal papers	<a href="http://www.plosone.org/article/info%253Adoi">http://www.plosone.org/article/info%253Adoi</a>
	<b>Citation</b> Yu H, Xu J, Okuto E, Luedeling E (2012) Seasonal Response of Grasslands to Climate Change on the Tibetan Plateau. PLoS ONE 7(11): e49230. doi:10.1371/journal.pone.0049230	
Publication 6	<b>Type</b>	<b>Citation identifier</b>
	Journal papers	<a href="http://link.springer.com/article/10.1007%2Fs1">http://link.springer.com/article/10.1007%2Fs1</a>
	<b>Citation</b> Su Y, et al., Coping with climate-induced water stresses through time and space in the mountains of Southwest China. Regional Environmental Change (2012). DOI 10.1007/s10113-012-0304-7	
Publication 7	<b>Type</b>	<b>Citation identifier</b>
	Journal papers	doi:10.2134/agronj2012.0063
	<b>Citation</b> G.W.Sileshi, Legesse Kassa Debusho and Festus K. Akinnifesi.2012. "Scaling up Agroforestry to Achieve Food Security and Environmental Protection among Smallholder Farmers in Malawi. Field Actions Science Reports. The journal of field actions. 2012. Can Integration of Legume Trees Increase Yield Stability in Rainfed Maize Cropping Systems in Southern Africa", Agronomy Journal, Vol 104 (5):1392-1398	
Publication 8	<b>Type</b>	<b>Citation identifier</b>
	Working papers	ICRAF Working Paper 143
	<b>Citation</b> Neufeldt H, Dawson IK, Luedeling E, Ajayi OC, Beedy TL, Gebrekirstos A, Jamnadass RH, König K, Sileshi GW, Simelton E, Montes CS, and Weber JC (2012) "Climate Change Vulnerability of Agroforestry" , ICRAF Working Paper 143, Nairobi, Kenya.	
Publication 9	<b>Type</b>	<b>Citation identifier</b>
	Journal papers	<a href="http://factsreports.revues.org/2082">http://factsreports.revues.org/2082</a>
	<b>Citation</b> Beedy TL, Ajayi OC, Sileshi GW, Kundhlande G, Chiundu G & Simons AJ (2012) Scaling up Agroforestry to Achieve Food Security and Environmental Protection among Smallholder Farmers in Malaw. Field Actions Science Reports: The journal of field actions.	

Publication 10	<table> <tr> <th data-bbox="456 153 743 174">Type</th><th data-bbox="857 153 1370 174">Citation identifier</th></tr> <tr> <td data-bbox="456 174 743 212">Journal papers</td><td data-bbox="857 174 1370 212">doi.org/10.1016/j.envsci.2012.02.004</td></tr> <tr> <th colspan="2" data-bbox="399 258 1427 279">Citation</th></tr> <tr> <td colspan="2" data-bbox="399 279 1427 373">Stringer LC, Dougill AJ, Thomas AD, DV Spracklen, Beedy TL, Chesterman S, Speranza CI (2012) "Challenges and opportunities in linking carbon sequestration, livelihoods and ecosystem service provision in drylands", Environmental Science &amp; Policy 19, 121-135</td></tr> </table>	Type	Citation identifier	Journal papers	doi.org/10.1016/j.envsci.2012.02.004	Citation		Stringer LC, Dougill AJ, Thomas AD, DV Spracklen, Beedy TL, Chesterman S, Speranza CI (2012) "Challenges and opportunities in linking carbon sequestration, livelihoods and ecosystem service provision in drylands", Environmental Science & Policy 19, 121-135	
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Publication 11	<table> <tr> <th data-bbox="456 415 743 436">Type</th><th data-bbox="857 415 1370 436">Citation identifier</th></tr> <tr> <td data-bbox="456 436 743 474">Books</td><td data-bbox="857 436 1370 474"><a href="http://www.asb.cgiar.org/PDFwebdocs/LUWES">http://www.asb.cgiar.org/PDFwebdocs/LUWES</a></td></tr> <tr> <th colspan="2" data-bbox="399 520 1427 541">Citation</th></tr> <tr> <td colspan="2" data-bbox="399 541 1427 646">Dewi, S.; Ekadinata, A.; Galudra, G.; Agung, P.; Johana, F. 2011 Land use planning for low emission development strategy (LUWES) - Case studies from Indonesia</td></tr> </table>	Type	Citation identifier	Books	<a href="http://www.asb.cgiar.org/PDFwebdocs/LUWES">http://www.asb.cgiar.org/PDFwebdocs/LUWES</a>	Citation		Dewi, S.; Ekadinata, A.; Galudra, G.; Agung, P.; Johana, F. 2011 Land use planning for low emission development strategy (LUWES) - Case studies from Indonesia	
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Books	<a href="http://www.asb.cgiar.org/PDFwebdocs/LUWES">http://www.asb.cgiar.org/PDFwebdocs/LUWES</a>								
Citation									
Dewi, S.; Ekadinata, A.; Galudra, G.; Agung, P.; Johana, F. 2011 Land use planning for low emission development strategy (LUWES) - Case studies from Indonesia									
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Citation									
Bernard, F., Minang, PA., van Noordwijk, M. (2011) Review of current tools and methods for REDD+ and REALU value chains. ASB Partnership, Nairobi, Kenya.									
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Citation									
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Publication 16	<b>Type</b>	<b>Citation identifier</b>
	Working papers	
	<b>Citation</b> Bernier Q, Franks P, Kristjanson P, Neufeldt H, Otzelberger A, Foster K. 2012. Addressing Gender in Climate-Smart Smallholder Agriculture. ICRAF Policy Brief 13. Nairobi, Kenya. World Agroforestry Centre.	
Publication 17	<b>Type</b>	<b>Citation identifier</b>
	Working papers	
	<b>Citation</b> Chaudhury M, Ajayi OC, Hellin J, Neufeldt H, 2012. Climate Change Adaptation and Social Protection in Agroforestry Systems: Enhancing Adaptive Capacity and Minimizing Risk of Drought in Zambia and Honduras. ICRAF Working Paper. Nairobi.	
Publication 18	<b>Type</b>	<b>Citation identifier</b>
	Working papers	
	<b>Citation</b> Milne E, Neufeldt H, Smalligan M, Rosenstock T, Bernoux M, Bird N, Casarim F, Deneff K, Easter M, Malin D, Ogle S, Ostwald M, Paustian K, Pearson T, Steglich E. 2012. Methods for the quantification of emissions at the landscape level for developing countries in smallholder contexts. CCAFS Report No. 9. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	
Publication 19	<b>Type</b>	<b>Citation identifier</b>
	Working papers	
	<b>Citation</b> Neufeldt H, Dawson IK, Luedeling E, Ajayi OC, Beedy T, Gebrekirstos A, Jamnadass RH, König K, Sileshi GW, Simelton E, Montes CS, Weber JC, 2012. Climate change vulnerability of agroforestry. ICRAF Working Paper No 143. Nairobi.	
Publication 20	<b>Type</b>	<b>Citation identifier</b>
	Book chapters	
	<b>Citation</b> Neufeldt H, Dawson IK, Luedeling E, Ajayi OC, Beedy T, Gebrekirstos A, Jamnadass RH, König K, Sileshi GW, Simelton E, Montes CS, Weber JC. Agroforestry. In: Thornton P, Cramer L (editors), 2012. Impacts of climate change on the agricultural and aquatic systems and natural resources within the CGIAR's mandate. CCAFS Report, CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), Copenhagen, Denmark.	
Publication 21	<b>Type</b>	<b>Citation identifier</b>
	Policy briefs	
	<b>Citation</b> Wollenberg E, Higman S, Seeberg-Elverfeldt C, Neely C, Tapio-Biström ML, Neufeldt H. 2012. Helping smallholder farmers mitigate climate change. CCAFS Policy Brief no. 5. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Copenhagen, Denmark.	

