CGIAR Research Program on Forests, Trees and Agroforestry

Annual Report 2011

CGIAR Research Program on Forests, Trees and Agroforestry

CIFOR

World Agroforestry Centre
TRANSFORMING LIVES AND LANDSCAPES

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Photo by Daniel Tiveau/CIFOR
Women collecting Piliostigma reticulatum pods they will later sell as high quality animal feed. These pods are a good example of an underutilised resource in the savanna woodlands of Burkina Faso.

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1. Key messages

1.1 Introduction

After a year-long consultative development process, the Consortium Research Program 6 "Forests, Trees and Agroforestry" (CRP6) was approved by the Fund Council in April 2011. Implementation officially began in July 2011, with immediate priorities including recruitment of the CRP6 Director, the formation of research Component Implementation Teams and cross-cutting themes comprised of senior scientists from all four participating centers, and supporting the integration of future research agendas under the CRP6 through the elaboration of a three-year rolling Operational Plan.

To this end, the newly formed CRP6 Management Support Unit facilitated collaborative meetings of each of the five Component Implementation Teams to build a shared foundation of knowledge and understanding of the CRP6's long-term impact objectives among staff from the four participating Centres. These meetings proved particularly useful in translating the CRP6 proposal into an actionable multi-Centre research plan, which was developed at a joint meeting of Component Coordinators and cross-cutting theme focal points in August 2011. Existing and potential new partners were encouraged to contribute to the Operational Plan in the lead up to the second CRP6 Steering Committee meeting in September 2011. The CRP6 Steering Committee focused its two meetings in 2011 on establishing operational norms between the four participating Centres.

Agreement (PIA) was only completed in October 2011, and Program Participant Agreements (PPAs) between CIFOR and participating Centres were signed between November 2011 and January 2012. Due to an official "funding" start in July 2011 (with half of 2011 under "stability funding") confirmed when signing the PIA and an Operational Plan developed for 2012-2014, activities in 2011 - based on existing approved Medium Term Plans - have been retrofitted into the structure of the operational plan. Commitments to deliver on a range of existing approved MTP projects in the year 2011 implied a limited room to maneuver on integrative science for the six months of CRP6 operation in 2011. This report contains information on Centres' existing 2011 research that corresponds to the objectives set out in the 2012-2014 Operational Plan. Additionally, progress towards objectives reported in this document integrate research carried out prior to the July 2011 CRP6 start date.

Notwithstanding these considerations, the CRP6 made substantial progress in achieving research outputs and outcomes in 2011. A range of outcome stories are provided in Annex 1, supplemented by Component-level progress narratives in Annex 2, detailed progress reporting tables in Annex 3, and a list of research publications in Annex 4.

Further information on the CRP6, including the approved proposal, 2012-14 Operational Plan and other key documents, can be accessed from: http://www.cifor.org/crp6/.

1.2 Research progress highlights

Notable CRP6 research highlights for the period July-December 2011 include a range of outcomes across the CRP6 Components, which contribute to the impact pathways of respective Components, as well as contributing to the CRP6's overall impacts. Full outcome stories that supplement the summaries provided below can be found at Annex 1.

Component 2 Management and conservation of forest and tree resources:

- Bioversity's UNEP-GEF supported project on In-situ / On-Farm Conservation and Use of Agricultural Biodiversity (Horticultural Crops and Wild Fruit Species) in Central Asia project informs policy, creates new knowledge, and supports the development of nurseries.

Component 3 Landscape management for environmental services, biodiversity conservation and livelihoods:

- The Indonesian Ministry of Forestry agreed to expand the use of various forms of land tenure from the current 0.1 to 5 Mha by 2015.
- The Convention on Biodiversity (CBD) endorsed CIFOR and partners' Landscape Approach.
- The Government of Kenya explored how the Water Act can be reconciled with performance-based payments for ecosystem services.

Component 4 Climate change adaptation and mitigation:

A proposed approach to setting reference levels (RLs) and reference emissions levels (RELs) was adopted by the UNFCCC at the 2011 climate talks in Durban, South Africa.

Component 5 Impacts of trade and investment on forests and people:

- Authorities use results of CIFOR study to better understand and manage impacts of development in Papua Province, Indonesia.

2. Baseline

The impacts that CRP6 aims to contribute to in support of the CGIAR System Level Outcomes are ambitious. For example, research under CRP6 will target 46% of global forest cover, 1.3 billion hectares of closed forests and 500 million hectares of open and fragmented forests, and contribute to between 0.5 and 1.7 million hectares of forest being saved annually from deforestation; ecologically and socially sustainable production and management practices being adopted in 9.3–27.8 million hectares of managed forests in target regions; and carbon emissions being reduced by between 0.16 and 0.68 Gt CO_2 yr^{-1}. These and other CRP-level impacts have been used to construct Component-level impact pathways which in turn have been used to produce the 2012-14 Operational Plan. Detailed progress markers against the Operational Plan are provided in Annex 3.

It is important to note that the CRP6 is not a standalone project, but rather the integration of numerous ongoing and planned projects across four participating CGIAR Centres and numerous partners. Many of these projects contain provisions for the use or establishment of baselines, as well as implementation of monitoring plans.

Examples of major existing datasets that will form elements of the overall CRP6 set of baselines include the:

- Poverty and Environment Network (http://www.cifor.org/pen),
- Global Comparative Study of REDD+ (http://www.forestsclimatechange.org/global-comparative-study-on-redd.html),
- Observatoire des Forêts d'Afrique Centrale (http://www.observatoire-comifac.net/)

The Network for the Study of Amazonian Livelihoods and Environment (RAVA) – Survey on livelihood and dependency on natural resources of communities in the forest margin in 7 countries Latin America. Data: http://hdl.handle.net/1902.1/17457 Website: http://www.worldagroforestry.org/latinamerica/content/rava-2007-2010

Evergreen agriculture - Baseline study on 2000 household in 4 countries in East and Southern Africa assessing agricultural production systems, utilization of trees and livelihood. Data: http://hdl.handle.net/1902.1/18063 Website: http://www.worldagroforestry.org/evergreen_agriculture

African Soil Information System (AfSIS) – Land health maps for the whole of Africa. Data: http://www.africasoils.net/data/data-portal-home1

The ASB Partnership for the Tropical Forest Margins – Several studies on reducing emissions through land use; REALU (Reducing Emissions from All Land Uses) and REDD-ALERT(Reducing Emissions from Deforestation and Degradation through Alternative Land-uses in Rainforests of the Tropics). See: http://www.asb.cgiar.org/Ourwork

Pro poor Rewards for Environmental Services in Africa (PRESA) – Research project by ICRAF to improve livelihoods by enhancing ecosystem services. PRESA works on eight sites in the highlands of East and West Africa in collaboration with partners to generate and share information that supports payments for ecosystems. See: http://presa.worldagroforestry.org

Useful Tree Species for Africa – Tool that enables you to select useful tree species for planting anywhere in Africa it uses satellite imagery to assist in agroforestry planning. See: http://www.worldagroforestrycentre.org/our_products/databases/useful-tree-species-africa

Integrating Livelihoods and Multiple Biodiversity Values in Landscape Mosaics (Landscape Mosaics) – Research on socio-economic, governance and biophysical characteristics and dynamics of five study landscapes and the interactions between these factors. Conducted in 5 countries in Africa and Southeast

Asia. Data: http://hdl.handle.net/1902.1/17580 Website: http://ongoing-research.cgiar.org/factsheets/cifor-icraf-biodiversity-platform-research-on-biodiversity-conservation-on-a-landscape-level/

Such baselines and additional ones developed in liaison with the Sentinel Landscapes complemented with existing global baselines (e.g. FAO Global Forest Assessments) will be utilized in the context of CRP6, as detailed in the Monitoring, Evaluation and Impact Assessment (MEIA) strategy currently under development. Key steps in the draft MEIA strategy include explicit impact pathway design, priority setting, performance monitoring, evaluation, and impact assessment.

3. Progress in Producing Outputs and Outcomes

Progress across the CRP6's five Components in producing outputs and outcomes is summarized in the narratives and detailed tables of Component-level outcomes and outputs (Annex 2 and 3). The very great majority of outputs planned for in the MTP of the respective Centers have been produced including an impressive array of publications (Annex 4).

Key progress on cross-cutting themes (gender, sentinel landscapes, communications, and monitoring, evaluation and impact assessment) follows Component-level progress descriptions.

Component 1 Smallholder production systems and markets

Theme 1.1: Enhancing productivity and sustainability of smallholder forestry and agroforestry practices, including food security and nutritional benefits, through better management of production systems

- Higher quality *Allanblackia spp*., *Dacryodes mycrophylla* and *D. edulis* germplasm developed in nurseries and on farms in Tanzania and Cameroon, as well as extension materials (particularly germination protocols) that are in use to promote multiplication of quality germplasm locally.
- Developing tree species and management options for promoting tree diversity on coffee and cocoa farms in East and West Africa and for controlling sedimentation in the Lake Tanganyika basin.
- A manual to increase the productivity of smallholder teak plantations through improved silviculture is now in use regionally in Indonesia.

Theme 1.2: Increasing income generation and market integration for smallholders through utilisation of forestry and agroforestry options

- Case study research identified market constraints and opportunities for important NTFPs from Ethiopian dry forests, with shared experiences improving women's groups' understanding of forest product commodity chains.
- Lessons learnt from the extensive Agroforestry for Food Security Programme in Malawi has led to design of a second phase where structured learning is built into refinement of extension approaches used, in response to their effectiveness.

Theme 1.3: Improving policies and institutions to enhance social assets and secure rights to forests, trees and land

- ICRAF, FAO, CIRAD and CATIE jointly reviewed literature, commission 17 national case studies, and interviewed dozens of key informants to identify key policy constraints for agroforestry and examples of best practices around the world.

Component 2 Management and conservation of forest and tree resources

Theme 2.1: Understanding the threats to populations of important tree species and formulating effective, efficient and equitable genetic conservation strategies

- The evaluation of tree species important sources of food during the hunger period, when staple crop harvests have run out, in five countries in West Africa revealed 300 important to food security to be prioritized for further study.
- The development of a prototype of an atlas including information about the conservation status and threats to tree species in Latin America, another tool for integrating information

to clarify which populations of trees require immediate conservation action, and where.

- The definition of in situ conservation areas to integrating genetic diversity parameters for target species into forest management guidelines, and developing community-based management guidelines and policy incentives for farmer management and multiplication of both domesticated and wild fruit trees of valuable species, on farm and in the wild.

Theme 2.2: Conserving and characterising high quality germplasm of high value tree species in the forest to farm gradient

- An ethnobotanical assessment was carried out on the uses of native tree resources in the Peruvian Amazon and evaluation of their potential as agroforestry species and quantitative phenotypic characterization methods for indigenous fruit trees.
- The development of ex situ conservation guidelines of two endangered agroforestry species with recalcitrant seeds, *Warburgia ugandensis* and *V. glandulosa*, based on breeding seedling and clonal seed orchards.
- The mapping of provenance boundaries within the ecological suitability domain of more than 400 species in east Africa was carried out to inform strategies for the establishment of live (field) genebanks and community based genebanks.

Theme 2.3: Developing improved silvicultural and monitoring practices for multiple use management of forest ecosystems

- A report put out by CIFOR and national partner Sociedad Peruana de Derecho Ambiental (SPDA) concluded that Brazil nut concessions established over one decade ago covering more than one million hectares of forest have become de facto timber concessions because of several vacuums that make it very easy to harvest timber with minimal legal and technical basis. The report raised local and national awareness about the need to both revise and harmonise rules and regulations to better integrate the harvesting of both timber and Brazil nuts in small forest management units, including the strengthening of community participation. The results of the report are being incorporated through a participatory process at the national level and policy change is expected to occur.
- Household surveys, focus groups and ecological studies revealed that destructive honey hunting was threatening key species and thus potentially undermining livelihood options for local communities in the Niassa Reserve of Mozambique, the largest area of well conserved Miombo woodlands in Africa.

Theme 2.4: Developing tools and methods to resolve conflicts about distribution of benefits and resource rights in the use of forest and tree resources

- A global literature review of community-concession interactions has been completed, contributing to understanding of factors that enhance equitable interactions and enhance conflict resolution and clarifying knowledge gaps.

Component 3 Landscape management for environmental services, biodiversity conservation and livelihoods

Theme 3.1: Understanding patterns and drivers of forest (tree cover) transition in decline and restoration phases

- A recent academic review of 'push' and 'pull' factors in historical forest transitions at national scale was publicized as part of the ASB Policy Brief series. An earlier brief on 'Emissions Embodied in Trade' that relates footprints to commodity trade and forest transitions got into the top 10 on environmental news items in the EU policy arena.
- A typology at district/province level of 'stages of tree cover transition' is now available for Indonesia and in progress for other areas – it allows stratification of policy 'pilot' approaches, as well as research efforts aimed at extrapolations to national scale.

Theme 3.2: Understanding consequences of tree cover transition for livelihoods, environmental goods and services, and adaptive policy

- Appreciation of landscape resources is influenced by gender interacting with cultural norms. Some

indications of the gender specificity of economic use of the Sugarpalm (*Arenga pinnata*), a semi-domesticated forest resource in villages in the forest margin of North Sumatra were published.
- The Ministry of Forestry of Indonesia shifted position on the issues of land use rights for communities and villages within the 'forest estate' and committed to significant scaling up of the use of legal tenurial instruments.

Theme 3.3: Learning landscapes where innovative response and policy options are being tested

- On the basis of experience in one of the Pro-poor Rewards for Environmental Services in Africa (PRESA) sites, the Government of Kenya has initiated a process to reconcile its Water Act with the concept of performance-based Payments for Environmental Services (PES).

Component 4 Climate change adaptation and mitigation

Theme 4.1: Harnessing forest, trees and agroforestry for climate change mitigation

- A media-based discourse analysis and a first analysis of the context in which REDD+ emerges in the case countries has been finalized in Brazil, Bolivia, Cameroon, Vietnam, Indonesia.
- Over 100 Latin American professionals were trained in theory, application and software for assessing the opportunity costs of avoided deforestation.
- We have completed the first step in our comparative assessment of current monitoring capacities of all tropical non-Annex I countries. Capacity gaps were defined as the difference between what is required for REDD+ monitoring under national circumstances and the current monitoring capacity of a country.
- We have developed Step 1 RELs (Reference Emission Levels) for all 99 non-Annex 1 countries and Step 2 approaches for 3 countries.

Theme 4.2: Enhancing climate change adaptation through forests, trees and agroforestry

- The results of our research in Central America have been used in a Stern-type review on the economics of climate change in Central America produced by CEPAL (Economic Commission for Latin America and the Caribbean).
- Local vulnerability assessments have been conducted in Central Africa and are ongoing in West Africa.

Component 5 Impacts of trade and investment on forests and people

Theme 5.1: Understanding the processes and impacts of forest-related trade and investment

- Significant progress was made on inventorying the main large-scale investments related to biofuel development in Africa, Asia and Latin America, and an analytical framework was developed to better understand the main underlying drivers and associated implications for forests and people.
- Significant progress was made on understanding the main dynamics related to Chinese investments in Africa, particularly in the forestry, agriculture and mining sectors. Two regional reviews were completed on Central Africa and in the Miombo woodlands in southern Africa.
- Significant progress was made on understanding the impacts related to biofuel feedstock development through the completion of six cases on local socio-economic and environmental impacts in Africa, Asia and Latin America.

Cross-cutting themes

The CRP6 research portfolio described above is supplemented by cross-cutting themes that work to provide a common set of themed resources, such as methodologies and capacity development, across the five research Components. The cross-cutting themes are organized and managed in the same way as research Components: a focal point coordinates a multi-center team, which develops rolling workplans according to Component- and CRP-level priorities. Narratives on cross-cutting themes are available from Annex 2.