## 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 Center Led Activities World Agroforestry Centre (ICRAF)

<b>Title</b>		<b>Author</b>	
Tree crops and adaptation to climate change: A case study on sites in China, Nepal and Pakistan		Yufang Su, Jianchu Xu, Juliet Lu, Sujata Manandhar; Ashiq Ahmad	
<b>Type</b>	<b>Date (DD/MM/YYYY)</b>	<b>Countries</b>	
Capacity enhancement	01/01/2010-2012	China, Nepal, Pakistan	
<b>Keywords</b>		<b>Photo URL</b>	
Tree crops, climate change adaptation, case study, China, Nepal, Pakistan			

#### Introduction/Objectives (400 characters)

The purpose of this project is to explore agricultural diversification through the use of trees on farms in certain communities in China, Nepal, and Pakistan to support people's capacity to adapt to change, particularly climate-related change. Trees on farms is an adaptation of significant importance in the study areas as trees have been proven to mitigate the effects of extreme climate and buffer against weather-related production losses, secure land productivity through nutrient recycling and improved soil fertility, and provide direct income from tree-based products. The mountain communities of the greater Himalayan region commonly use trees on productive landscapes through agroforestry practices. This study aims to highlight links between tree crops and local adaptation to climate change and quantify the role of tree crops in the management of mountain landscapes and livelihoods, the generation of income, and productivity generally. The research objectives were to:

- improve our understanding of the impacts of climate change and climate variability on on-farm tree crops and of the potential of tree crops to support adaptation to climate change in the greater Himalayan region;
- identify and document cases where tree crops have contributed to improved climate resilience of farming households and/or communities or where tree crops have suffered from climate change;
- improve our understanding of the policy context in which tree crops are used as a tool for agricultural diversification to achieve more resilient farming communities in the greater Himalayan region; and
- share experiences and learning among different countries within the region and leverage findings towards improving national adaptation strategies.

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

The final study areas were selected on the basis of the presence of agroforestry systems, their representation of local agro-ecological conditions and the major agro-ecosystems defined by climate and altitude, the presence of water stress and other impacts, the availability of secondary data, and existing institutional linkages. In China, the researchers visited and appraised seven villages. These villages were selected to represent a range of levels of engagement in trees on farms at different elevations but all having experienced climate-related stresses. Of these, three villages were selected for their diversity in elevation and climate as well as in agricultural systems. All are highly populated and their populations primarily reliant on agriculture for their livelihoods. Because a severe drought was affecting the study area during the research period, all villages were experiencing extreme water shortages but to different degrees and with different consequences for production and income. In Nepal, Mustang in western Nepal was selected as the study area because of its high altitude location and generally dry climate, both of which contribute to a heightened vulnerability to climate change. Despite generally dry condition there is a marked distinction in precipitation volume between upper and lower Mustang, which at least to some extent reflects the climate diversity in Nepal. Mustang is divided into two areas: Upper Mustang with nine village development committees (VDCs) and Lower Mustang with seven VDCs, each containing multiple villages at different locations and altitudes. Because of low and sparsely distributed population in each village, VDCs formed the basic study unit. Transect walks, crop calendars, and field observations were conducted as part of the appraisal. In Pakistan, meetings were held with knowledgeable elders in the community and district officers. It revealed local experiences on the role of tree crops in mitigating negative environmental impacts. Cultivation of certain tree crops is found to be shifting to higher elevations in the last 30–40 years. Survey sites were, therefore, selected along 25–60 kilometres long transect spanning several hamlets, villages, and towns joined by a road or track within an agro-ecological zone (as defined by the Meteorology Department and Water Resources Research Institute, National Agricultural Research Center/Pakistan Agricultural Research Council, Islamabad, Pakistan). Each transect contains more than one agro-ecological zone. Twelve sites in total were selected as study area, found along four different transects – one in the North West Frontier Province (NWFP) and three in Azad Jammu and Kashmir (AJK) Province. Settlements within these transects were selected based on their age, size and the strong presence of a farming community. Certain community members such as school teachers and religious leader not directly engaged in agriculture but are particularly influential, were also involved in discussions and meetings.

#### Household survey and data analysis

Household questionnaires were used to survey individuals and households and assess community impacts and responses to changing water availability and climate change. Only households primarily involved in agricultural production were surveyed and the majority of respondents in Nepal and Pakistan were male heads of households, while respondents in China were mixed in terms of gender.

Considering the different socioeconomic and biophysical contexts across the three country study areas and considering the contrasts in findings, context-based adjustments were made to questionnaires throughout the survey process. For example, ranking questions was considered particularly difficult to explain and answer in Pakistan and terms such as agroforestry had to be explained or substituted in both Pakistan and China.

The questionnaire was designed to gather information regarding the resilience of tree crops in comparison with agricultural crops under conditions of climate-related stress and the implications of the use of trees on farms for household adaptive capacity. The questionnaire (See Annex 1) inquired about household income from agriculture and forestry, the history of climate shocks experienced in the area, perceptions of climate change, and household responses to these shocks and changes. Respondents' awareness of climate change as a technical term was also carefully handled in the translation of the questionnaire into local languages. A high level of awareness and perceptions of climate change was a significant observation in Nepal.

Questionnaires were analysed using statistical tools including Microsoft Excel, PASW (Predictive Analytics Software) Statistics Version 18.0, and SPSS (Statistical Package for Social Sciences). In SPSS, descriptive variables were generated, and an F-test and tests for correlation were performed.

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

A sense of urgency and proper planning and support for adaptive capacity in agricultural livelihoods are lacking. Although changes in climate are widely observed, the

signs varied in strength and clarity across study sites and are yet to be translated into a sense of urgency at all levels of planning. However, it is clear that farmers’ ability to predict seasonal climate and weather, which determines planning for agricultural production, is eroding. Research and planning are currently insufficient to address this issue. Furthermore, policy environments and institutions are not yet responsive to the pace of change or the emerging need of agricultural communities for highly adaptive and resilient systems. The following recommendations are made :

- National and local policies should recognize and utilize their role to encourage practices of adaptation to climate change and raise awareness among vulnerable communities. In many areas, ‘climate proofing’ of agricultural development plans can only be achieved once awareness and understanding of climate impacts, vulnerabilities, and resilience has been increased. In the absence of such a knowledge base, a ‘no regrets’ approach to climate proofing can help ensure that policies and programmes do not increase small holders’ vulnerability to climate change and climate variability.
- Resource allocation and service provision by governments and non-government organizations should focus on decreasing vulnerability and supporting responses to risks and pathways to enhance resilience. Increasing the use of trees on farms may be an appropriate measure within a wider range of strategies to support agricultural diversification that enhances household resilience to climate change and climate variability. Trade-offs between short-term profit and longer-term investment will have to be considered in the context of climate change.
- Resilience to climate-related stresses is only one characteristic of trees species considered by farmers when selecting tree crops for cultivation, but it can be a critical factor determining tree crop productivity and household resilience. Research documenting the resilience of different tree crops under various climate-related stresses and their productivity under future climate conditions should be supported and communicated in order to increase the knowledge base to inform decisions on tree crop and species selection. Such research should not only focus on the attributes of specific species, but also include consideration of their role within agricultural systems in enhancing or reducing resilience and risk.
- Farmers, local extension workers, and scientists have a growing knowledge base on the response of tree crops to climate change and their vulnerability to climate risks. This knowledge should be captured through systematic multi-stakeholder deliberations and deployed in programmes for agricultural extension, forestry, rural development, and climate adaptation. Increasing access to knowledge about future possible climate change and its impacts on trees and tree crops and developing tools for the screening of tree crops and agroforestry systems for their potential to enhance resilience in the face of predicted climate change is vital. The consideration of suitable tree species and agroforestry systems should also include the consideration of changing water availability, labour shortages, and market prospects.
- Growing concerns about the negative impacts of climate change can be addressed by increasing research on the prevalence of specific pests and disease, their agro-climatic associations, and existing methods for prevention and treatment. Existing prevention and treatment methods should also be screened for possible adverse environmental and human health effects and research on alternative techniques supported. Further research on possible changes in the frequency of pest and disease outbreaks as a result of climate change should be conducted to prevent an increase in future risks and losses.
- Provide opportunities, forums, and incentives for increased information sharing at regional, national, and local levels regarding the effects of different adaptation strategies. Scoping within the region can also identify climate analogue locations (i.e., locations for various future scenarios that are analogous to the climate and changes currently occurring in other areas in the region); these areas have a high probability of being able to learn from experiences in existing analogous areas.
- Awareness, urgency in response, and foresight in planning for climate change in agriculture could be improved across the study areas. Research findings and local experience must be communicated across the greater Himalayan region and translated into awareness of both the implications of climate change on agricultural systems and tools, including agricultural diversification, for adaptation.

**Partners involved and their role (250 characters)**

Kunming Institute of Botany, ICIMOD, local forestry departments were involved in this study for facilitation. Study site leaders ( Sujata Manandhar; Ashiq Ahmad) were res

**Links/Sources for further information**

**Title**

A case study on adaptation and resilience to water related hazards: Analyzing gendered responses to drought in Yunnan Province, China.

**Author**

Su Yufang, Neera Shrestha Pradhan, Suman Bisht, Zou Yahui

**Type**

Social differentiation and gender

**Date (DD/MM/YYYY)**

1/1/2012

**Countries**

China

**Keywords**

gendered responses, drought, Yunnan China

**Photo URL**

**Introduction/Objectives (400 characters)**

Yunnan is one of the most climatically, ecologically, and ethnically diverse region of China. One of our pervious studies focused on the coping mechanisms and adaptive strategies adopted by farmers in three selected mountain communities in Yunnan Province by examining the changing nature of stress and community response over the past five decades. Based on this study, we found out that while men tend to place their trust in technological solutions to the problems dealing with water stress, women are more inclined to change their lifestyle and wise use of resources. In order to adapt to drought situation, men recommended plantation and change in crop species, whereas, women preferred decreasing farming areas and change in cultivation timeline. Therefore, in order to have a better picture of differential and gendered impacts and responses to water stress, it is important to analyze vulnerability and adaptation through the gender lens. The key objective of this case study is to explore the different perceptions, impacts, responses and coping mechanisms as well as adaptive capacity of women and men in relation to agricultural practices and water for domestic use in Yunnan Province of China in the context of long term drought.The case study explored the following research questions:

- What are the gendered differences in perception about the possible causes for water shortage in the area? The Study will outline China’s options for introducing and implementing adaptation policies that advocate women’s participation and permanent role in all decision making related to climate change at all levels and to build an effective alliance for community adaptation. It will also contribute to regional understanding of the role of women as critical agents of change in the region in the context of climate change. It will also help to outline the challenges and opportunities for women in future adaptation processes in the region.
- What are the differential impacts of water shortage on women and men in the region as highlighted in their agricultural practices as well as changes in domestic use of water?
- What are some of the key autonomous and planned coping strategies (short term) as well as adaptation measures (long term) in the region. Is gender a key role in determining the coping strategies/adaptation measures?
- What are the enabling factors that support the shift from short term coping mechanism to adaptation and resilience in dealing with “too little” water as well as the barriers for successful shift?



<p>CASE STUDY</p> <p>2</p>	<p><b>Description of the project,, procedures etc. (1100 characters)</b></p> <p>The study covered 2 of the villages where the previous study of the field work was conducted in Yunnan. The villages are situated at different altitudes and would give a good perspective of different challenges and issues. The following methods were used during the field work.</p> <ul style="list-style-type: none"> <li>• Mapping of water sources</li> <li>• Social mapping (particularly around location to water sources)</li> <li>• In-depth Interviews with individuals: representative sample of 30 individuals from different social groups with equal number of women and men.</li> <li>• Key informant interview <ul style="list-style-type: none"> <li>o Water users group: members of management committee (1 woman; 1man)</li> <li>o Women's Group (1 respondent)</li> <li>o Local Government (1 respondent depending on the relevant department)</li> <li>o Farmers group: member of management committee (1 woman;1man)</li> <li>o Local NGO/CBO (1 respondent)</li> </ul> </li> <li>• Focused Group Discussion: 2 FGD (1 with women's group and one with men's group, each group to have 8-10 participants and will exclude those who are selected for in-depth interviews)</li> </ul> <p><b>Project results (be concrete as possible), innovate findings, novel outcomes and short discussion on the implication of these results (1100 characters)</b></p> <p>Policy: Gender aspects are rarely addressed in climate change policy;  Science: There is little data, research, or case studies clarifying and exemplifying the linkages between gender and climate change;  Implementation: Many people still find it difficult to comprehend the ways in which gender might be a factor in climate change, or how it should be politically addressed.</p> <p><b>Partners involved and their role (250 characters)</b></p> <p>Neera Shrestha Pradhan and Suman Bisht from ICIMOD were involved as part of research team, and working together with Yufang for preparation of the concept note, research plan and tools, data analysis, writing of the research paper and dissemination. And three experienced Research Assistants were from KIB and Yunnan Academy of Social Sciences for data collection under the supervision and guidance of Su Yufang. The Research Assistants also translated and transcribed the interviews and field notes.</p> <p><b>Links/Sources for further information</b></p> <p>in progress</p>																		
<p>CASE STUDY</p> <p>3</p>	<table border="1"> <tr> <td colspan="2"><b>Title</b></td> <td><b>Author</b></td> </tr> <tr> <td colspan="2">Can Integration of Legume Trees Increase Yield Stability in Rainfed Maize Cropping Systems in Southern Africa</td> <td>Sileshi GW, Debusho LK &amp; Akinnifesi FK</td> </tr> <tr> <td><b>Type</b></td> <td><b>Date (DD/MM/YYYY)</b></td> <td><b>Countries</b></td> </tr> <tr> <td>Inter-center collaboration</td> <td>9/10/2012</td> <td>Malawi, Zambia</td> </tr> <tr> <td colspan="2"><b>Keywords</b></td> <td><b>Photo URL</b></td> </tr> <tr> <td colspan="2">Legume trees, maize, yiedl stability</td> <td></td> </tr> </table> <p><b>Introduction/Objectives (400 characters)</b></p> <p>The study used longterm data from sites from Malawi and Zambia and applies various stability analysis models to assess long term behaviour of crop yields under various cropping practices. The objective was to test the hypothesis that maize yields under a maize-fertiliser trees intercropping systems were more stable compared to yields under monoculture maize with fertiliser and monoculture maize without fertiliser.</p> <p>change.</p> <p><b>Description of the project,, procedures etc. (1100 characters)</b></p> <p>Long term trial data for maize cropping systems (non-fertilised, fertilised, and maize-fertiliser trees inter-crop) from sites in Malawi and Zambia were gathered and analysed using various stability analysis models.</p> <p><b>Project results (be concrete as possible), innovate findings, novel outcomes and short discussion on the implication of these results (1100 characters)</b></p> <p>The results show that maize inter-cropped with fertiliser trees produces high yields that are sustained over a long period of time. While fertiliser does increase crop yields, over the long term, yields tend to fall even with continued application of fertiliser. The implications is that production systems like agroforestry that can supply plant nutrients and organic matter lead to more resilient cropping systems and can help reduce farmers' vulnerability to climate change.</p> <p><b>Partners involved and their role (250 characters)</b></p> <p>Irish Aid (financial support)</p> <p><b>Links/Sources for further information</b></p>	<b>Title</b>		<b>Author</b>	Can Integration of Legume Trees Increase Yield Stability in Rainfed Maize Cropping Systems in Southern Africa		Sileshi GW, Debusho LK & Akinnifesi FK	<b>Type</b>	<b>Date (DD/MM/YYYY)</b>	<b>Countries</b>	Inter-center collaboration	9/10/2012	Malawi, Zambia	<b>Keywords</b>		<b>Photo URL</b>	Legume trees, maize, yiedl stability		
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**Introduction/Objectives (400 characters)**

Developing countries are the most vulnerable (IPCC, 2000a) to the impacts of climate change. In Southeast Asia, many upland communities are highly vulnerable due to their limited resources and living in very fragile mountain environments. This adversely affects the socio-economic sectors, including agriculture, forest and water resources and health system. The Philippines and Vietnam belong to the top ten countries most affected by climatic extreme events worldwide (Germanwatch, Climate Risk Index, 2009). The Philippines lies in the typhoon belt with an average of 20 typhoons passing through its boundaries annually, killing hundreds and destroying immense property. For example, in October 2010 typhoon Megi damages are worth US\$ 44 million of agricultural products and facilities while typhoon Ketsana costs \$130 million damages in the agriculture sector in 2009. The latter typhoon also caused \$800 million of damages to Vietnam. Future climate change will likely increase both the number and intensity of weather extremes such as drought, flooding and storms.