Gender

- A key activity under the gender cross-cutting theme was the formation of a cross-cutting team of individuals from the four participating Centres. The purpose was to identify individuals

with an interest and a background in gender analysis who would work together with Component Coordinators and scientists to implement the gender-relevant objectives of the CRP6. The coordination team is led by Esther Mwangi (CIFOR) and includes focal points from ICRAF (Delia Catacutan) and Bioversity (Riina Jalonen). All three individuals identified as gender focal points in CIFOR, ICRAF and Bioversity had worked closely together to prepare the gender dimensions of the CRP6, including identifying gender relevant research questions and putting together the gender cross-cutting chapter of the CRP6. Focal points of the three Centres volunteered to work together and agreed on the fundamentals of gender theme leadership and coordination.

- The CRP6 gender cross cutting chapter was adjusted to provide an early version of the CRP6 gender strategy. Adjustments included a time-bound specification of expected results and activities as well as indicators of advancement towards fulfilling the expectations. The CRP6 gender strategy is available online from http://www.cifor.org/crp6/research-portfolio.html.
- An operational Work plan for 2012 with associated budgets was drafted, with key initial activities including: enhancing capabilities for the collection of sex disaggregated data, knowledge sharing, outreach and dissemination, adaptive learning, and participation in Component planning meetings.

Sentinel Landscapes

- In September 2011, the interim Sentinel Landscapes focal point coordinated the first Sentinel Landscapes planning workshop. The workshop featured representatives and presentations from a variety of long-term research networks. The workshop enabled participants to better understand the range of research networks already in operation, and the diversity of approaches used in designing Sentinel Landscape equivalents.
- Anja Gassner (ICRAF) was then selected to coordinate the Sentinel Landscapes cross-cutting theme with a number of scientists from participating Centres involved. The outputs from the first planning workshop included a number of next steps, which were consolidated into a 2012-13 workplan. Key activities include developing criteria for candidate landscapes, meeting and communicating with all CRP6 Components to promote the concept of co-locating research in Sentinel Landscapes, conduct a detailed analysis of existing networks, selection of Sentinel Landscapes, and finally agree on baseline data collection scope and methodology.

Communications

- Between September 2011 and December 2011, the CRP6 communication team proceeded according to the work plan and made considerable progress on all deliverables. At this stage the bulk of activity focused on building the foundation for the program including developing and implementing the decentralized communication strategy and budget, and experimenting with associated outreach tools (press conferences, blogs, press releases), implementing the web and publication strategy, facilitating internal communications and data sharing, developing a strong working relationship among the Centre teams and feeding into larger CGIAR strategy on CRP communications (branding, websites, conferences).

Monitoring, evaluation and impact assessment

- In early December 2011, the CRP6 Monitoring, Evaluation and Impact Assessment (MEIA) team met to plan the development of the CRP6 MEIA strategy. The strategy will guide the implementation of a nested monitoring, evaluation and impact assessment system for the CRP6 to ensure accountability against reporting and performance management requirements. The MEIA strategy is planned for completion in Q2, 2012.

4. Risk Management

The most important risks identified in developing the CRP6 proposal are summarized in the table 4.1. At this stage we consider they remain valid as well as the proposed mitigation measures. These will be revised as required in the course of the implementation.

Table 4.1 Important risks identified in developing the CRP6 proposal

Risk	Risk management
Insufficient funding to match needs and expectations	Effective fundraising by individual participating Centres and through coordination and synergy between participants
	Early recognition of potential funding shortfalls, and prioritization of activities to minimize risks to accomplishing CRP6 objectives
Partner non-performance in managing program activities, generating sound data, analysis, outreach or financial management	CRP6 Management Support Unit (MSU), assisted by staff in each participating Centre and partner organization, provides adequate monitoring and evaluation, early detection of problems, and technical and managerial support
Lack of clarity of research boundaries	Carefully articulated research proposal, and annual work plans, agreed to by all partners
	Steering Committee provides effective oversight of research strategy
Suboptimal coordination of research activities	Steering Committee provides effective oversight of research activities and supports coordinating role of MSU
Difficulty of measuring impact	Achievable targets and impact pathways identified and agreed, and sound methodologies employed at outset of activities to capture data

5. Lessons Learnt

At this early stage of implementation, we are unable to provide specific information on variance from the original impact pathways, changes in effectiveness and efficiency, effectiveness of the CRP6's partnership strategy, or lessons learnt from interactions with other CRPs. However, we view the establishment of a CGIAR-wide inter- and intra-communication and knowledge-sharing platform as a clear priority as we move forward.

6. Financial Reporting

Detailed financial tables are provided in the accompanying spreadsheet ("*CO CRP6 Annual Report 2011 Financial tables.xslx*"). Summary tables by natural classifcation, components and cross-cutting themes and cash flow are provided below.

Expenditure Report by Component, Cross-cutting Themes and Center for the period 1 July 2011 to 31 December 2011, compared to 6 months budget, expressed in US$ Thousands

By Component

		Expenditures				
	Budget	Windows 1 & 2	Window 3 & Bilateral funding	Other funds	Total	%
Component 1	6,693	1,910	2,396	-	4,306	64%
Component 2	7,133	2,858	2,814	578	6,250	88%
Component 3	7,343	2,621	3,141	-	5,762	78%
Component 4	9,204	2,733	6,359	-	9,092	99%
Component 5	2,381	531	1,063	-	1,594	67%
Total - all Components	32,753	10,653	15,773	578	27,004	82%

By Cross-cutting Themes

		Expenditures				
	Budget	Windows 1 & 2	Window 3 & Bilateral funding	Other funds	Total	%
Program Co-ordination	412	154	-	-	154	37%
Gender	415	138	361	-	499	120%
Sentinel Landscapes	150	33	-	-	33	22%
Communications	191	102	-	201	303	159%
Total - all Cross-cutting	1,168	427	361	201	989	85%
Total - all Components and Cross-cutting	33,921	11,080	16,134	779	27,993	83%

By CG Center

		Expenditures				
	Budget	Windows 1 & 2	Window 3 & Bilateral funding	Other funds	Total	%
CIFOR	16,160	4,555	8,381	-	12,936	80%
ICRAF	13,694	4,603	6,296	201	11,100	81%
BIOVERSITY	3,804	1,896	1,421	578	3,895	102%
CIAT	263	26	36	-	62	24%
Total - all CG Centers	33,921	11,080	16,134	779	27,993	83%

Expenditure Report by Natural Classification for the period 1 July 2011 to 31 December 2011, compared to 6 months budget, expressed in US$ thousands

		Expenditures				
	Budget	Windows 1 & 2	Window 3 & Bilateral funding	Other funds	Total	%
Personnel	11,872	4,297	5,972	316	10,585	89%
Collaborator Costs - CGIAR Centers		-	8	-	8	
Collaborator Costs - Other Centers	8,141	366	1,969	-	2,335	29%
Supplies and Services	5,427	2,211	4,574	234	7,019	129%
Operational Travel	2,036	854	1,263	34	2,151	106%
Depreciation	339	347	237	1	585	173%
Sub-total of Direct Costs	27,815	8,075	14,023	585	22,683	82%
Indirect Costs	6,106	3,005	2,111	194	5,310	87%
Total - all Costs	33,921	11,080	16,134	779	27,993	83%

Windows 1 & 2 Cash flow (Cash income and cash disbursed to Participating Centers as of 31 December 2011, expressed in US$ Thousands

		Total
Opening Balance (all partners)		**0**
Cash receipts from Consortium		11,100
Disbursements		
Bioversity	1,793	
CIFOR	5,254	
World Agroforestry Centre (ICRAF)	4,027	
Total Disbursements		11,074
Closing Balance (all partners)		**26**

Annex 1. CRP6 Outcome stories for the period July-December 2011

Component 2 Management and conservation of forest and tree resources:

Bioversity's UNEP-GEF supported project on In-situ / On-Farm Conservation and Use of Agricultural Biodiversity (Horticultural Crops and Wild Fruit Species) in Central Asia project informs policy, creates new knowledge, and supports the development of nurseries.

The "In Situ/On farm Conservation and Use of Agricultural Biodiversity (Horticultural Crops and Wild Fruit Species) in Central Asia" project has contributed to giving higher priority to wild fruit tree biodiversity when deciding the location and expansion of certain protected areas to protect fruit genetic diversity. The objectives of the project are:

1. Conservation of the unique high diversity of wild and cultivated fruit species in Central Asia
2. Enhancement of farmers' production and livelihood strategies

The project was carried out in five Central Asian countries: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, centers of origin and diversity for the focal fruit trees (almond, apple, apricot, currant, fig, mulberry, pear, pistachio, pomegranate, seabuckthorn and walnut). The project focused on providing options to policymakers for strengthening legal and policy frameworks and increasing awareness of the value of diversity of fruit trees, including their wild relatives; on assessing, documenting and managing local varieties of wild fruit species in a sustainable way; on capacity building to strengthen diversity conservation at the local, national and regional level, and to promote broad stakeholder participation to ensure the sustainability of project activities. Large numbers of wild variants were documented: 27 of apple, 16 of apricot, 11 of cherry plum, 19 of pistachio and 28 of walnut.

Among the outcomes achieved in the policy arena were:

1. Proposals on establishment and extension of protected areas in Uzbekistan, Kyrgyzstan, and Kazakhstan.
2. Wild fruit species are included in the "List of Valuable Wood Species of National Forest Codes", and in the Laws on "Conservation of plant genetic resources" in Tajikistan and Kazakhstan.
3. New knowledge, including the distribution of diversity among populations and conservation and use practices (including grafting) and systems were developed for multiplying planting material of germplasm of local varieties of fruit crops, which are now maintained in demonstration plots and nurseries.
4. Cultivation and management technologies were developed that integrated the traditional knowledge of farmers, and training manuals were developed. Today, 54 nurseries established through the project distribute 800,000 seedlings annually of local varieties.

A website (http://centralasia.bioversity.asia) has been established to improve communication among stakeholders and to disseminate and create awareness about Central Asia as the center of origin of fruit trees and wild fruit species diversity. This website brings together information from national partners on the status of crop wild relatives and identifies interventions and national plans for agrobiodiversity conservation.

In summary, this project, focusing on wild and domesticated fruit trees, provides a model that can be applied to the evaluation, conservation and better utilization of the diversity of other fruit trees which have never been domesticated, such as those being studied now in Africa, which are important sources of food during famine times. This project is only one example of the new potentials within Component 2, of leveraging knowledge and achievements from one project to another.

Component 3 Landscape management for environmental services, biodiversity conservation and livelihoods:

The Indonesian Ministry of Forestry agrees to expand the use of various forms of land tenure from the current 0.1 to 5 Mha by 2015.

The outcome was made public at the International Conference on Forest Tenure, Governance and Enterprise: Experiences and Opportunities for

Asia in a Changing Context, which was held in July 2011 on the island of Lombok, Indonesia. It was organized by the Indonesian Ministry of Forestry, the Rights and Resources Initiative, the International Timber Trade Organization, the World Agroforestry Centre (ICRAF) and other national partners (http://bit.ly/GVStvJ). At the conference, Mr. Kuntoro Mangkusubroto, head of the Presidential Delivery Unit for Development Monitoring and Supervision, provided a deep analysis of tenurial conflicts on the margins of Indonesia's forests. The analysis built upon and acknowledged ICRAF's research, which was carried out over the past decade in close liaison with local partners, explicitly mentioning current and former ICRAF staff in his opening remarks (http://bit.ly/GVSRKE). The vice-president and also the minister of forestry reiterated the change in perspective, which was accompanied by the issue of more permits for 'community management' and 'village forest' categories. The area under such regimes was more than doubled at the event and the Government promised that it would increase it further from the current 100,000 hectare to about 5 million hectare by 2015. A working group consisting of representatives from NGOs, academe and staff of the Ministry is now meeting regularly to design a roadmap for forest tenure reforms1 and monitor the implementation of these commitments.

Outputs contributing to the outcome

The World Agroforestry Centre has been involved for nearly two decades in tenurial issues on the margins of Indonesia's forests. The Centre tested the 'community forest' tenure category in Lampung, Sumatra, paving the way for wider application of the legal instrument. We also provided technical support to the first successful application of the 'village forest' category in the country and provided in-depth analysis of the process and its association with the debate on tenurial conflict and REDD+ implementation in Indonesia[2]. A peer-reviewed journal publication[3] provides more detailed documentation[4],[5], there is a version in Indonesian[6] and a policy brief[7].

Implicit in the first "village forest' recognition in Indonesia is that rubber agroforest ('jungle rubber') is con sidered to be an appropriate land use for watershed protection forest areas. Substantive ICRAF research has underpinned this opinion.

From output to outcome: Our research on these topics operates in a sensitive zone between involvement and advocacy. Information and knowledge generated through research have been used by civil society organizations for their advocacy efforts. Through engaging government officials, NGOs, academics and local stakeholders in analysis of options and constraints, we provide a negotiation platform where location-specific solutions can emerge and which also allows authorities at the Ministry of Forestry to appreciate different perspectives.

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1 Safitri, MA, MA Muhshi, M Muhajir, M Shohibuddin, Y Arizona, M Sirait, G Nagara, Andiko, S Moniaga, H Berliani, E Widawati, SR Mary, **G Galudra**, Suwito, A Santosa, H Santoso. 2011. *Menuju kepastian dan keadilan tenurial: Pandangan kelompok masyarakat sipil Indonesia tentang prinsip, prasyarat dan langkah mereformasi kebijakan penguasaan tanah dan kawasan hutan di Indonesia* (Road map to tenure security and justice: Civil society views in Indonesia on principle, condition and step of forest and land tenure policy reform. Jakarta, Indonesia. 60 p.

2 Galudra, G., van Noordwijk, M., Suyanto, Sardi, I., Pradhan, U., and Catacutan, D. 2011. Hot Spots of Confusion: Contested Policies and Competing Carbon Claims in the Peatlands of Central Kalimantan (Indonesia). International Forestry Review 13: 431-441.

3 Akiefnawati R, Villamor GB, Zulfikar F, Budisetiawan I, Mulyoutami E, Ayat A, van Noordwijk M., 2010. Stewardship agreement to reduce emissions from deforestation and degradation (REDD): case study from Lubuk Beringin's Hutan Desa, Jambi province, Sumatra, Indonesia. *International Forestry Review* 12:349–360.

4 Akiefnawati R, Villamor GB, Zulfikar F, Budisetiawan I, Mulyoutami E, Ayat A, van Noordwijk M. 2010. *Stewardship agreement to reduce emissions from deforestation and degradation (REDD): Lubuk Beringin's* hutan desa *as the first village forest in Indonesia*. Working paper 102. Bogor, Indonesia: World Agroforestry Centre (ICRAF) Southeast Asia Regional Program.

5 Van Noordwijk M, Galudra G, Akiefnawati R, Villamor GB, Purnomo H, Suyanto. 2011. *Local perspectives on REDD in comparison with those at the international negotiation tables and their representation in quantitative scenario models.* Project Report. Bogor, Indonesia: World Agroforestry Centre (ICRAF) Southeast Asia Regional Program.

6 Akiefnawati R, Villamor GB, Zulfikar F, Budisetiawan I, Mulyoutami E, Ayat A, van Noordwijk M. 2010. *Bersama menjaga hutan: upaya mengurangi emisi dari deforestasi dan degradasi di desa Lubuk Beringin*. Bogor, Indonesia: World Agroforestry Centre (ICRAF) Southeast Asia Regional Program.

7 Akiefnawati R, Villamor GB, Ayat A, Galudra G, van Noordwijk . 2010. Stewardship agreement to reduce emissions from deforestation and degradation (REDD) in Indonesia. ASB Policybrief 18. Nairobi: ASB Partnership for the Tropical Forest Margins.

Beyond such work, however, more direct 'boundary work'[8] is needed. To this effect, the World Agroforestry Centre is an active partner in the Rights and Resources Initiative (www.rightsandresources.org), a strategic coalition comprised of international, regional and community organizations engaged in development, research and conservation to advance forest tenure, policy and market reforms globally. The mission of the Rights and Resources Initiative is to support local communities' and indigenous peoples' struggles against poverty and marginalization by promoting greater global commitment and action towards policy, market and legal reforms that secure their rights to own, control and benefit from natural resources, especially land and forests.