Smallholder farmers are among the most vulnerable sector of society to weather extremes. Through decades of experience, they have evolved ways of adapting to climate extreme events. An important adaptation and coping strategy of these communities is the reliance on tree-based farming systems (i.e. agroforestry) that was proven to be resilient through various climatic conditions. According to Verchot et al. (2007), the increased resilience and productivity of this system is directly related to the adaptive capacity of the farmers enabling them to respond with climate risks.

It is therefore necessary to raise the resilience and adaptive capacities of smallholder farmers in order to sustain and improve livelihoods and reduce the risks of falling deeper into poverty owing to current and future weather extremes. However, there is lack of research and documented information focusing on the important roles of trees and tree-based farming systems within the framework of climate change adaptation, vulnerability and resilience. These include other goods and services provided by trees and tree-based farming systems based on the Millennium Ecosystem Assessment (2005) and other classification systems developed.

This project is designed to address the lack of scientific research on the role of trees in the assessment of climate change impacts, adaptation strategies and vulnerability of local farming communities in the Philippines and Vietnam. In the process, it is expected to assess sustainable land management options such as agroforestry systems for adaptation to extreme climate events by smallholder farmers.

**Objectives**

1. Assess the impacts of climate change, current vulnerability and adaptation strategies of farmers to extreme events in the watershed areas;
2. Identify the different climate variability and extremes experienced in the watershed areas;
3. Document the potential role of trees and indigenous agroforestry systems that farmers use in areas prone to extreme climatic events;
4. Analyze the strengths and weaknesses of trees and agroforestry systems in areas prone to extreme climatic events; and
5. Design agroforestry systems focusing on the role of trees with improved capacity to cope with extreme climatic events.

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

The project with 3-year duration in two country sites (Philippines and Vietnam) is expected to deliver a number of outputs/deliverables for the following work packages (WP): assessment of impacts, vulnerability and adaptation of smallholder farmers to extreme events (WP1); training of smallholder farmers in sustainable land use systems to build resilience to extreme weather events (WP2); and assisting government units in land use planning (WP3). Among which are ground-breaking/orientation workshops with policy makers, various stakeholders and local community; vulnerability and adaptation assessment of smallholder farmers to climate change and extreme events; and training needs assessment workshop in designing sustainable agroforestry or land management systems. It also required capacity building on the part of the project team members and other technical assistants who implemented the project. Hence, short workshops cum trainings to build their capacity were organized to address some skill gaps. TNA questionnaires were developed and administered through focus group discussion workshop (Peñablanca/Philippines and Vietnam) and household survey interviews (Ligao City/Philippines).

The ultimate aim of this project is to develop resilient farming systems adaptable to extreme climatic events by first understanding their vulnerability to the said stressors. Hence, the project adapted a conceptual framework used by the Asian Development Bank or ADB (2009) for building a climate-resilient agriculture sector. This underscores the centrality of resilience in understanding the vulnerability of agriculture to climate change. The Adaptation Policy Framework (APF) process was employed in assessing the impacts, vulnerability, adaptation and resilience of smallholder farmers to climate variability and extreme events, and eventually in designing a land management system that is resilient to climate variability and extremes. The project also adapted the Millennium Ecosystem Assessment (2005) framework to determine the services provided by trees among smallholder farmers relevant to their adaptation to extreme climate conditions. Extreme climate events such as typhoons, heavy rainfall, and drought pose risks and threats to farming practices, cropping cycles, water availability, among others. Therefore, whatever means or responses that can assist the farms and the farm households to effectively adapt to these extreme events particularly that of the role of trees, would aid in designing sustainable land management systems.

Other methodologies included climate projections using the SimCLIM modeling system from an Asia-Pacific Network for Global Change Research (APN) – funded project (Pulhin et al. 2010) which was used to characterize future climate-related risks and to analyze future vulnerability and resilience (Ligao City). Land use zoning was also performed to ensure the watershed is used in the best way possible that ends in the attainment of the protection and production goals of management. Under the Vietnam study, the following participatory tools were used: (i) problem tree on what are the challenges for agriculture and forestry livelihoods in your village, (ii) climate and farming calendar, (iii) village timeline and memorable extreme weather events, (iv) matrix-ranking crops and trees suitability against each extreme weather event, and (v) coping and adaptation strategies towards respective extreme weather event.

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

**WP1:** Assessment of impacts, vulnerability and adaptation of small holders to extreme events (workshops with various stakeholders)

Peñablanca, Cagayan, Philippines – 2 workshops : one ground-breaking workshop with policy and decision makers and one as focus group discussion (FGD) among six rural villages. The policy/decision makers workshop generated interest especially with the current disasters and risks brought about by climate extreme events. Collaborative future partnerships on other