Component 3 Landscape management for environmental services, biodiversity conservation and livelihoods:

The Convention on Biodiversity (CBD) endorses CIFOR and partners' Landscape Approach

Outcome

The Convention on Biological Diversity (CBD), during the 15th meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) recognised a preliminary set of principles, proposed by CIFOR, for sustainable use of biodiversity in a landscape perspective (report reference: UNEP/CBD/SBSTTA/15/13[9]). This follows a decision (Decision X/32) by the CBD parties made at COP10 held in Nagoya, Japan, to compile a report: "the sustainable use of biodiversity in a landscape perspective" which CIFOR coordinated. The SBSTTA recommend that the CBD Parties take note of this additional guidance (Recommendation XV/6).

Outputs on which this is based

Landscape Approaches have been hailed as a way to integrate economic development and biodiversity conservation as well as responses to environmental challenges such as climate change and an ever growing need for increased agricultural production. Landscapes usually require management for a range of different objectives, such as improving the livelihoods of local people and protecting the environment; as such a landscape approach is designed to integrate the ecological, socio-economic and institutional aspects of a defined geographic area. The implementation of landscape approaches have been claimed by organisations targeting biodiversity conservation by research and development organisations and by government bodies. Despite this, there is no consistent conceptual framework or methodology to assist professionals who aspire to implement a Landscape Approach in their work. As a result CIFOR has been collaborating with a wide range of partners (which include IUCN, WWF, EcoAgriculture and others) to develop: "Principles of an adaptive landscape approach for enhancing sustainable livelihoods and integrating environmental services".

CIFOR will be finalising these principles for publication in early 2012. This process will include analysis of a questionnaire, regarding the scope and nature of the principles, which has been distributed to a wide range of practitioners who are likely to use the landscape approach in their work. This feedback will inform the further refinement of the principles and guidelines which we will present formally at COP11.

From outcome towards impact

The CBD Parties will now decide whether to formerly use this additional guidance as part of the CBD. If this decision is confirmed at COP11 in Hyderabad, India in October, then our principles will guide the governments of the 193 parties of the CBD in the implementation of integrated landscape approaches.

Landscapes are constantly evolving under a wide range of pressures, such as economic development, climate change and ecological succession; as such there can be no fixed endpoint for landscape management practises. The aim of the finalised principles will be to capture the landscape approach in a suitable framework in order to support development and conservation organisations implement decentralised and adaptive landscape governance and management in a range of different

8 Clark WC, Tomich TP, van Noordwijk M, Guston D, Catacutan D, Dickson NM, McNie E. 2011. Boundary work for sustainable development: natural resource management at the Consultative Group on International Agricultural Research (CGIAR). *Proceedings of the National Academy of Sciences*. DOI:10.1073/pnas.0900231108.

9 http://www.cbd.int/doc/meetings/sbstta/sbstta-15/official/sbstta-15-13-en.pdf.

scenarios. This approach was used successfully to bring together international NGOs, aid agencies, governments and local people to design landscape scale interventions for the Tri National de la Sangha in the Congo Basin.[10] This landscape included both protected areas and production forests, which encompass the borders of three countries (Congo, Cameroon and Central African Republic) along the Sangha River. The region also contains a number of local communities with high levels of poverty and a dependence on natural resources for livelihood income. Other elements of the landscape approach include: managing forestry in changing landscapes, biodiversity or species conservation, landscape restoration, payments for environmental services (PES) schemes, interventions aiming at reducing emissions from deforestation and degradation (REDD+), water management across watersheds and appropriate mitigation and adaptation measures to climate change.

The landscape approach as expressed by our principles represents a new way of thinking about landscape management, from seeing biodiversity as needed to be protected from threats, to promoting negotiated outcomes from productive landscapes. We believe our principles will allow the landscape approach to be applied in a more unified way and allow the benefits of a landscape approach to be felt by a wider range of stakeholders, including giving a voice to local people during the management process.

Component 3 Landscape management for environmental services, biodiversity conservation and livelihoods:

The Government of Kenya explores how the current Water Act can be reconciled with performance-based payments for ecosystem services

Outcome

Kenya's Water Act defines a Water Resource Management Authority (WRMA), Water Resource User Associations (WRUA's) and a Water Services Trust Fund, financed by fees from water users. What it does not yet clarify is how this fund can be used for performance-based payments for (or investment in) the improvement of watershed services. The specific case study of the Sasamua catchment, providing drinking water to the capital Nairobi, is now the basis for adding missing elements to the institutional framework and make it functional[11].

Outputs contributing to the outcome

In the 1990's the New York water authority in the USA decided to invest in relations with the farming community in its Catskills catchment area and pay for changes in farming practice to avoid a legally required investment in advanced water purification plant. This proved cost-effective and became an icon of the 'payments for ecosystem services' (PES) concept. After a decade of trying and testing the PES concept in developing countries similar success stories and icons are still scarce. Lack of clear property rights, complex cause-effect relations in generating 'ecosystem services' and a lack of effective institutions are major causes. The most successful examples are more easily described as 'coinvestment in environmental stewardship' rather than performance-based payment schemes[12],[13]. The drinking water supply to Nairobi is becoming an 'icon' for the way the PES concept has to be reframed to fit existing laws and institutions. The PRESA (Pro-poor Rewards for Environmental Services in Africa) project chose this as one of its 8 primary action research sites and helped to identify opportunities and constraints.

The Sasamua catchment provides 20% of Nairobi's drinking water, specifically to the high-density area of Kabete, and is shared between the Aberdares park managed by the Kenya Forest Service and an active farming community. With about half of the Sasamua watershed under cultivation, and host to a growing population, the waterways have become polluted through runoff from farms and towns. The Nairobi Water Company already spends over

10 http://www.iucn.org/about/work/programmes/forest/fp_resources/fp_resources_publications/fp_resources_specials/?1544/arborvitae-special-issue-Learning-from-Landscapes.

11 http://presa.worldagroforestry.org/blog/2012/03/28/presas-work-informs-kenyas-policy-on-water/.

12 Van Noordwijk, M., and B. Leimona. 2010. Principles for fairness and efficiency in enhancing environmental services in Asia: payments, compensation, or co-investment? Ecology and Society 15(4): 17. [online] URL: http://www.ecologyandsociety.org/vol15/iss4/art17/.

13 Lopa D, Mwanyoka I, Jambiya G, Massoud T, Harrison P, Ellis-Jones M, Blomley T, Leimona B, van Noordwijk M and Burgess ND, 2012. Towards operational payments for water ecosystem services in Tanzania: a case study from the Uluguru Mountains. Oryx 46, 34 - 44.

US$200,000 per year on water filtration, and these costs are expected to increase in the coming years. Changing land management practices in the upper catchment has the potential to reduce sedimentation and pollution of waterways and thus the costs of filtration. This dynamic presents an opportunity for downstream water users to support the adoption of better land management practices by upstream farmers through a PES mechanism. To fully address this challenge, the case calls for full watershed scale planning and the coordination of a variety of stakeholders, including water users, farmers, water utility companies, and water resources management organizations. However, the Nairobi Water Company already pays fees to the Water Services Trust Fund and is challenged within its institutional framework to engage directly with communities in the Sasamua catchment area, even if the 'business case' to do so is clear[14]. Higher level reconciliation of the PES concept and the existing Water Act is needed, and the process to do so has now started.

From outcome to impact

There is still a way to go before the urban poor of Kabete benefit from lower cost, secure water supply (as there will be cost savings for the Nairobi Water Company) and the rural communities of Sasamua catchment benefit from investment in environmental integrity of their area, providing employment options and maybe some financial net benefit. Ironically, access to safe piped drinking water for households in the Sasamua catchment itself is not yet provided and women carry water over considerable distances. Due to a focus on their 'core business' the Nairobi Water Company stopped this type of investment in the landscape on which they depend. A more holistic landscape + business approach will be needed before environmental stewardship pays and is rewarded appropriately, but the current outcome will be a significant step on that journey, and Sasamua may become as iconic as the Catskills were in the early phase of PES discourse.

Component 4 Climate change mitigation and adaptation:

Proposed approach to setting reference levels (RLs) and reference emissions levels (RELs) adopted by the UNFCCC at the 2011 climate talks in Durban, South Africa.

In the REDD+ mechanism, countries wishing to receive payments in exchange for reducing deforestation and forest degradation must demonstrate that they have reduced emissions from deforestation and forest degradation and prove that they have sequestered carbon if they are undertaking conservation and forest rehabilitation activities. Proving the counterfactual – emissions that did not occur – is challenging. In order to do this, the United Nations Framework Convention on Climate Change (UNFCCC) requires that countries estimate either a reference emission level (REL) or a reference level (RL). In the jargon of the UNFCCC, a REL refers to the emissions that would have occurred from deforestation and forest degradation. The RL refers to the net emissions or removals from all activities, including forest rehabilitation and conservation.

Outcome

The question of how these reference levels should be set for each country has been outstanding for several years and needed to be resolved at the 2011 UNFCCC Conference of Parties (COP) in Durban, South Africa. The climate negotiators found the answer to this question in an approach developed by CIFOR scientists Arild Angelsen, Louis Verchot and Martin Herold (of Wageningen University). Borrowing an idea from the national greenhouse inventory approach of the Intergovernmental Panel on Climate Change (IPCC)[15], and using the lessons learned from previous research on drivers of deforestation, the team proposed that RLs/RELs could be determined using three different 'steps', with increasing levels of complexity at each step. The team then used data collected as part of CIFOR's Global Comparative Study on REDD from four countries to put together case studies of how RLs/RELs could be calculated with the Step 1 and Step 2 approaches.

The results from the case studies were assembled into a report[16] for the United Kingdom's Department of Energy and Climate Change and presented to the

14 http://presa.worldagroforestry.org/where-we-work/kenya-sasumua/

15 IPCC. 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Task Force on National Greenhouse Gas Inventories. http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html (20 Apr. 2012).

16 This report will be published by CIFOR in mid-2012.

UNFCCC negotiators at an expert workshop on RLs/RELs. The approach was featured in the meeting report[17], which served as the basis for developing a draft decision for the COP in Durban, and it was included in the final text of the decision that was adopted in Durban[18]. The reasons for the success of the idea were that the team demonstrated that it could be implemented immediately, and the stepwise approach showed countries the path to follow to improve their RLs/RELs.

Outputs contributing to the outcome

The pathway to impact began over 10 years ago when CIFOR and its partners began work on understanding the drivers of deforestation at a variety of scales. Numerous books and papers have been written by CIFOR scientists and partners who have worked on various projects over the years, including the country profiles from the Global Comparative Study on REDD[19]. When the UK Department of Energy and Climate Change (DECC) issued a call for proposals to develop approaches to RL/REL reports and determine the costs of achieving reductions in emissions levels, Herold, Angelsen and Verchot teamed up with EcoFys, a UK consulting firm, and won the bid. The collaboration led to a draft report which was submitted to DECC in mid-2011, which was followed by a meeting between the team at DECC and the project team. This report will be published in mid 2012.

The UNFCCC organised an expert meeting on reference levels just prior to the 2011 COP in Durban. It was at this expert meeting that Martin Herold first presented[20] the ideas and the results of the case study analysis to climate negotiators. DECC also organised a side event on the work at the 2011 COP in Durban. The outcome, as explained, was that the approach was included in the final text of the decision that was adopted in Durban.

From outcome to impact

The step-wise approach has been adopted by the UNFCCC but it still needs to be explained to stakeholders to complete the pathway from output to impact. With this in mind Herold, Angelsen, Verchot and other collaborators are now developing outreach materials, such as a policy paper and a policy brief, and pursuing other information dissemination activities to further explain the idea to stakeholders, and to ensure that the step-wise approach is understood and able to be implemented on the ground. The approach will also be featured in a new CIFOR publication on REDD that will be widely disseminated at the Rio+20 Earth Summit, Forest Day 6, and the 2012 COP in Doha, Qatar.

Component 5 Impacts of trade and investment on forests and people:

Impacts of development in Papua Province, Indonesia

Concern about massive growth in the area devoted to the production of biofuels and timber plantations in Indonesia led CIFOR to study the likely impacts of such a development for the benefit of local policymakers and communities. Boven Digoel is a district in Papua province, Indonesia that in recent years has become a target for investment in oil palm for biofuels production. There are currently about 30 000 hectares of established oil palm plantations in Boven Digoel with more than half a million additional hectares proposed for development. Such an enormous expansion of the land devoted to biofuels production is likely to have significant social, economic and environmental impacts on the surrounding communities. The question was: would the impacts be positive or negative?

As it turns out, CIFOR's research in Boven Digoel found mixed results. On the one hand, oil palm development generated some contributions to the district economy such as tax revenue and employment, although jobs tend to be mostly available to migrants with an established set of

17 UNFCCC Subsidiary Body for Scientific and Technological Advice 2011 Report on the expert meeting on forest reference emission levels and forest reference levels for implementation of REDD-plus activities. http://unfccc.int/resource/docs/2011/sbsta/eng/inf18.pdf (20 Apr. 2012).

18 UNFCCC 2011. Report of the Conference of the Parties on its seventeenth session, held in Durban from 28 November to 11 December 2011. http://unfccc.int/resource/docs/2011/cop17/eng/09a02.pdf (20 Apr. 2012).

19 CIFOR. The context for REDD+ — Drivers, agents and institutions. Global Comparative Study on REDD+. http://www.forestsclimatechange.org/global-comparative-study-on-redd/national-redd-initiatives/the-context-for-redd-drivers-agents-and-institutions.html (20 Apr. 2012).

20 Herold, M., Angelsen, A. and Verchot, L. 2011 Considering drivers and data uncertainties for developing reference emission levels. http://unfccc.int/files/methods_science/redd/application/pdf/herold_rel_sbsta_bonn_14nov2011.pdf (20 Apr. 2012).

skills. On the other hand, oil palm plantations have caused significant environmental damage, the marginalization of local landowners, and conflicts over land.

The research findings were shared with the government authorities of Boven Digoel and with the district agencies concerned with forestry and agriculture. The authorities are now using CIFOR's study as a reality check for any pending or proposed oil palm project. This has led to the postponement of large-scale initiatives until more is known about how to manage the impacts. The government has approved a programme of capacity building by World Vision-Australia to prepare the local communities to deal with changes in the economic environment. Private sector investors in oil palm have reacted positively to the study, pledging to use the results to inform their future operating procedures in plantation areas.

Merauke, another district in Papua province, has also become a target for companies wishing to establish oil palm and timber plantations. In 2007, the district government took steps to encourage such investment by making available large "idle" areas of land, streamlining administrative procedures, and facilitating land acquisition negotiations. The government action took place as part of the Merauke Integrated Food and Energy Estate (MIFEE) scheme, an ambitious and controversial plan to convert 1.2 million hectares of indigenous people's land into an industrial agriculture and biofuels estate to feed the growing global demand for commodities. As a result, 36 companies submitted plans for plantation development covering 3 million hectares. However, the implementation of the plantation projects have been stalled due to opposition from local communities claiming that they were not consulted prior to the negotiations and that these unfairly focused on the village elite.

CIFOR took advantage of the temporary lull in plantation development in order to shed light on the costs and benefits that such investment will bring to local landowners and to the economy more broadly. The research focused on understanding the appropriate compensation levels for land transfer to companies seeking to locate plantations in Merauke. The research took place in areas inhabited by the Malind-Anim tribal community and involved 160 villages. These areas are considered customary land: territory owned by the community and administered in accordance with their customs. The research involved participatory mapping by local communities, process which have made visible the association between land and local communities and is often used in resource decision-making. We also carried out an assessment of the likely contribution of timber plantation and oil palm plantations to the local economy and society under the MIFEE scheme.

Outputs contributing to the outcome

The outputs of CIFOR's research have been used extensively by the tribal leadership to highlight their opposition to large-scale land acquisition for timber plantations and other plantation estates under MIFEE. The leader of the Malin-Anim tribal community recorded the appreciation of the community by sending a formal letter to CIFOR indicating that the collaborative research project greatly improved their understanding of the value and fragility of their natural resources. This newfound appreciation strengthened their resolve in negotiations with plantation investors and encouraged them to step up the pressure on the district government. This pressure led to the eventual decision by the district government to reduce the size of the planned industrial timber plantation in the Malind-Anim territory from 300,000 to about 100,000 hectares. In addition, the total size of plantation estates allowed under MIFEE has been reduced from 1.2 million to 500,000 hectares until 2015

Annex 2. Component and cross-cutting theme-level progress narratives

Component 1 Smallholder production systems and markets

Theme 1.1: Enhancing productivity and sustainability of smallholder forestry and agroforestry practices, including food security and nutritional benefits, through better management of production systems

Various techniques for propagation have been developed for *Allanblackia spp*., *Dacryodes mycrophylla* and *D. edulis*, including seed germination, cutting, grafting and marcoting and promoted in Tanzania and Cameroon. Grafting has been shown to reduce *Allanblackia* fruit gestation and seeds must be stored for six weeks before sowing to attain optimal germination. National capacity in nursery development has been strengthened in these countries and Rural Resource Centres (RRC) established as vehicles to promote quality tree germplasm and means to assess their effectiveness initiated. Fruit tree nurseries have been developed in Tanzania and Kenya and farmers requirements and priority for integrating trees with conservation agriculture identified. These developments have led to higher quality tree germplasm in nurseries and on farms in these countries as well as extension materials (particularly germination protocols) that are in use to promote multiplication of quality germplasm locally.

Food security benefits that farmers obtain from fertilizer trees integrated on their farms in southern Africa (Malawi, Tanzania, Mozambique, Zambia and Zimbabwe) was highlighted in a key publication in the Journal of Agricultural Sustainability (Ajayi et al, 2011). Fertilizer trees significantly raised crop yields, reduced food insecurity and enhanced environmental resilience at a much lower cost than purchased inorganic fertilizer. Key factors for successful scaling up of the use of these trees included availability of a suite of technological options that are appropriate to the range of different household and ecological circumstances, partnership amongst institutions and disciplines in the development of the technology and active encouragement of farmer innovations in the adaptation process. Trees also enhanced the efficiency of use of inorganic fertilizer moving the agenda on from a debate on whether to use organic or inorganic fertilizers to focus on their integration to meet farmers' needs. Progress was also made in developing tree species and management options for promoting tree diversity on coffee and cocoa farms in East and West Africa respectively and for controlling sedimentation in the Lake Tanganyika basin. A manual to increase the productivity of smallholder teak plantations through improved silviculture is now in use regionally in Indonesia and progress in developing spatially mapped data for key tree species (e.g. *Jatropha curcus*) and natural vegetation (regionally in Eastern Africa) were made, that will underpin novel work on matching tree species to sites and circumstances.

Collectively these outputs have clearly supported national systems and non-governmental organisations in promoting tree germplasm and management options appropriate to local circumstances that have increased productivity and sustainability of smallholder farm and forest systems.

Theme 1.2: Increasing income generation and market integration for smallholders through utilisation of forestry and agroforestry options

Review of guidelines and resources available for value chain analysis of agricultural and forest products achieved this year is the first step in making rapid market appraisal tools available to government research and extension systems and NGOs interacting with farmers to develop markets for tree products. Specific progress with supply chain performance of kola production and evaluation of benefits resulting from group marketing of non-timber forest products (NTFPs) were achieved in Cameroon together with initial steps in adding value to cacao production in Nicaragua by exploiting opportunities afforded by its native diversity.

Case study research identified market constraints and opportunities for important NTFPs from Ethiopian dry forests, with shared experiences improving women's groups' understanding of forest product commodity chains. Participatory research with women's' groups at the community level in Nicaragua and Uganda has strengthened the role of women in natural resource governance and forest product marketing. Studies of wood fuel markets in the Democratic Republic of Congo identified key stakeholders, market characteristics and factors

influencing participant behaviour that will now be used to inform development of policy interventions. This has meant that more and better information about tree product value chains has been made available, particularly to female smallholders, the first step in them becoming more aware of market operation and hence able to interact more effectively with other actors in value chains and gain better access to markets.

Setting up and evaluation of extension approaches, with a strong focus on tree seed and seedling supply to farmers, using different models such as rural resource centres and community agroforestry tree seed banks is a step in their comparative analysis that will underpin development of decision support frameworks for designing agroforestry extension for use by government and NGO extension providers. Lessons learnt from the extensive Agroforestry for Food Security Programme in Malawi has led to design of a second phase where structured learning is built into an iterative scaling approach where constant refinement of extension approaches used in response to their effectiveness. This is set to strengthen national capacity amongst the government and NGO extension providers to use more effective means to disseminate agroforestry options and reach out to develop stronger links with the private input supply sector.

Theme 1.3: Improving policies and institutions to enhance social assets and secure rights to forests, trees and land

Theme 6.1.3 outcome is National and local institutions develop, implement and negotiate policies, legislation and regulatory norms that remove barriers to tree retention and use in agricultural and forest margin landscapes and encourage their contribution to rural livelihoods. The major progress in this area for agroforestry was made through a collaborative effort between ICRAF, FAO, CIRAD and CATIE who jointly reviewed literature, commission 17 national case studies, and interviewed dozens of key informants to identify key policy constraints for agroforestry and examples of best practices around the world. This will feed into the development of agroforestry guidelines for policy makers which will be a first step in supporting reviews and reforms of policies at national level. Other policy outputs in various policy areas – germplasm supply systems, certification, dryland management -- were also generated which will support larger efforts towards achieving outcomes.

Component 2 Management and conservation of forest and tree resources

Theme 2.1: Understanding the threats to populations of important tree species and formulating effective, efficient and equitable genetic conservation strategies

Studies contributing to the output, "Understanding threats to populations of important tree species" included one that evaluated which tree species were important sources of food during the hunger period, when staple crop harvests have run out, in five countries in West Africa. This revealed 300 tree species that are important to food security and should thus be prioritized. Another study contributing to this output was the development of a prototype of an atlas including information about the conservation status and threats to tree species in Latin America, another tool for integrating information to clarify which populations of trees require immediate conservation action, and where.

Several studies contributed to the output of developing "Effective, efficient and equitable conservation strategies", ranging from defining *in situ* conservation areas to integrating genetic diversity parameters for target species into forest management guidelines and developing community-based management guidelines and policy incentives for farmer management and multiplication of both domesticated and wild fruit trees of valuable species, on farm and in the wild. Activities and products included the preparation of information notes for policy makers and forest managers defining priority sites for the in situ conservation of the genetic diversity of *Prunus africana,* based on genetic analyses of populations across Africa. A similar project will build genetic diversity information into forest management guidelines to sustain the diversity of Dipterocarp species in Malaysia. Two projects focused on farmers' roles in conserving the diversity of fruit trees, one in South Asia (*Citrus*, *Garcinia*, *Mangifera* and *Nephalium*) and another in Central Asia (almond, apple, apricot, fig, mulberry, pear, pistachio, pomegranate, sea buckthorn and walnut).

To contribute to the Output of "capacity strengthened", training materials were produced

on forest genetic resources conservation and use, based on case studies from three regions; and two training courses were conducted for practitioners in Latin America, in collaboration with ICRAF and CIFOR. In addition, a Fellowship was provided for a young African scientist to carry out research on the reproductive phenology, pollination patterns and pollinator species of *Sclerocarya birrea* populations in Benin.

To contribute to the output "awareness increased", contributions were coordinated through regional workshops from regional collaborators in Latin America, Sub Saharan Africa, Asia Pacific and Europe to the development of the FAO report on the State of the World's Forest Genetic Resources (FGR), to be completed in 2013. In addition drafts were produced of 4 thematic studies to provide background to the SOW-FGR report, on indicators of forest genetic diversity, use and transfer of FGR, the role of FGR in adaptation to climate change and the use of native species in the restoration and management of tree and forest cover; and a workshop was organized for the coordinators of all the thematic studies.

Theme 2.2: Conserving and characterising high quality germplasm of high value tree species in the forest to farm gradient

Theme 2 activities focused on the outputs of "characterizing germplasm", "conserving germplasm" and "access to germplasm". Species included agroforestry species, cacao and coconut. Activities on characterizing germplasm included developing EST-SSR markers for high-value African tree species important to smallholders to find sources of variation in important adaptive traits and reveal the effects of climate change on FGR. Another project focused on ethnobotanical assessment of the uses of native tree resources in the Peruvian Amazon and evaluation of their potential as agroforestry species and quantitative phenotypic characterization methods for indigenous fruit trees. A number of PhD and Masters students were trained on a range of characterization methods to help farmers define/select appropriate species and provenances of agroforestry trees. In addition, progress was made on the development and application of methods and standards for the characterization and evaluation of cacao and coconut diversity.

Activities contributing to the output, "Conserving germplasm" included activities focused on tree crops (cacao and coconut) and agroforestry trees. Advances were made on the updating of the global coconut and cacao conservation strategies. An innovative technique derived from a traditional Polynesian approach, based on using islands to conserve different varieties of coconut (polymotu), was tested on islands off Java, Indonesia. High diversity cacao samples were prioritized for ex situ conservation, funding requirements to ensure permanent conservation of cacao diversity were determined and discussions were initiated on safety backup options and an early warning system for the potential threat of climate change to cacao collections. In addition, draft recommendations were developed on conservation of the cacao genepool through in situ conservation. Conservation outputs for agroforestry trees included the development of ex situ conservation guidelines of two endangered species with recalcitrant seeds, *Warburgia ugandensis* and *V. glandulosa*, based on breeding seedling and clonal seed orchards. The mapping of provenance boundaries within the ecological suitability domain of more than 400 species in east Africa was carried out to inform strategies for the establishment of live (field) genebanks and community based genebanks. In addition, seeds of more than 250 orthodox species were sent to Global Svalbard Seed Vault for conservation.

Activities to facilitate access to quality germplasm also focused on tree crops and agroforestry trees. For cacao and coconut, investments included obtaining funding for students to update the database in 2012. In addition, progress was made in developing systems and procedures for sharing coconut and cacao germplasm, notably an evaluation of the costs for preparing coconut germplasm for international transfer, a component of international agreements for germplasm sharing, and an expansion of the safe movement guidelines for cacao genetic resources to address new phytosanitary challenges. For agroforestry trees, activities focused on the promotion of accessible seed and seedling supply systems including making available quality fruit tree scions, the development of methodologies and production of guidelines for multiplication of priority species in order to make available both superior planting materials and propagation protocols for farmers.

Theme 2.3: Developing improved silvicultural and monitoring practices for multiple use management of forest ecosystems

Activities under Theme 3 focused on two outputs: "Improved management practices and monitoring methods for multiple use management of forest ecosystems" and "New approaches and technologies for restoring forest ecosystems and their goods and services". A third output, "impact assessment", was inserted here but will be applied across all themes. Projects contributing to the first output include one in the Niassa Reserve of Mozambique, the largest area of well conserved Miombo woodlands in Africa, where household surveys, focus groups and ecological studies revealed that destructive honey hunting was threatening key species and thus potentially undermining livelihood options for local communities. These studies will provide the foundation for designing guidelines for alternative management practices to conserve key tree populations while enhancing livelihood benefits. A collaborative (Bioversity and CIFOR) project in the Congo Basin was initiated to look at ways of ensuring that local people's needs for tree products are addressed by logging companies managing timber concessions. Another project looked at co-management of forests by communities, government and the timber industry through participatory workshops in the Amazon region of Brazil. An analysis was also carried out of the effects of timber extraction on Brazil nut harvesting in Peru. One of the main recommendations is that timber extraction in Brazil nut concessions be subjected to stricter regulatory, technical and fiscal requirements *vis á vis* timber extraction in timber concessions. It is hoped that the CIFOR-SPDA report will modify this year existing policy so to better integrate the management of timber and Brazil nuts. An International Conference and a special issue of Forest Ecology and Management looked at constraints and opportunities for implementing multiple use forest management to address the needs of different stakeholders for different resources, including bush meat.

Activities focused on restoration of forest ecosystems and their goods and services included two synthesis papers, one on the policy issues associated with different definitions of forest degradation; and another on the use of native tree species in forest restoration, a contribution to the State of the World's Forest Genetic Resources report. Progress in 2011 included a side event at the World Congress on Ecological Restoration and a writeshop for contributors to the study.

Two projects were identified as warranting future impact studies.

Theme 2.4: Developing tools and methods to resolve conflicts about distribution of benefits and resource rights in the use of forest and tree resources

A global literature review of community-concession interactions has been completed, contributing to understanding of factors that enhance equitable interactions and enhance conflict resolution and clarifying knowledge gaps. A research proposal to enhance collaborative research on community-concession interactions has also been written.

Component 3 Landscape management for environmental services, biodiversity conservation and livelihoods

Theme 3.1: Understanding patterns and drivers of forest (tree cover) transition in decline and restoration phases

The tree cover (or 'forest') transition concept, central to CRP6, is gaining recognition in policy terms linked to challenges on how 'forest' can be or has been defined. The very different nature of the 'forests that come back' from the 'forests that are gone' is more widely recognized and deforestation statistics as such are viewed more critically in public debates. Key CRP6 results for Indonesia's deforestation rate (varying from +3.5 to -0.5%/year depending on forest definition) are getting cited. A critique of China's reforestation program in 'forest transition' terms tested how far government policies can now be challenged. A recent academic review of 'push' and 'pull' factors in historical forest transitions at national scale was publicized as part of the ASB Policy Brief series. An earlier brief on 'Emissions Embodied in Trade' that relates footprints to commodity trade and forest transitions got into the top 10 on environmental news items in the EU policy arena.

The analysis of patterns of change in tree cover and its association with actors and drivers is of direct relevance to the REDD debate in CRP6.4 and the analysis of large-scale investment (e.g. oil palm in Southeast Asia) in CRP6.5. The most detailed

results so far are for Indonesia, with mainland Southeast Asia following suite. Africa wide analysis is undertaken in the interface of CRP5 and CRP6.3, with ICRAF's new Geo Informatics Unit contributing to methodological innovation and automation of data processing. Existing classification errors and uncertainty are not limiting the accuracy of aggregated assessments (e.g. sub national emission estimates) but are insufficient for 'pixel-level' performance based reward systems. On the interface with CRP6.4, new approaches to land use planning that evaluate current of modified development plans with their emission and economic consequences are appreciated by local planners and may find their way into nationally recommended approaches in Indonesia. An analysis of the various plans for hydropower development in the Mekong river drew attention to the wider consequences for changes in land use pattern that have not been fully explored. On the back of 'clean energy' programs plans for dams and hydropower projects appear to be on the increase across Southeast Asia, while the disruption they bring to local livelihoods and forest conditions are not subject to 'free and prior informed consent' of local stakeholders.

The Agroforestry Policy Initiative has made a start in inventorying the range of policies, regulations and incentive systems that influence the interface of agricultural and forestry domains, along with rural development and environmental concerns in ** countries. A substantial scope emerged for reducing and rationalizing overlaps as a first step in country-specific policy formulation that stimulates the use of trees on farm and farmer/community involvement in ecological restoration.

A typology at district/province level of 'stages of tree cover transition' is now available for Indonesia and in progress for other areas – it allows stratification of policy 'pilot' approaches, as well as research efforts aimed at extrapolations to national scale.

Theme 3.2: Understanding consequences of tree cover transition for livelihoods, environmental goods and services, and adaptive policy

Analysis of the global dataset collected by the Poverty and Environment Network (PEN) is ongoing, but adds value beyond the site-level conclusions of the various studies and the simple mean values reported so far. A typology based on tree cover transition stage accounts for a considerable part of the overall variance.

Synthesis of empirical data on C-stocks versus plot-level biodiversity shows a distinct 'hysteresis' or difference between degradation and restoration stages of landscape change – with consequences for the 'co-benefit' discussion under REDD.