	<p>climate change projects were discussed (PhilCCAP, World Bank funded). It was also recommended that the CRP project undergo the Protected Area Management Board (PAMB) review for projects to be implemented in the protected area.</p> <p>Ligao City, Albay, Philippines - the CFNR-UPLB team conducted an orientation workshop with various stakeholders. Pulhin’s methods used in the Assessment of Impacts and Adaptation to Climate Change (AIACC) and Advancing Capacity for Climate Change Adaptation (ACCCA) were adapted and modified as needed, in assessing the current impacts, vulnerability and adaptation of smallholder farmers and farms to climate extremes. Participatory rural appraisal (PRA) techniques were employed, namely, focus group discussion, timeline analysis and community mapping. Specific trees that were useful during extreme climate events were identified in the analysis of the role of trees in adaptation and building resilience. Separate “workshops/meetings” were conducted for communities living in the upland, lowland and coastal areas, as well as among local government units and other relevant agencies’</p> <p>Vietnam – focus group discussions (FGD) were held with 18 villages, district and commune leaders. These concluded a sincere interest in trying to mainstream climate change adaptation into LUP and socio-economic development plans (SEDP). Two consultation workshops on mainstreaming climate change into the LUP were conducted with the province, district, commune and village level leaders. The FGD was presented as feedback report which included a short introduction on climate smart agriculture. The action plan for 2013 was drafted by the participants during the workshops proposing a list of activities for the coming two years. The technical working network on mainstreaming climate change was also formed with non-government organisations (NGOs) and government organisations (GOs).</p> <p><u>WP2</u> : Training of small holder farmers in sustainable land use systems to build resilience to extreme weather events (workshops on training needs assessment with stakeholders)</p> <p>Peñablanca, Cagayan, Philippines – 2 training needs assessment workshops were conducted in collaboration with the Cagayan Valley People’s Programme on Environment and Development (CAVPPED). The first workshop (10 participants) was carried out for policy/decision makers while the second (63 participants) was for smallholder farmers from among the six villages. In terms of knowledge and skills level, everyone indicated a relatively high level in basic knowledge in climate change/adaptation, basic knowledge in sustainable land use and agroforestry systems. The following topics were rated highest as a necessity in performing the functions: (i) basic knowledge in climate change/adaptation; (ii) choice of climate resilient species (crops and trees) and; (iii) tools for assessing and monitoring impacts of climate change/extremes. The results of the second workshop showed that there is high level of awareness on effects of deforestation, basic knowledge in climate change/adaptation and deforestation link with climate change/extreme events. In terms of farming system and practices/skills by the farmers, among the top included home garden, vegetable garden and firewood/fuelwood production. The topics which have a high rate in farm decision making included disaster risk reduction and management and reforestation.</p> <p>Ligao City, Albay, Philippines - in preparation for the training of smallholder farmers in sustainable land use systems, a workshop on training needs assessment (TNA) with various stakeholders and communities was held as well during the PRA meetings. Their training needs on how to have resilient land use/farming systems were discussed briefly, where participants were asked about their thoughts on what they consider as sustainable land management system, whether climate extremes are integrated in land-use planning or designing their farms, and the capacity enhancement that they need to achieve sustainable land management system.</p> <p>A one-page TNA questionnaire was also developed and administered during the household survey to the same ~300 selected farmers in the three barangays, and the results are still being encoded and analysed.</p> <p>Vietnam – Few officials knew any examples to draw from as to how mainstream climate change into the plans in practise, and the awareness of climate change adaptation options is generally low, especially at commune and village levels. Only one leader had seen a climate change scenario for their district (in 2009 for Ha Tinh).</p> <p><u>WP3</u> : Assisting local government units in land use planning (workshops with national and local government partners)</p> <p>Peñablanca, Cagayan, Philippines – the project was presented to the Protected Area Management Board and was granted a resolution for implementation. Collaborative partnership in</p> <p><b>Partners involved and their role (250 characters)</b></p> <p>University of the Philippines Los Baños (UPLB) – project implementer of the study site in Ligao City, Albay province in the Philippines</p> <p>World Agroforestry Centre (ICRAF) Vietnam – project implementer of the study sites in the northern mountainous region and the north central coastal parts of Vietnam</p> <p>Center for Cagayan Valley Programme on Environment and Development (CCVPED) – collaborative research partner of ICRAF Philippines of the study site in Peñablanca, Cagayan</p> <p>Cagayan Valley People’s Programme on Environment and Development (CAVPPED) – collaborative NGO partner of ICRAF Philippines of the study site in Peñablanca, Cagayan</p> <p>Local government unit (LGU) of Peñablanca – collaborative LGU partner of ICRAF Philippines of the study site in Peñablanca, Cagayan</p> <p>Local government unit (LGU) of Ligao City – collaborative LGU partner of UPLB study site in Ligao City, Albay, Philippines</p> <p>Department of Environment and Natural Resources (DENR) – government partner of ICRAF Philippines of the study site in Peñablanca, Cagayan</p> <p>Department of Agriculture and Rural Development (DARD) – government partner of ICRAF Vietnam study sites</p> <p>Department of Natural Resources and the Environment (DONRE) – government partner of ICRAF Vietnam study sites</p> <p>Farmer’s Association in Ha Tinh province</p> <p><b>Links/Sources for further information</b></p>																																															
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CASE STUDY  
6

<b>Title</b>		<b>Author</b>	
A protocol for measurement and monitoring soil carbon stocks in Tropical landscapes		Ermias Aynekulu, Keith Shepherd, Richard Coe, Markus Walsh, Tor-G. Vagen, Leigh Winowicki, Jiehua Chen and Andrew Sila	
<b>Type</b>	<b>Date (DD/MM/YYYY)</b>	<b>Countries</b>	
Inter-center collaboration	24/01/2-13	Kenya	
<b>Keywords</b>		<b>Photo URL</b>	
Soil carbon, Carbon sequestration, climate change mitigation			
<b>Introduction/Objectives (400 characters)</b>			
Measuring, reporting and verification (MRV) of climate change mitigation actions through Nationally Appropriate Mitigation Actions (NAMAs) is one major outcome of the Bali convention. A robust and cost-effective method of measuring carbon stocks facilitate the MRV of NAMAs .The aim of the protocol is to prove a practical and cost-effective methods for measurement and monitoring of soil carbon stocks.			
<b>Description of the project,, procedures etc. (1100 characters)</b>			
The protocol has been developed over a number of years through various projects and is currently being refined in the context of African Soil Information Service (AfsIS)			
<b>Project results (be concrete as possible), innovate findings, novel outcomes and short discussion on the implication of these results (1100 characters)</b>			
A protocol for mearsuring carbon protocol and a web-based soil carbon calculator			
<b>Partners involved and their role (250 characters)</b>			
Michigan State University- develop a protocol for measurement and monitoring above ground carbon stocks			
<b>Links/Sources for further information</b>			
<a href="http://www.unep.org/climatechange/carbon-benefits/cbp_pim">www.unep.org/climatechange/carbon-benefits/cbp_pim</a>			