Quantification of hydrological buffering at watershed level starts to inform discussions at the interface of land use change and adaptations to a more variable climate, comparing sites in Asia and Africa. A resurge in interest in and new evidence of the 'short hydrological cycle' or recycling of rainfall over land masses, suggests that beyond 'gray', 'blue' and 'green' water accounting, landscape/continental approaches to 'rainbow' water accounting are becoming feasible. These will likely give a new twist to the high evapo-transpiration (= high recycling) of fast growing trees.

Appreciation of landscape resources is influenced by gender interacting with cultural norms. Some indications of the gender specificity of economic use of the Sugarpalm (Arenga pinnata), a semi-domesticated forest resource in villages in the forest margin of North Sumatra were published, interacting with cultural and religious norms about the use of the juice for crystallization of sugar or sale as palmwine in Muslim and Christian communities in the same landscape.

The Ministry of Forestry of Indonesia shifted position on the issues of land use rights for communities and villages within the 'forest estate' and committed to significant scaling up of the use of legal tenurial instruments. (see outcome description 3.1)

A set of principles for a 'Landscape approach' to management of biodiverse landscapes with direct involvement of and benefits for local communities was adopted by the Convention on Biological Diversity, based on proposals by CIFOR and partners (see outcome description 3.2).

Theme 3.3: Learning landscapes where innovative response and policy options are being tested

On the basis of experience in one of the PRESA sites, the Government of Kenya has initiated a process to reconcile its Water Act with the

concept of performance based PES (see outcome description 3.3).

Component 4 Climate change adaptation and mitigation

Theme 4.1: Harnessing forest, trees and agroforestry for climate change mitigation

The international community recognizes that land use, land use change and forestry are critical components of national and international strategies for mitigating climate change through reduced emissions and increased carbon stocks. The 15th Conference of the Parties (COP15) to the UN Framework Convention on Climate Change (UNFCCC) in Copenhagen agreed in the Copenhagen Accord to include reduced emissions for deforestation and forest degradation in developing countries (REDD+) as part of a climate mitigation portfolio. The nature of the international framework for REDD+ was decided at COP16 in Cancún and some of the modalities were developed in at COP 17 in Durban.

REDD+ offers new opportunities to promote sustainable forest management as an integral component of sustainable development. Whatever forms international REDD+ mechanisms will take, significant financial resources could flow to developing countries. These resources have the potential to alter the economic landscape in many developing countries—a landscape that currently promotes the continued clearance of forest assets, often at the expense of local rights and livelihoods. However, REDD+ proponents must overcome several technical and policy challenges for this new instrument to fulfil its promise. This research theme develops and contributes new knowledge to ensure that policymakers and practitioner communities have the knowledge, information, analysis and tools they need to ensure effective and cost efficient reduction of carbon emissions and enhancement of carbon stocks with equitable impacts and co-benefits, including poverty reduction, enhancement of non-carbon ecosystem services and protection of local livelihoods, rights and tenure.

The research is generating knowledge about what processes lead to REDD+ and other mitigation strategies that ensure effective, efficient and equitable outcomes. Over time, as experience accumulates, research will be able to answer questions about the conditions under which needed reforms—such as ways to secure rights of access to, and use of, land and forest resources—can be accelerated, as well as the comparative efficacy of alternative institutional arrangements for channelling REDD+ funds and for facilitating the necessary intersectoral and cross-scale collaboration.

Attention to governance is needed if national governments are to develop policies to address the underlying causes of deforestation and degradation and attract investments as viable alternatives to competing land use demands for food and biofuels. The effectiveness of forest governance is increasingly independent of formal ownership patterns. We are developing tools and guidelines for improving the design of REDD+ policies and initiatives at both national and subnational levels, based on the lessons learned during first generation experiences in several countries.

The research is also exploring the ecosystem management and best practices at the farm and landscape scales to quantify their impact on the atmosphere and their potential to improve local livelihoods. This research will provide guidance to implementing agencies as they balance climate change mitigation decisions against sustainable development opportunities.

Theme 4.2: Enhancing climate change adaptation through forests, trees and agroforestry

Forests and trees are exposed to different factors of climate change and variability, as well as to other drivers such as land use change or pollution that exacerbate the impacts of climate change. It remains unclear how forest and tree ecosystems will adapt in terms of composition, density and provision of ecosystem services. A major way this Theme contributes to outcomes is through developing better understanding of the sensitivity and adaptive capacity of forests and trees to climate change and other drivers of change. Despite the expected impacts of climate change on forests and trees, few measures have been implemented for their adaptation. For example, most countries do not have genetic diversity conservation strategies in place for forests and trees.

Rural communities depending directly on forests and trees are among the world's poorest and most vulnerable people and stand to bear the brunt of climate change. Facilitating community-based adaptation is another way this research contributes to outcomes, by developing ways to reduce the negative impacts of climate change on these communities and their livelihoods. We are analyzing the past and current strategies developed by local communities for adapting to climate variability and other drivers of change (e.g., markets and policies) and to understand how institutional and political factors shape local adaptation and resilience in the face of accelerated change. We are developing and implementing "best practice" guidelines for developing appropriate EBA strategies, i.e., strategies for conserving or managing ecosystem services with the objective of reducing the vulnerability of society to climate change. These strategies can complement other adaptation strategies, be cost effective and sustainable, and generate environmental, social, economic and cultural co-benefits.

A further aim of this research theme is to improve the design of adaptation policies and initiatives in landscapes with forests and trees. These policies and initiatives represent an opportunity for achieving the dual purpose of better managing forests (including restoring forest landscapes, reforesting and conserving) and facilitating sustainable processes of societal adaptation. In practice, EBA requires new modes of local and national governance that include multisectoral processes, stakeholder participation and flexible institutions, such as policy networks.

The theme is implementing research both on ecosystems (e.g., the impacts of climate change on forests and trees) and on social systems (e.g., the vulnerability of local communities to climate change and political or economic changes). Emphasis is placed on the interactions between ecological and social systems, in order to understand how changes in ecosystems (e.g., due to climate change, land use change or degradation) may affect people's vulnerability and how the consequences of climate change on people may in turn affect ecosystems (e.g., through unsustainable use of forest products for coping with climate-related stress). Analyzing the dynamics of socio-ecological systems is crucial to the development of adequate adaptation strategies that increase the resilience of both ecosystems and social systems.

Theme 4.3: Understanding the role of forests, trees and agroforestry in achieving synergies between climate change mitigation and adaptation

There is growing consensus within the climate community on the need to explore the tradeoffs and synergies between climate change mitigation and adaptation, and to promote synergies. Current international negotiations have treated mitigation and adaptation as two separate streams, with a cascading effect on national-level policy. While adaptation processes emphasize the development of NAPAs, mitigation processes at international levels call for the development of NAMA planning and Readiness Preparation Plans (RPPs). These are completely separate policy processes with very little communication between them. As a result, mitigation and adaptation have had different negotiators, actors and funds.

Organizations providing development funds (including agriculture) have started to embrace adaptation, while those controlling mitigation funds are only starting to do so. Competition for funds and for land has potential impacts on effectiveness and efficiency in the delivery of both mitigation and adaptation benefits, and limits the potential for enhancing potential win–win options through the current dual financing mechanisms.

At the landscape and project levels, current practices include, on the one hand, mitigation projects considering adaptation as a co-benefit. On the other hand, adaptation projects such as mangrove protection for reducing social vulnerability in coastal areas often incorporate carbon sequestration as a co-benefit. This research Theme explores synergies in design and implementation to quantify the tradeoffs between benefits for mitigation and adaptation, and help land managers balance these tradeoffs to achieve multiple objectives. This could mean prioritizing either mitigation actions that help reduce vulnerability to climate change or vice versa. It also means promoting actions that can simultaneously contribute to mitigation and adaptation, many of which exist within tree based land management systems.

This research looks at community forestry and agroforestry practices within the context of landscapes examples of a set of actions that could help increase carbon sequestration, increase overall productivity and help systems cope with the adverse effects of climate change (e.g., by moderating local temperatures, conserving water availability or providing socioeconomic safety nets), particularly for women and vulnerable groups. We are also looking at issues related to biofuels and commercial plantation crops (like oil palm, acacia, rubber, cacao, etc.) which are important to both mitigation (because they influence deforestation and GHG balance) and adaptation (because of their role in livelihood strategies and their impacts on income or health)

This theme is developing knowledge to understand trade-offs and develop synergies between mitigation and adaptation at multiple levels. Although some options and pathways for synergies at the landscape level are known, they have not been quantified, and literature on optimal mixes (or "good enough" mixes) of various options is currently lacking. At the policy level, conditions for mainstreaming and effective mixing of single adaptation and mitigation win–win policies are yet to receive sufficient attention. This theme intends is contributing to addressing these challenges.

Component 5 Impacts of trade and investment on forests and people

Theme 5.1: Understanding the processes and impacts of forest-related trade and investment

Understanding the processes and impacts of forest-related trade and investment for forests and people is fundamental for public and private actors to enhance their responses to manage the likely impacts. We consider that by improving the knowledge of the dynamics shaping forests and forest landscape change related to global trends can contribute to improve the knowledge on feasible options for either multilateral and global organizations, regional trade and economic bodies, and the private sector, about what guidelines and actions would be necessary to adopt in order to make progress towards more sustainable and equitable business models. We are developing activities under three main subject areas which constitute the main global processes with impacts on forests. The first is related to biofuel development, the second to the implications of international and regional timber trade and domestic markets, and the third to the role of Chinese investments in Africa.

The first output is related to assessing the processes and factors through which trade and investment influence on forests and people. We have made progress on inventorying some of the main large-scale investments related to biofuel development in Africa, Asia and Latin America, and built an analytical framework in order to contribute to understand the main underlying drivers and associated implications for forests and people. We have also made progress on understanding some of the main dynamics related to Chinese investments in Africa, particularly in the forestry, agriculture and mining sectors. Two regional reviews have been completed on Central Africa and in the Miombo woodlands in southern Africa.

The second output refers to the analysis of the impacts associated with trade and investment trends on forests and people's livelihoods. We have made some significant progress in understanding these impacts when related to biofuel feedstock development through the completion of six cases on its local socio-economic and environmental impacts in Africa, Asia and Latin America. We have also conducting fieldwork and analysis on the implications of domestic timber markets for small-scale operators' livelihoods, and the impacts from procurement systems in consumer countries, and have determined some implications of Chinese investments in two regions in Africa, which will be verified through more in-depth case studies. Understanding these impacts as well as the factors explaining them, and their regional variations is a cumulative process which require of more detailed case studies.

The third output is related to the development on methods for improved assessments on forest-related economic and ecological impacts from trade and investment. We are working on improved methods for the assessment of carbon accounting, mainly when referred to the impacts from biofuel development. In addition, we are also developing improved methods to assess, with spatial explicit approaches, the impacts from investments on land-use change, expecting to determine the direct and indirect impacts from these investments. This output is of key relevance in order to improve the assessment undertaken in the first two outputs.

Theme 5.2: Enhancing responses and policy options to mitigate negative impacts and enhance positive impacts from trade and investment

Outcomes under this theme aim to influence on multi-stakeholder initiatives and processes, as well as policy decision-making in consumer and producer countries. We consider that improved knowledge on lessons from state and non-state actors' governance initiatives and mechanisms, can contribute in important way to enhance policy responses to manage the impacts from global trade and investments either through minimizing the negative impacts, and contributing to improve the positive outcomes for both forests and people. We have identified three outputs that can contribute to achieve these expected outcomes.

The first output is related to improve our knowledge on lessons emerging from the implementation of market driven processes and international sustainability initiatives. We have made some progress on conducting a literature review on the main lessons learned with regard to the likely effectiveness of market-based mechanisms to manage the impacts from biofuel expansion on forests. This review has been complemented with analysis on regulatory systems that complement the adoption of market-based instruments in which may constitute more complex 'hybrid' mechanisms for enhancing forest governance. In addition, analysis on the limits and potentials from sustainability standards and guidelines has been undertaken, especially those aiming to ensure sustainable biofuel production.

The second outputs aims to reach improved policy regulations and institutional options for managing impacts associated with trade and investment. Several activities have been undertaken in this direction. On the one hand, some legal and institutional frameworks have been assessed with applicability to biofuel development in order to draw lessons on what are the main incentives for shaping sustainable biofuel sectors, and which ones produce unexpected socio-economic and environmental outcomes. On the other, efforts have been developed to inform the process of improving the social standards of the Roundtable on Sustainable Biofuels (RSB) which constitutes the most advance initiative to provide guidelines in support of sustainable biofuel production. Thus, making progress in shaping government regulations and non-state efforts is fundamental to achieve this output.

The third output refers to informing processes and platforms of policy analysis and dialogue on improved governance of trade and investment. We have been adopting several strategies in order to inform these processes at different scales. At the global level, we are playing an active role in shaping procurement policies, particularly in the EU countries with regard to timber trade, and we have been providing inputs with regard to policies to improve governance of biofuel development. We have also undertaken south-south exchanges, with emphasis on sustainable oil palm development and other biofuel feedstocks in order to share policy perspectives between policy decision-makers, private sector and civil society organization. In addition, we have delivered talks in several key conferences and events.

Gender cross-cutting theme

Team formation

A key activity was the formation of a team of individuals from the four participating centers. The purpose was to identify individuals with an interest and a background in gender analysis who would work together with component leads and scientists to implement the gender-relevant objectives of the CRP6. All three individuals identified as gender focal points in CIFOR, ICRAF and Bioversity had worked closely together to prepare the gender dimensions of the CRP6, including identifying gender relevant research questions and putting together the gender cross-cutting chapter of the CRP6. Focal points of the three centers volunteered to work together and agreed on the fundamentals of gender theme leadership and coordination. For example we agreed that leadership and coordination would be on a three-year rotational basis, with CIFOR taking the lead for the first three years of the CRP6. We also agreed on the distribution of funds, with an equal allocation amnong the 3 centers for the first year.

Development of draft gender strategy

The CRP6 gender cross cutting chapter was adjusted to provide an early version of the CRP6 gender strategy currently under further development. Adjustments included a time-bound specification of expected results and activities as well as indicators of advancement towards fulfilling the expectations. The

gender strategy will be submitted to the consortium in June 2012.

Work plan and budgets

An operational Work plan for 2012 with associated budgets was drafted but firm agreements were postponed to January 2012 when all focal points planned to meet in Bogor, Indonesia. The work plan was grouped into three activities in line with CRP6 gender strategy outlined in the CRP6 gender chapter. These activities included:

1. Enhancing capabilities for the collection of sex disaggregated data.
2. Towards this end, training needs assessments, training in gender analysis, development of methods guides and toolkits, development of a bibiliographic database and identification of pre-existing datasets were some of the activities identified and budgeted for.
3. Knowledge sharing, outreach and dissemination
4. Two activities are specified under this category for 2012: synthesis of existing research on gender and participation, and website/blog contributions. Taken together, the gender-relevant research outlined in the CRP6 components has a major dimension of understanding and improving women's (and mens) participation in various kinds of activities (including decision making) from the forest, farms through different levels of governance. The synthesis is intended to identify factors influencing effective participation and will result in the development of a conceptual framework for use by CRP6 scientists in their research.
5. Adaptive learning. The main activity under this category is a methods workshop, which is aimed at bringing together methods used in the collection and analysis of sex-disaggregated data as well as methods and indicators for evaluating achievements towards gender parity in access, use, management and distribution of benefits of trees and forests for rural men and women.
6. Participation in Component Operational planning meetings. This intended to ensure that a) component operational planning adequately captures gender-specific research goals identified in the CRP6; b) activities planned by the gender-cross cutting theme are relevant to the needs and aspirations of components; and c) component operational plans are aligned to the draft gender strategy reflected in the gender corss-cutting theme of the CRP6.

Other activities conducted

- Both CIFOR and ICRAF held gender-specific sessions at their annual meeting (CIFOR) and science week (ICRAF) in October 2012. Both organizations focused on methodologies for collecting sex-disaggregated data and held broad discussions, including focused groups, in order to build/strengthen gender awareness among scientists, while harvesting from them the kinds of tools they currently. CIFOR began the process of drafting a methods guide for scientists based on these discussions.
- CIFOR and IUCN, under the auspices of the Collaborative Partnership on Forests (CPF), hosted a gender session at the Forest Day during the UNFCCC in Durban. Speakers included academics and practitioners in both policy and practice. The gender session focused on women and climate change adaptation and mitigation.

Assessing the fit between CRP6 gender-specific outcomes and CRP6 gender cross-cutting theme activities in 2011

While activities of 2011 were mostly focused on planning, some activities (for example discussions of methods and focused group discussions held during CIFORs annual meeting and ICRAFs science week) laid the foundations for the collection of sex-disaggregated data by scientists besides raising awareness of the science and policy benefits of considering gender differentials in research.

Implementation

No specific implementation constraints were identified during this reporting period. However, several aspects were anticipated to be potentially constraining. First, the financial flows to the gender cross-cutting theme were realized in October/ November, three months into the reporting period. Second, there is a generalized risk of gender focal points and of the cross-cutting theme more generally being viewed as the principle locus through which gender research in CRP6 would be conducted. A clear distinction needs to be drawn between the purpose of the gender cross-cutting theme (and focal points) whose role is supportive and the locus

at which actual gender research will be conducted (which is individual CRP6 components). Third, CIATs participation is yet to be more fully engaged yet CIAT has significant experience in participatory gender analysis, an asset to gender methods development and implementation in CRP6.

Communications

Three years ago, CIFOR reinvented its communications program to take advantage of emergent social media tools such as Twitter, Facebook, and YouTube. By linking these social media, blogs and its forest policy listserv "POLEX" to journal articles, CIFOR was able to increase the online readership of journal articles threefold. Combined with accreditation from Google as a legitimate news outlet, an increasing number of news aggregators republished CIFOR stories, including documentary videos and photo essays. The increased reach and impact of CIFOR's communication model is serving as a model on which the CRP6 cross-cutting communications theme is based.

Between September 2011 and December 2011, the CRP6 communication team proceeded according to the work plan and made considerable progress on all deliverables. At this stage the bulk of activity focused on building the foundation for the program including developing and implementing the decentralized communication strategy and budget, and experimenting with associated outreach tools (press conferences, blogs, press releases), implementing the web and publication strategy, facilitating internal communications and data sharing, developing a strong working relationship among the center teams and feeding into larger CGIAR strategy on CRP communications (branding, websites, conferences). Various deliverables are summarized below.

On Sept 8, the team submitted its first operational plan and budget for 2012-2104, a decentralized strategy that leverages the on-going work and resources of each center and distributes the budget on a pro-rata basis, with non-center budget items (i.e., consultancies) agreed to by Communication focal points. The work plan and budget followed extensive consultation, in person with the head of communications of ICRAF and Bioversity, and email with CIAT, where in it was revised and unanimously approved. On September 12, CRP6 issued its first press release *Experts Say Famine in Horn of Africa Exacerbated by Decades of Deforestation that has Turned Productive Lands in Desert,* as part of a CGIAR initiative which generated 16 global media hits; it also presented an opportunity for the team to work together for the first time, share media resources, agree on the branding template and editing process for releases.

CIFOR's Annual Meeting, and all related communications, focused on the CRP6 (CRP 6: *New opportunities for impact*). The Communication team helped arrange a special session "Accelerating Impact by sharing data," which was led by Anja Gassner, ICRAF-Head of Research Method Unit, and intellectual property lawyer Guat Hong, which was attended by more than 150 CIFOR, Bioversity and ICRAF staff. The idea for the session came directly out of the Communication team's participation in the CGIAR meeting of Heads of Communications of CRPs and Centers in Nairobi; it also opened the door to plan for data sharing which made significant progress in the latter half of 2011.

We promoted CRP6 throughout the Conference of the Parties in Durban, at CIFOR's booth, three side events and Forest Day. During Forest Day a major press conference was held with Rachel Kyte, Frances Seymour, Tony Simons. The accompanying press release and media clips are attached in the full report. Also in Durban, the CRP-FTA Communications program held a formal planning meeting with focal points from all participating centers, and Nathan Russell from CIAT, Jeremy Cherfas from Bioversity, Paul Stapleton from ICRAF and John Colmey and Dan Cooney from CIFOR. Focal points reviewed the strategy and developed a rough work plan for 2012.

Throughout the Autumn of 2011, the communication teams participated in, contributed to, and in some cases, played a major role, in the implementation of a CGIAR/CRP global communication strategy. This included the design and development of a CGIAR website, an extensive re-branding exercise. As part of the design and development of CGIAR.org, web masters at each center team spent several weeks linking their websites through RSS feeds that will feed the CRP-FTP components' content into the CGIAR.org.

Sentinel Landscapes

In September 2011, the interim Sentinel Landscapes focal point coordinated the first Sentinel Landscapes planning meeting. The workshop featured representatives and presentations from a variety of long-term research networks, including:

- The ASB Partnership for the Tropical Forest Margins Benchmark Sites
- CIRAD's long-term monitoring of tropical logged forests
- IRD's citizen science approach to mobilizing local community involvement in data collection
- IFRI's long-term, interdisciplinary, international research network
- Leeds University and RAINFOR, AfriTRON networks
- CATIE's Mesoamerican Agroenvironmental Program
- The International Model Forest Network

Presentations delivered at the workshop are available from slideshare (http://www.slideshare.net/event/crp6-sentinel-landscapes-planning-workshop). The workshop enabled participants to better understand the range of research networks already in operation, and the diversity of approaches used in designing Sentinel Landscape equivalents.

Anja Gassner (ICRAF) was then selected to coordinate the Sentinel Landscapes cross-cutting theme with a number of scientists from participating Centres involved. The outputs from the first planning workshop included a number of action steps, which were consolidated into a 2012 workplan. Key activities include developing criteria for candidate landscapes, meeting and communicating with all CRP6 Components to promote the concept of co-locating research in Sentinel Landscapes, conducting a detailed analysis of existing networks, selection of Sentinel Landscapes, and finally agreement on baseline data collection scope and methodology.

The first half of 2012 will be used to prepare for the June workshop on sentinel sites. The workshop will be on the 27th and 28th of June in Nairobi.

Activities for preparation area:

- Develop criteria for candidate landscape
- Meeting and Communicating with all CRP6 components to promote the concept of co-locating research in SL and to harmonize expectations.
- Conducting a detailed analysis of existing networks
- Producing case studies to be presented at the workshop
- Initiating links to potential partners

The workshop in June will have two dimensions:

1. To remind the component teams of the advantage of co-locating research and to get a consensus on candidate landscapes and types of baseline data to be collected.
2. To invite potential Partners such as Central Africa Regional Program for the Environment (CARPE) that is a USAID program in charge of data collection and research in the Congo basin, the Heart of Borneo Initiative (WWF & NARS), Lower Mekong Initiative (USAID & NARS) to present CRP6 as the new CGIAR program that is willing to collocate research and funding to existing initiatives.

During the workshop following items will be presented:

- Partner presentations on their landscape initiative program, with special emphasis on existing partnerships, datasets and information as well as objectives.
- CIFOR/ICRAF case studies which show the potential of spatial analysis, both in terms of datasets as well as analytical methodologies.
- A global map showing the co-location of existing networks such as: RUPES network, the Landscape Mosaics Project Sites, IUCN's Livelihoods and Landscapes Strategy Sites, ASB benchmark sites, IMFN sites, various learning landscapes both in CIFOR and ICRAF, IFRI sites, In-Depth sites, PEN sites
-

The outcomes of the workshop are:

- Selection of Sentinel Landscapes for CRP6
- Identification of potential partnerships
- Decide on a minimum set of baseline data to be taken at each site (CRP6 budget)

- Decide on methodological harmonization for data collection

For the second half of 2012 it is proposed to review existing datasets and information on selected landscapes. To identify main research questions in relation to CRP6 components and to start collecting baseline datasets. The collection of baseline data sets in each site could follow 3 steps:

- Analysis of existing data to identify different areas along the forest transition curve
- Selection of sentinel sites within the sentinel landscape to be sample for biophysical characterization (Soil physical and chemical properties, Vegetation characteristics, Biodiversity....)
- Selection of study sites within the sentinel landscape for socio-economic survey based on soil carbon maps, vegetation maps, road networks and population census data

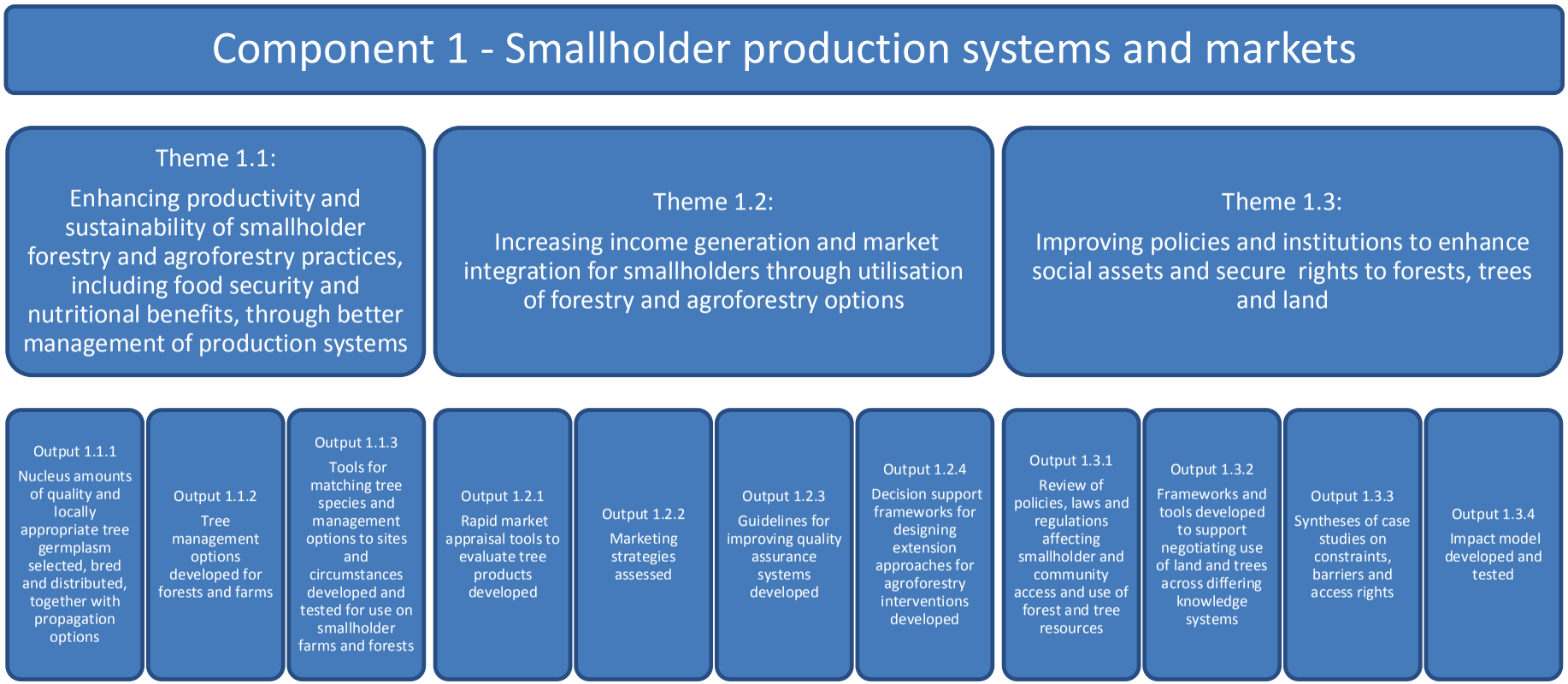
Monitoring, evaluation and impact assessment

In early December 2011, the CRP6 Monitoring, Evaluation and Impact Assessment (MEIA) team met to plan the development of the CRP6 MEIA strategy. The draft MEIA strategy will guide the implementation of a nested monitoring, evaluation and impact assessment system for the CRP6 to ensure accountability against reporting and performance management requirements. The draft MEIA strategy is planned for completion in Q2, 2012.

The MEIA team is led by Frank Place (ICRAF) with Brian Belcher (CIFOR), Elisabetta Gotor (Bioversity) and Jules Colomer (CIFOR) participating. Key elements of the MEIA strategy include: explicit impact pathway design, priority setting, performance monitoring, evaluation, and impact assessment.

Annex 3. Detailed progress report tables

The following table summarises the activities, events and products carried out and produced through direct Programme funding and co-funding donors and partners for the year 2011 (Q3-4). This table is organised according to the Outputs agreed to in the CRP6 2012-2014 operational plan.



Component 1: Smallholder production systems and markets

Theme 1.1: Enhancing productivity and sustainability of smallholder forestry and agroforestry practices, including food security and nutritional benefits, through better management of production systems

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 1.1.1 Nucleus amounts of quality and locally appropriate tree germplasm selected, bred and distributed, together with propagation options				
Propagation protocols for priority species (ICRAF)	Improved sexual and vegetative germplasm of priority tree species developed, procured and corresponding propagation protocols and extension manuals made available for implementing partners	Extension guides on grafting and seed propagation techniques for *Allanblackia spp*. prepared Extension manuals distributed to stakeholders Propagation techniques (grafting and marcots) validated for *Dacryodes mycrophylla* in Cameroon Phenotypic characterization undertaken for *Chrysophyllum albidum* in Nigeria	Tree propagation and management protocols made available to partners and project stakeholders Sensitization and encouraging farmers and practioners to participate in priority tree domestication Feasibility of vegetative propagation for breeding and deployment assessed.	IFAD Unilever
	Project is on track.			
National capacity strengthening in characterisation of tree genotypes (ICRAF)	Capacity strengthened in NARES to characterise tree genotoypes and phenotypic expression in different environments and hence the participatory development of appropriate tree ideotypes for local circumstances	Different propagule types of *Allanblackia spp.* (seedlings, cuttings, grafts, marcots) evaluated in field genebanks, mother blocks and demonstration plots. Training course in tree domestication for agroforestry Two MSc dissertations successfully defended at Yaounde University, Cameroon	Field gene banks, mother blocks demonstration plots established and evaluated Greater technical capacity of national teams and at least 2,400 people in villages in participating countries	Peru 930 IBRD 782 NORD 886
		Morphological characterization of fruits and germination of seeds of *Dacryodes mycrophylla* Oliv. Lam (Burseraceae) in Cameroon. Rooting aptitude of off-Season *Dacryodes edulis* (G.Don) H.J. Lam maroct s in Cameroon		

Projects	Activity	Events /Products	Contribution to Output	Co-funding
	Project is on track. Challenges on propagation faced by stakeholders (research institutes, farmers and nursery operators) have been addressed through technical backstopping.			
Participatory tree domestication in Tanzania and Cameroon (ICRAF)	Participatory domestication of trees with emphasis on functional uses	Co-organised with Ministry of Agriculture (Tanzania) a stakeholder workshop on *Allanblackia* domestication and scaling out, in Mkonge, Tanzania. Presentation at conference on underutilized species, Kuala Lumpur, Malaysia. Poster and oral presentations on African Regional workshop, Nairobi, Kenya Study to assess the contribution of rural resource centres in the distribution of quality seedlings materials has been initiated in Cameroon	Progress in ongoing domestication of *Allanblackia* in Tanzania and initiation of evaluation of rural resource centres to distribute quality germplasm in Cameroon.	Unilever Belgium
	Project on track and a task force constituting ICRAF, Novel Tanzania, World Vision, Tafori, Ministry of Agriculture (Tanzania) and Sokoine University constituted to formulate a concept note on accelerating Allanblackia domestication. The concept will be submitted to the Minister agriculture Food Security and cooperatives.			
Fruit tree nursery development for integration of trees in crop fields in Tanzania and Kenya (ICRAF)	Nursery- demonstration plots established with national partners to promote uptake of fruit trees (e.g. mango, guava, tamarind, ber, pomegranate, garcinia, and litchis).	Priority agroforestry tree species identified and baseline nursery survey undertaken at sites for development of rural resource centres at Machakos in Kenya and Mbarali in Tanzania	Assessment of the status and function of existing nurseries and knowledge of priority agroforestry tree species are prerequisites to developing and disseminating quality fruit tree germplasm.	IFAD Unilever