## 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 Center Led Activities World Agroforestry Centre (ICRAF)

OUTCOME 1	<p><b>What is the outcome of the research (use of research results by non-research partners)?</b></p> <p>The research has improved the understanding the role of forests, trees and agroforestry in local adaptation to climate change, as well as the understanding of the policy context in which tree crops are used as an agricultural dimension to achieve more resilient farming communities. Its results have been presented at different conferences and have drawn a lot of attentions of government officers, NGOs, local practitioners as well as other stakeholders.</p> <p><b>What outputs produced in the three preceding years resulted in that outcome?</b></p> <p>Policy briefs, project reports, publication and presentation have resulted in that outcome</p> <p><b>What partners helped in producing the outcome?</b></p> <p>Baoshan Foestry Department, Kunming Institute of Botany, ICIMOD, University Of Yamanashi</p> <p><b>Who used the output?</b></p> <p>government people at different levels, local practitioners</p> <p><b>How was the output used?</b></p> <p>It has been presented at diffent conferences, and shared with relevant agencies.</p> <p><b>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.</b></p> <p>We were approached by some governemnt agencies to work together with them on this topic.</p>
OUTCOME 2	<p><b>What is the outcome of the research (use of research results by non-research partners)?</b></p> <p>Improved and new knowledge on how alternative policy and program options for carbon sequestration and energy production in low productivity collective forests in China. The research results have been presented at different conferences and have drawn a lot of attentions of government officers, NGOs, local practitioners as well as other stakeholders.</p> <p><b>What outputs produced in the three preceding years resulted in that outcome?</b></p> <p>Policy briefs, project reports, publication and presentation have resulted in that outcome</p> <p><b>What partners helped in producing the outcome?</b></p> <p>Chinese Academy of Sciences, Kunming Institute of Botany</p> <p><b>Who used the output?</b></p> <p>Chinese Center Government, Yunnan Provincial government</p> <p><b>How was the output used?</b></p> <p>It has been sent to relevant agencies at Chinese Center government, and used as a reference for goveronmental officers</p>

	<p><b>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.</b></p> <p>The research results have been recognized as one of the very important issues and findings, and the key messages have been send to Chinese Center government through CAS special direct channel, which would send all information to relevant government officers/decision makers and then have impacts on national policies.</p>
OUTCOME 3	<p><b>What is the outcome of the research (use of research results by non-research partners)?</b></p> <p>Improved knowledge on monitoring vegetation dynamics and their responses to climate change on the Tibetan Plateau, China. The research results have been shared with relevant local government agencies and communities and drawn some attentions from Chinese National Science foundation.</p> <p><b>What outputs produced in the three preceding years resulted in that outcome?</b></p> <p>project report, papers and working toghether with local people have resulted in that outcome</p> <p><b>What partners helped in producing the outcome?</b></p> <p>Local communities and relevant agencies, as well as Kunming Institute of Botany, Chinese National Science Foundation</p> <p><b>Who used the output?</b></p> <p>Local livestock department, local communities, and National Science Foundation</p> <p><b>How was the output used?</b></p> <p>The research results have been presented to stakeholders</p> <p><b>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.</b></p> <p>The project was accessed as one of the good projects in 2012 by the Chinese National Foundation.</p>
OUTCOME 4	<p><b>What is the outcome of the research (use of research results by non-research partners)?</b></p> <p>Peñablanca, Cagayan – the results from the focus group discussion (FGD) were reported to the Protected Area Management Board (PAMB) which generated interest from among the LGU members to incorporate the results in updating the comprehensive land use plan (CLUP). The PAMB also opined for collaborative partnership between the Department of Environment and Natural Resources (DENR) and ICRAF since the World Bank-funded Philippine Climate Change Adaptation Project (PhilCCAP) will be implemented soon by DENR in the protected area. A Technical Working Group will be formed and ICRAF will be invited to become part of the group. It is also advised that the FGD and other research results must be presented to the Municipality Mayor, town councillors and local officers in February 2013. Ligao City, Albay - the utility of the project outputs to the local government unit, particularly in land use planning and disaster risk reduction/climate change adaptation, was emphasized. The City Mayor highlighted the achievements of the projects in partnership with the academe. Ligao City aims to update their Comprehensive Land Use Plan soon, to incorporate climate-related hazards, but capacitation may be needed on how to address the latter. It is difficult for farmers to decide on a particular training topic as they opined that they still need more in-depth knowledge on climate change. However, they were thankful of what they have learned about extreme events and climate change from the FGDs, and were eager to learn more on how these would affect them. Vietnam - the initial discussion during the stakeholder workshop concluded a sincere interest in trying to mainstream climate change adaptation into the land use plans (LUP) and socio-economic development plans (SEDP), which in fact is supported by the government. Participants brainstormed what activities they would like to carry out within the framework of the project. The information generated from the FGD was reported back to the district leaders as feedback. Training needs and action plan for 2013-14 were identified by the participants in the workshops carried out in the two provinces.</p> <p><b>What outputs produced in the three preceding years resulted in that outcome?</b></p> <p>Ground breaking/levelling-off/ workshops with various stakeholders/smallholder farmers  Training needs assessment (TNA) workshops (including development of tools/questionnaire)  Focus group discussion (FGD) workshops on the assessment of impacts, vulnerability and adaptation of smallholder farmers to extreme events  Land use planning workshops with local government units, government planners and other policy making bodies  Capacity building activities of project team and staff  Action plan of activities for 2013-14 (Vietnam case study)</p> <p><b>What partners helped in producing the outcome?</b></p> <p>Academic institutions/research organisations  International and local non-government organisations (NGOs)  People's organisation (POs)  Government departments  Local smallholders/community  Local government units (LGUs)</p> <p><b>Who used the output?</b></p> <p>Local government units (district and commune leaders for Vietnam)  Protected Area Management Board (Peñablanca)  Non-government organisations (NGOs)  Government departments</p>