Projects	Activity	Events /Products	Contribution to Output	Co-funding
		Establish community-managed nurseries of the agroforestry species best suited to conservation agriculture and farmer requirements in the target communities. Farmers trained in the establishment and management of the selected species, and the planting of these in the conservation agriculture demonstration plots.		
	Project is on track for completion in 2012.			
Output 1.1.2 Tree management options developed for forests and farms				
Best practice guidelines developed within the Coffee Agroforestry in East Africa – (CAFNET) project (ICRAF)	Options developed for enhancing tree cover on coffee farms in Kenya, Uganda and Rwanda.	Final stakeholder meeting for East Africa held through video conferencing simultaneously in Nairobi and Kampala with delegates from Kenya, Uganda and Rwanda. Final CAFNET project report	Specification for policy briefs and information notes to promote integration of trees on coffee farms developed	European Union
	Project successfully completed and reported in 2011 but publications and outputs will continue to be developed and promoted from the research in 2012			
Synthesis of impacts of scaling up the use of fertiliser trees in Southern Africa	Options for improving crop yield through integration of fertilizer trees in crop fields reviewed for the region.	Journal article produced (Ajayi et al., 2011.	Positive impacts of fertiliser trees documented and factors critical for scaling up their integration on farms identified and fed into future scaling up activities.	N/a in 2011 but rests on previous data collection in a range of projects across the region
	The synthesis follows two meta analyses in previous years and draws together data from a decade of research in the region			
Catchment management in the Lake Tanganyika Basin (ICRAF)	Development, testing and monitoring of agroforestry options to control sediment flow and enhance livelihoods in the Lake Tanganyika catchment.	National monitoring workshops held in Zambia and Tanzania.	National capacity strengthened to develop and promote locally appropriate agroforestry interventions	UNDP GEF
	Project on track in 2011 for Zambia and Tanzania but DRC workshop postponed to 2012 because of security concerns surrounding the general election. A revision of the 2012 work plan was requested to substitute a concluding regional workshop on carbon accounting with national workshops on the use of tree selection tools.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Vision for Change – Cocoa rejuvenation in Cote d'Ivoire (ICRAF)	Development of agroforestry options for enhancing cocoa productivity	Stakeholders engaged and project activities to rejuvenate cocoa in pilot areas developed with national and international partners	Sites selected for action research that will lead to options being developed and tested	Mars
	Project initiated and activities begun despite disruption in the country surrounding presidential succession. Research funds not used in 2011 moved to 2012.			
Mahogany and teak furniture: action research to improve value chain efficiency and enhance livelihoods (CIFOR)	Participatory research to improve marketing strategies and networks for small scale wood products producers	Silvicultural manuals for small scale teak plantations have been developed for producers in Java.	Manual used by regional extension agencies to improve plantation productivity.	ACIAR
	This project will continue through May 2013.			
Comparison of nutritional and organoleptic properties of fruits under diverse agroforestry arrangements (CIAT)	Caracterization of Peach Palm genetic diversity in Colombia	CATIE collection was characterized in relation to physicochemical properties. Report was presented in an international meeting in Ecuador.	Research cooperation with INIA Peru, Bioverstiy and CATIE was established.	World Bank; USAID
	Efforts to get financial support for activities continue and advances to establish a research agenda in Central America are underway.			
Business opportunities for palm species in the humid tropics (CIAT)	Assesment of value chain of peach palm in Colombia was initiated. Progress on development of harvesting tool.	Characterization of market opportunities in several cities in Colombia evaluated.	Peach Palm and Coconut were targeted due to relation with Forest based AfroColombian communities	USAID
	Financial support for coconut project related to assessment of genetic diversity of coconut germplasm in the Pacific Coast of Colombia was secured for three years. Producer communities are facing serious phytosanitary and market challenges that will be addressed in the coming years (2012-2014). Peach Palm activities require additional funding as current funding support is limited. Efforts are underway.			
Output 1.1.3 Tools for matching tree species and management options to sites and circumstances developed and tested for use on smallholder farms and forests				
Vegetation and climate change in Eastern Africa (ICRAF)	Tree species distribution maps for Eastern Africa developed and integrated with databases on tree utility and managment	Initial maps implemented in trial application on the internet	The potential natural vegetation maps will form the basis of decision support tools for selecting appropriate tree species for different sites	The Rockefeller Foundation
	Project completed in 2011 but outputs will continue to form basis for tree selection tools to be further developed in other projects in 2012 and beyond.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Suitability mapping for *Jatropha curcas* (ICRAF)	Performance of Jatropha provenances evaluated	Test and breeding populations of *Jatropha curcas* established	Genetic resources of *Jatropha curcas* characterised in relation to production of oil and residue, and adaptation to different environments Domestication and breeding strategies developed and under implementation in Mali using a multi-trait and participatory on-farm approach	Finland
	Project on track in 2011 and continues through 2012.			
Development of CAFTREE decision support tool within the Coffee Agroforestry in East Africa (CAFNET) project (ICRAF)	Specifications for pilot decision support tool for promoting tree diversity on coffee farms in Kenya developed (CAFTREE)	Specifications combine farmer rank data on tree attributes with scientific databases on tree utility and management.	The CAFTREE tool is a novel approach to promoting tree diversity on coffee farms by enabling extension staff to suggest locally appropriate suites of tree species customised to individual farmer circumstances.	European Union
	Project completed in 2011 but outputs form basis of continued development of decision support tools for tree selection and management.			

Component 1: Smallholder production systems and markets

Theme 1.2: Increasing income generation and market integration for smallholders through utilisation of forestry and agroforestry options

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 1.2.1 Rapid market appraisal tools to evaluate tree products developed				
Inventory and assessment of methods for value chain development (ICRAF)	Review of guidelines and manuals for value chain analysis for agricultural and forest products	Occasional paper producded	The paper reviews resources for value chain analysis and their applicability in different circumstances	n/a
	Project on track			
Assessment of producers motivations and rewards for participating in collective action for marketing produce (ICRAF)	Transaction cost analysis of non timber forest products' producer groups in Cameroon Effects of group sales on supply chain performance assessed for kola production and marketing in Cameroon	Journal article produced (Foundjem et al., 2011) Journal article produced (Gyau et al., 2011)	Farmers' satisfaction with group market arrangements can be used as a measure of group market performance. Benefits accruing to farmers from group sales assessed.	n/a
	Project on track			
Evaluation of high value options for the use of cacao diversity in Waslala area of Nicaragua (Bioversity)	Farmer field schools undertaken (87 events) Project results communicated to a national audience of cocoa value chain stakeholders in project closure workshops. Establishment of clonal gardens for bulking up elite clones of local cacao	1. Determination of sensory and physical quality of Nicaraguan cocoa finalized 2. 1200 cacao producers (41% women farmers) trained in cacao post-harvest and quality management. 3. Collation and synthesis of experimental data finalized and draft manuscripts for 2 papers prepared for submission to peer-reviewed journals 4. Publications (listed below).	Enhancing understanding of cacao diversity and quality; increasing the capacity of farmers to improve quality management of cacao and on-farm management of cacao germplasm and communicating project innovations to a national audience of cacao stakeholders all contribute to achieving the output target in 2012 on assessment of opportunities for adding value to native cacao diversity	Austrian Development Agency (ADA)- AU-F03004-only in Nicaragua
	After two no-cost extensions, project will finish in July 2012. We have enhanced understanding of cacao diversity and quality; increased the capacity of farmers to improve cacao quality management and cacao germplasm on-farm management; and are communicating project innovations to a national audience of cacao stakeholders.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 1.2.2 Marketing strategies assessed				
Supporting community forestry to improve livelihoods and to facilitate sustainable management of dry forests in Ethiopia (CIFOR)	Case study research identified market constraints and opportunities for important NTFPs for regional dry forests.	Several stakeholder meetings were organized to disseminate research findings and discuss policy implications. Research has resulted in booklets, a book chapter, and policy briefs.	Shared experiences have improved women's groups understanding of forest products commodity chains.	Austrian Development Agency
	This project is in its final phase and current funding will end in mid-2012.			
Gender,tenure and community Forests in Uganda and Nicaragua (CIFOR)	Participatory research with women's' groups at the community level in Nicaragua and Uganda strengthening the role of women in natural resource governance and forest product marketing.	Exchange meetings involving women's groups in each region used to share and disseminate lessons learned related to forest product markets. Synthesis articles have been published drawing on results from this research.	How do the activities, events/products listed contribute to output targets linked to output	Austrian Development Agency
	This project will continue through the end of 2012.			
Sustainably managing wood energy in DRC - Makala Project (CIFOR)	Studies of wood fuel markets to identify key stakeholders, market characteristics and factors influencing participant behavior.	Field surveys of producers and intermediaries completed.	Research will increase understanding of the extent and characteristics of wood fuel markets to improve policy interventions.	CIRAD-Foret
	The project is scheduled to continue until early 2013			
Output 1.2.3 Guidelines for improving quality assurance systems developed				
Nothing to report in 2011, the activities related to this output category will begin in 2012				
Output 1.2.4 Decision support frameworks for designing extension approaches for agroforestry interventions developed				
Agroforestry for food security programme in Malawi (ICRAF)	Lessons learnt from various agroforestry extension approaches trialled in the project were distilled	Project evaluation (reported in July 2011) document improvements in food security from farmers adopting agroforestry options in Malawi. National stakeholder workshop to design a second phase proposal held in November 2011.	The proposal for a second phase incorporates lessons learned, focuses on reaching fewer farmers per unit cost but in greater depth, to ensure sustainable adoption. The new proposal explicitly builds in a comparative approach to evaluating different extension approaches.	Irish Aid

Projects	Activity	Events /Products	Contribution to Output	Co-funding
	The initial Irish Aid project ran from 2007-2010 and was positively evaluated in July 2011. A second phase proposal has been invited for which a national stakeholder design workshop was held in November 2011			
Community Agroforestry Tree Seed (CATS) Banks (ICRAF)	Assessed the performance of the CATS banks through household surveys and value chain analysis.	Mobilised 2520 farmers between 2009-2011 and formed 83 Community Agroforestry Tree Seed (CATS) Banks. Trained farmers in tree management, seed quality assurance, business development and marketing skills. Conducted partial gross margin analysis to assess the profitability of tree seed production based on prevailing market prices and yield potentials	The evaluation of CATS contributes to understanding where it can be appropriately used as an extension approach and the impact of doing so.	Flemish Government through Flemish International Cooperation Agency (FICA)
	The project is on track.			
Comparative analysis of rural resource centres (RRCs) as vehicles for seed and seedling distribution (ICRAF)	Pilot rural resource centres established for trainers and providing production and marketing services to farmers	RRC's established in Nigeria, Cameroon, DRC Study to assess the contribution of RRC in the distribution of quality seedlings materials has been initiated in Cameroon	Innovative model for germplasm delivery developed Knowledge on how RRC can serve as seed and seedling supply systems for quality agroforestry tree products	IFAD
	The project is on track.			
Assessment of multiplication technologies for cacao (Bioversity)	Development of project proposal	Funds secured. Work to be carried out in 2012.	Recommendations on best practices for cacao multiplication, based on a scientific assessment of the different approaches currently used will contribute to the 2012 output target: seed and seedling systems assessed for both high-value and high-volume species	n/a
	Project in early stage; little to report.			

Component 1: Smallholder production systems and markets

Theme 1.3: Improving policies and institutions to enhance social assets and secure rights to forests, trees and land

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 1.3.1 Review of policies, laws and regulations affecting smallholder and community access and use of forest and tree resources				
Amazon Community Forestry Mosaics (CIFOR)	Field research with smallholder and community forest producers in Ecuador and Peru to identify formal and informal property arrangement and how these arrangements affect forest resource use. Forest Commodity Chain studies will examine how different types of property right influence how producers engage with forest product markets.	Synthesis reports and publications will be used to inform policy makers and donors about property rights dynamics in different parts of the Amazon. Regional dissemination workshops will provide venue for local producers to share experiences and inform policy makers.	This research will illustrate how complex webs of formal and informal property rights influence land use behaviour and impact forests.	USAID
	Project is at the midpoint and will be completed by the end of 2012.			
Agroforestry Policy Initiative (ICRAF)	Reviews undertaken in 7 countries, contributing to a broader analysis in 17 countries.	A draft synthesis was written in 2011 to be published in 2012 as an FAO guideline on agroforestry for policy makers	Cross-sectoral analyses of policy requirements for agroforestry is the first step in creating an enabling environment for adoption,	FAO
	Ongoing partnership			
Topical policy reviews (ICRAF)	Reviews were undertaken, including case studies on germplasm supply and certification schemes.	Two chapters related to policy constraints to agroforestry were written and approved for publication	Reviews feed into design of appropriate policy interventions	N/a
	Ongoing reviews of topical policy areas			
Output 1.3.2 Frameworks and tools developed to support negotiating use of land and trees across differing knowledge systems				
Improving water productivity in the Blue Nile basin (ICRAF)	Local knowledge bases about tree management on farms compiled for three sites in Ethiopia	Analyses of local knowledge discussed in video conference seminar (Nairobi-Addis) involving key stakeholders in the Nile Basin Challenge.	Acquisition of local knowledge is the first step in bridging local and global scientific persoectives	Challenge Program on Water and Food (CPWF)
	The project runs until 2013			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 1.3.3 Syntheses of case studies on constraints, barriers and access rights				
Understanding constraints to tree management in dryland systems	A study of the adoption and impacts of farmer managed natural regeneration in the Sahel was launched	Project launched	Once constraints are understood, policy interventions can, where appropriate, be designed to address them	N/a
	Will be completed in 2012			
Role of tenure in land use	An analysis of the role of tenure in land use in Tanzania was also completed.	Draft paper produced	Land and tree tenure often determine options for tree management so understanding it is the first step in developing an enabling environment for adoption.	N/a
	Short term work completed in 2011			
Output 1.3.4 Impact model developed and tested				
Part of CRP6 implementation (ICRAF and CIFOR)	A CIFOR-ICRAF team began work on a CRP6 level Monitoring & Evaluation and Impact Assessment strategy	A paper was published on a framework for impact assessment of production standards, which are increasingly used by smallholders for export crops.	Development and testing of the impact model for the component underpins delivery of impact across the three themes	N/a
	The Monitoring & Evaluation and Impact Assessment strategy will be completed in 2012 and an impact model for CRP6.1 articulated			

Component 2: Management and conservation of forest and tree resources

Theme 2.1	Theme 2.2:	Theme 2.3:	Theme 2.4:
Understanding the threats to populations of important tree species and formulating effective, efficient and equitable genetic conservation strategies	Conserving and characterising high quality germplasm of high value tree species in the forest to farm gradient	Developing improved silvicultural and monitoring practices for multiple use management of forest ecosystems	Developing tools and methods to resolve conflicts about distribution of benefits and resource rights in the use of forest and tree resources
Output 2.1.1 Understanding the threats to populations of important tree species	Output 2.2.1 Characterizing germplasm	Output 2.3.1 Improved management practices and monitoring methods for multiple use management of forest ecosystems	Output 2.4.1 Developing tools and methods to resolve conflicts about distribution of benefits and resource rights in the use of forest and tree resources
Output 2.1.2 Effective, efficient and equitable genetic conservation strategies	Output 2.2.2 Conserving germplasm	Output 2.3.2 New approaches and technologies for restoring forest ecosystems and their goods and services	
Output 2.1.3 Capacity strengthened, awareness increased	Output 2.2.3 Access to germplasm	Output 2.3.3 Impact assessment studies on research activities under all four themes	