	<p><b>How was the output used?</b></p> <p>The research outputs are intended as an input for land use planning, disaster risk reduction and management, climate change adaptation strategies including socio-economic development plans (Vietnam). In the Philippines, the case studies of Peñablanca and Ligao City will be used to update the existing comprehensive land use plan (CLUP) of the local government units which will be targeted soon. On the part of PAMB in Peñablanca, the research output will be useful towards the implementation of a World Bank-funded project on climate change adaptation, PhilCCAP. In Vietnam, the research output will be useful in mainstreaming climate change into the socio-economic plans of the districts together with other stakeholders (NGOs) who are also implementing other climate change projects.</p> <p><b>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</b></p> <p>Progress reports detailing the activities implemented will serve as evidence for the outcome. Since the project is at its initial year stage, the outcome will be realised only during the 2nd-3rd year of the project period. Work packages for the 2nd year (2013) will include land use plans, climate adaptation plans and other socio-economic development plans and tool books (Vietnam) by local government units incorporating sustainable land management systems adapt to extreme climatic events.</p>
OUTCOME 5	<p><b>What is the outcome of the research (use of research results by non-research partners)?</b></p> <p>The outcome is capacity-building and knowledge strengthening of policy-makers and practitioners at national level, which will enable that strategic issues of relevance to REDD are taken into account in REDD+ and Nationally Appropriate Mitigation Actions.</p> <p><b>What outputs produced in the three preceding years resulted in that outcome?</b></p> <p>Critical outputs are the several workshop and trainings on MRV, carbon monitoring, tools for REDD+, Opportunity costs, LUWES, etc conducted over the 3 years and which have been widely attended by relevant stakeholders at national and sub-national levels.</p> <p><b>What partners helped in producing the outcome?</b></p> <p>Vietnam: REDD national network of Vietnam, coordinated at the General Department of Forestry, Ministry of Agriculture and Rural Development – MARD; and General Department of Land Administration (GDLA) at the Ministry of Natural Resources and Environment (MONRE). NIAP- National Institute for Agriculture Planning and Projection; and FIPI -Forest Inventory and Planning Institute, TUAJF -Thai Nguyen University of Agriculture and Forestry, and FSIV- Forest Science Institute of Vietnam.</p> <p>Peru: Ministry of Environment (MINAM), Conservation International, WWF, National Institute for Agrarian Innovation (INIA), and Peruvian Amazon Research Institute (IIAP);</p> <p>Cameroon: Institut de Recherche Agricole pour le Développement (IRAD); University of Yaoundé I; National REDD Committee and Climate Change Focal Point at the Ministry of Environment and the Protection of Nature.</p> <p>Indonesia: Ministry of Forestry, National Planning Agency, National Task Force on REDD implementation, RRI, CIFOR</p> <p><b>Who used the output?</b></p> <p>National and sub-national (regional, local) stakeholders ranging from policy-makers to practitioners and technical staffs.</p> <p><b>How was the output used?</b></p> <p>The project was grounded in strong country level partnerships especially working in collaboration with the national REDD planning processes and partners. This will enable sustainability of the findings and lessons, and ensure that the activity contributes to the more strategic country and global level objective of emission reductions.</p> <p><b>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</b></p>
OUTCOME 6	<p><b>What is the outcome of the research (use of research results by non-research partners)?</b></p> <p>Robust and cost effective soil carbon stock measuring and monitoring possible</p> <p><b>What outputs produced in the three preceding years resulted in that outcome?</b></p> <p>Web-based soil carbon stock measuring and monitoring protocol</p> <p><b>What partners helped in producing the outcome?</b></p> <p>Earth Institute, University of Columbia, UNEP, GEF</p> <p><b>Who used the output?</b></p> <p>National partners (Kenya Agricultural Research Institute Kenya Forestry Research Institute), UNEP, GEF, ICRAF staff, students</p> <p><b>How was the output used?</b></p> <p>The protocol has been used in quantifying SOC stocks in carbon projects (e.g. two ongoing PhD works in Burkina Faso and Ethiopia)</p> <p><b>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</b></p> <p>Not available</p>

# 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.

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## CCAFS Center Led Activities World Agroforestry Centre (ICRAF)

### Western Africa:

ICRAF is learning which tree species and functions are preferred by men and women. Men and women do not always have the same priority for tree species. Therefore, the project identified priority trees that satisfy the needs of men (e.g. for construction and soil-fertility improvement) and priority trees that satisfy the needs of women (e.g. for food, medicine and fuel). The men and women decide which species they wish to establish and multiply on their farms, homegardens, etc. and receive training in all aspects of tree domestication. This is helping ICRAF to develop participatory tree domestication programs (and rural enterprises) that benefit both men and women.

### South East Asia:

In 2012, ICRAF published a case study on adaptation and resilience to water related hazards: Analyzing gendered responses to drought in Yunnan Province, China. The preliminary analysis results have been presented at the international conference-“Bhutan+10: Gender and Sustainable Mountain Development in a Changing World”. Thimphu, Bhutan 15–19 October 2012, which have drawn some attentions by participants from governments, NGOs and research institutes. A research paper is under development.

In Vietnam and Philippines, the sampling respondents were selected using the watershed/landscape approach or based on gradient from upland going to the lowlands and reaching the coastal community. Post stratification by gender was also done to investigate differences in responses during the household survey interviews.

### Southern Africa:

Gender was tracked in measuring the impact of agroforestry on smallholder's yields, so that any difference in impact on female and male participants could be assessed

### East Africa:

With the biofuel project, data on male and female sellers and users of different fuels have been collected and analyzed.

With the MICCA project, the GHG and C stock measurement activities work through gender-differentiated outcomes though increasing scientific capacity of women in ICRAF's target areas. ICRAF recruits and trains women whenever possible to work both in the field and in the laboratory on greenhouse gas measurements. Currently ICRAF has 4 female MS students at Maseno University in Western Kenya.