Component 2: Management and conservation of forest and tree resources

Theme 2.1: Understanding the threats to populations of important tree species and formulating effective, efficient and equitable genetic conservation strategies

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 2.1.1 Understanding the threats to populations of important tree species				
Conservation and sustainable use of forest genetic resources of food tree species in Sub-Saharan Africa	Studies of importance of tree food in nutrition of local people and threats to genetic resources of famine food tree species	New dataset generated on level of dependence on food tree species during food shortage periods in selected villages of 6 countries (Benin, Burkina Faso, Madagascar, Mali, Niger and Togo). Household surveys (carried out in 6 countries), anthropometric measurements of children (in Benin and Burkina Faso) and interviews with key informants in 6 countries yielded data on uses of trees for food, child stunting frequency and perceptions of threats to priority tree species.	Illustrative leaflets have been completed on 10 wild fruit-bearing priority species which are not usually cultivated in the sub-Saharan region and two leaflets on the SAFORGEN network and the group working on fruit-bearing nutritive species. The leaflets are available in two languages (English and French) in paper and electronic versions. Data will lead to prioritising species for conservation action on the basis of importance to people's nutrition and health and the perceived threats.	The Spanish National Institute for Agriculture and Food Research and Technology (INIA) Spain
	A second phase of the project was launched; extensive sampling was conducted in the field between July and October 2011; data are being cleaned and processed.			
Strengthening regional collaboration in conservation and sustainable use of forest genetic resources in Latin America	Development of an atlas with threat assessment and conservation status of priority Forest Genetic Resources (FGR) species in the Americas (AMS) (INIA-funded MAPFORGEN)	First prototype of the Atlas developed - Small research projects conducted with partners to provide information on genetic diversity of priority species for MAPFORGEN finalized and data available - Detailed *in situ* conservation assessment for some species started.	- First prototype of the Atlas available. - Small research projects finalized and molecular diversity data available for *N. nervosa, N. oblique, C. lilloi, C. balansae, T. cacao*. *In situ* conservation survey for specific tree species abandoned due to low response rate.	INIA Spain
	Considerable progress made on the threat atlas for 100 priority Latin American tree species; data collected and being uploaded to MAPFORGEN website; threat analysis and mapping progressing well.			
Synthesis paper on indicators for forest genetic diversity at the national, regional or global scale (State of the World's Forest Genetic Resources (SOW-FGR))	Review and synthesis of experiences, problems encountered, status and recommendations on indicators of forest genetic diversity		The synthesis will provide an assessment of our capacity to monitor changes in forest genetic diversity and will provide recommendations for improvement.	FAO
	Contributors were identified. Outline was prepared and information assembled.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Criteria for prioritizing tree species based on value, status and threats	Vegetation maps for 7 African countries Chapter on species prioritization in Tree Domestication Manual	Maps developed under the Vegetation and Climate Change in Eastern Africa (VECEA) project for 7 African countries: Ethiopia, Kenya, Malawi, Rwanda, Uganda, Tanzania and Zambia. The maps are published on: http://www.sl.life.ku.dk/English/outreach_publications/computerbased_tools/vegetation_climate_change_eastern_africa.aspx Publications related to the vegetation mapping included under Publications. Species prioritization learning resource ready for publication and dissemination.	The information on species assemblages for each potential natural vegetation type probably provide the best approximation domain of the natural distribution of the majority of useful tree species in eastern Africa; hence it potentially contributes to the design of better *in situ* conservation strategies. Learning resource developed to better understand diverse agroforestry species priority setting procedures.	The Rockefeller Foundation; The University of Copenhagen
	Progress on the vegetation mapping activities project completed successfully allowing maps testing around Morogoro (ReACCT project), Kenya, Tanzania and Uganda. More testing to be carried out as the activity continues to explore ways to assemble further point location data to improve on species–to-site matching.			
Output 2.1.2 Effective, efficient and equitable genetic conservation strategies				
Development of strategies for the conservation and sustainable use of *Prunus africana* to improve the livelihood of small-scale farmers	Preparation of information notes for policy-makers and forest managers on the conservation and sustainable use of *Prunus africana*	Advanced draft of a journal article on conservation priorities based on application of GIS mapping tools and molecular marker data to guide identification of priority sites for conservation of *Prunus africana* at a regional level. The preparation of the policy briefs will follow the publication of the paper.	Conservation and management recommendations were developed and two publications are planned: one in an advanced state; the other (a plain-language document for practitioners) at an early stage.	Austrian Development Agency (ADA)
	In 2011, genetic data available from a previous phase of the project were subjected to GIS-based spatial analyses to identify priorities for conservation; publications under development.			
Conservation of rare and endemic dipterocarps in Malaysia	Conservation and management guidelines for ensuring genetic diversity is sustained are developed and disseminated for 2 Dipterocarp model species	Technical guidelines are being developed.	Newsletter article about the project written, including methodology and tentative findings.	Malaysian Agricultural Research and Development Institute (MARDI)
	Journal article under development; stakeholder consultations and field visits conducted.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Developing community based management models for safeguarding the genetic diversity of four tropical fruit tree species (*Citrus*, *Garcinia*, *Manigifera* and *Nephalium* spp.) on farm and in the wild	Community based management models for safeguarding genetic diversity of 4 tropical fruit tree species on farm and in the wild have been tested and positive results have emerged of self-directed decision making and empowerment of local and women's groups in managing their fruit tree genetic resources in the cultivated and wild interface Preparation of poster to disseminate results Symposium proposal development	Poster entitled, "Empowering community and rural institutions for on-farm conservation and sustainable use of cultivated and wild tropical fruit diversity in Asia", produced and presented at the International Conference on Crops for the Future in Kuala Lumpur, Malaysia (2011), which demonstrated the results of the community based management (CBM) model. Symposium proposal entitled, "Community resilience: Strategies for empowerment in agrobiodiversity management and adaptation" produced, submitted and accepted for the EcoSummit 2012, to be held October 1-5, 2012 in Columbus, Ohio, USA. Seven presentations will be made by project partners at the Symposium. *Please see Publications for related Journal articles*.	Output Target: Evaluation of different approaches to conservation and their complementarities. Community based management (CBM) model evaluated. Positive results include: 1. Self-directed decision making and empowerment of local and women's groups in managing their fruit tree genetic resources in cultivated and wild interface. 2. *In situ*/on farm conservation of agricultural biodiversity by universities, NGOs and grassroots institutions has been implemented using this model, based on consolidating the role of farmers in assessment, use and sustainable management efforts.	United Nations Environment Programme - Global Environment Facility (UNEP – GEF)
	Global interest in this approach demonstrated by: adoption of the CBM model by the International Treaty on Plant Genetic Resources for Food and Agriculture; and subsequent funding from the Treaty's Benefit Sharing Fund, provided to the Consortium on community based management focused on adaptation to climate change for projects in 6 countries with 10 partners, focused on the development of partnerships for community resilience through conservation and management of diversity.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
In Situ /On-Farm Conservation and Use of Agricultural Biodiversity (Horticultural Crops and Wild Fruit Species) in Central Asia	Promote the establishment of nurseries to reproduce promising forms of wild fruit species on farms Provide capacity building to farmers on reproduction and grafting of fruit trees Strengthen national legislation to promote the conservation of wild fruit species and farmers' sustainable management of local diversity of fruit crops in five partner countries, centres of fruit tree diversity (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan)	Scientific backstopping on grafting technology, combining rootstock and grafting material for multiplying local varieties of apple in Kyrgyzstan. Inventory of planting material of local fruit crop varieties produced in 17 key nurseries and provision of grafting material of fruit tree varieties to farmers in Uzbekistan. Farmers produced and disseminated in Uzbekistan 42, 000 saplings of 15 local varieties of apple; 31,500 of 12 local varieties of apricot; 10,000 of four local varieties of pomegranate; 10,000 of pear; and 2,000 of walnut. In Kazakhstan two new nurseries were strengthened and partner famers were trained to keep a "Nursery book" to record names of multiplied varieties of fruit crops, location in the nursery, source of grafting material and rootstock and distribution details. National partners produced booklets listing fruit trees with information on the farmers maintaining the nurseries, their contact details, and the fruit crops and local varieties they multiply that were disseminated among farmers, project personnel and policy makers to facilitate access to the planting material of local varieties of target fruit crops.	The project has demonstrated how farmers can play a role in conserving fruit tree diversity as well as benefiting from it by incorporating wild varieties as rootstocks; by grafting to distribute seedlings; and how legislation can ensure that they benefit, through recognition of farmers rights and benefit sharing.	UNEP-GEF
	In all five partner countries, proposals were made for strengthening national legislation on conservation of wild fruit species and supporting farmers' sustainable management of local diversity of fruit trees, including recognition of farmers' rights and development of Access and Benefit Sharing instruments. Regional and national trainings were organized to improve capacity of all stakeholder groups in management of fruit tree diversity. Distribution of local varieties of fruit trees was increased through multiplication of fruit trees by farmers at 54 nurseries and their dissemination at diversity fairs in partner countries. Results of research on diversity of fruit trees and their management have been shared at national and international scientific conferences organized by the project.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 2.1.3 Capacity strengthened, awareness increased				
Strengthening local capacities in FGR and scientific backstopping to Capacity Development Unit (CDU) activities	Development of Forest Genetic Resources (FGR) training materials based on case studies from three regions including GIS training (AMS, SSA, APO)	Training materials produced. Two training courses conducted in Latin America.	- English version GIS manual published. - Text of Spanish version GIS manual finished. - Updated collectors' manual chapter on ecogeographic distribution of biodiversity and GIS tools or germplasm collectors. - GIS course organized with ICRAF and CIFOR. - Co-organization of a forest genetics course lead by INTA.	Austria (ADA), INIA Spain
	One module with 3 case studies was completed and uploaded to the Bioversity Website; a second module was completed pending final editing and layout; courses were organized and carried out to enhance capacity in FGR conservation and management.			
Increase awareness and strengthen capacity in principles, practices and issues related to FGR	Working closely with FAO, ICRAF and research networks (LAFORGEN, SAFORGEN, APFORGEN and EUFORGEN) support development of State of the World's Forest Genetic Resources report (SOW-FGR)	Facilitated and provided expert advice in regional workshops (Nairobi, Tunisia, Turkey); took responsibility for four background Thematic Studies, including: - Thematic Study 1: Indicators of forest genetic diversity, erosion and vulnerability - Thematic Study 4: Use and transfer of FGR - Thematic Study 5: Forest Genetic Resources' role in adaptation to biotic and abiotic factors, with a focus on climate change (described below) - Thematic Study 10: Use of native species in biodiversity restoration and management (described below) Co-organised a side event, "Forest genetic resources – towards a better understanding and use of their potential", November 10,at Asia-Pacific Forestry Week in Beijing and made keynote address:: Why forest genetic resources matter in changing climates	- Drafts of thematic studies produced - Contributed to strengthening quality of information in country reports for the SOW-FGR report	FAO
		Workshop organised for coordinators of thematic studies contributing to SOW-FGR.		

Projects	Activity	Events /Products	Contribution to Output	Co-funding
	Bioversity is working with a large number of collaborators to prepare background thematic studies on important topics related to FGR. We are also leading the process of publishing all nine thematic studies in the journal: Forest Ecology and Management. Our close collaboration with FAO on producing the SOW-FGR report presents an important opportunity to increase awareness of FGR issues globally.			
Abdou-Salam Ouédraogo (ASO) Fellowship	Assessing reproductive phenology, pollination pattern and pollinator species in the populations of *Sclerocarya birrea* subsp. *birrea* in Benin" (ASO Fellowship)	Progress and final technical reports produced.	A Bioversity Fellowship supported a young African scientist to conduct research in Benin, resulting in generation of new knowledge on reproductive characteristics of *Schlerocarya birrea* (one of our priority species in West Africa) and strengthened capacity.	Bioversity International Fellowship
	Project is completed and report has been written.			

Component 2: Management and conservation of forest and tree resources

Theme 2.2: Conserving and characterising high quality germplasm of high value tree species in the forest to farm gradient

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 2.2.1 Characterizing germplasm				
Systematic characterization of agroforestry germplasm implemented	Development of Expressed sequence-tagged site simple sequence repeat (EST-SSR) markers for 10 high value African agroforestry species for evaluating aspects of landscape genomics. Uapaca seeds derived from marcots, grafts and top-worked trees evaluated. Study started on ethno-botanical assessment of native plant resources (medicine, food and crafts) in different ecological conditions in indigenous and colonist communities in the Peruvian Amazon, and their suitability for use in agroforestry systems and bio-cultural conservation.	Collaboration initiated with the James Hutton Institute to explore new technologies to reduce development costs for molecular markers. EST-SSR markers developed on tree species important to smallholders such as: *Warburgia ugandensis*, *Acacia senegal*, *Faidherbia albid* and, *Prunus africana*. A systematic review of bottlenecks to mango germplasm production published. Masters study on Identification and classification of local mango varieties in Kenya using morphological and molecular markers techniques completed (Anne Sennhenn MSc University Goettingen, Germany) 2 MSc dissertations successfully defended at Yaounde University, Cameroon. Publications related to systematic characterization of key agroforestry species: included under Publications.	Markers will be used to evaluate aspects of landscape genomics of key agroforestry species to reveal information that gives insight to the effects of climate change on forest genetic resources. Methodologies developed for characterization of genetic resources using genomic tools to find sources of variation in important adaptive and useful traits for conservation. Quantitative phenotypic characterization methods for indigenous fruit trees e.g. Uapaca, Allanblackia undertaken. Morphological characterization of fruits and germination of seeds of *Dacryodes mycrophylla* Oliv. Lam (Burseraceae) in Cameroon. Rooting aptitude of off-Season *Dacryodes edulis* (G.Don) H.J. Lam marcots in Cameroon. Capacity development on diverse species characterization initiated.	IFAD (support to fruit work)
	Post graduates trained (5 PhD and 2 MSc) on characterization methods (diversity, nutritional, phenotypic, genotypic and socioeconomic) to help farmers develop appropriate tree ideotypes/ species/provenances of priority agroforestry tree species tested, respective knowledge compiled and documented			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
	ICRAF, in collaboration with the James Hutton Institute and the University of Copenhagen, Forest & Landscape Denmark (FLD), is working towards marker development for tropical trees. If EST-SSR markers ideal for breeding system and connectivity studies are successful, they will be placed online in an open access database. The project will use DNA data to support the development of germplasm deployment zones and as a tool for monitoring the effect of climatic changes on the genepool of native species. The on-going training of Masters and PhD students will ensure the much needed capacity is available to characterize a diversity of tree species.			
Production of a manual on methods and standards for cocoa and coconut characterization (2014)	Cacao: Recommendations proposed within the Global Cacao Conservation and Use strategy to improve the characterization of cacao germplasm	Proposal for the development of cacao descriptors discussed within the Global Strategy.	Methodology linked to the improvement of germplasm documentation and exchange of information for use.	CacaoNet (USDA)
	This activity is linked to the development of CANGIS and the improvement of germplasm documentation in *ex situ* collections to strengthen use and facilitate the rationalization of collections (through adequate identification and elimination of undesirable duplicates).			
Review of evaluation methodologies for key agronomic traits in cacao (2014)	Cacao: Recommendations proposed within the Global Cacao Conservation and Use strategy for the further evaluation of germplasm	Consultation meeting in June 2011.	The Global Strategy for cacao includes recommendations for the improvement of evaluation methodologies and the identification of key traits of interest to users.	CacaoNet (USDA)
	Proposal for project development in the Global Strategy to be finalized in May 2012.			
COCONUT: Development of methodology and standards for phenotypic and genetic characterization of coconut GR	Visit of International genebanks in Brazil and Côte d'Ivoire First attempt at checking genealogies using SRR markers with Likor and sequencing techniques	Updated information about methods used in the genebanks First draft guidelines entitled "Schedule of required time to gather characterization data for one coconut genebank accession". A research Idea for refining coconut descriptors was published on the COGENT website.	The main limiting factors are the controlled pollination techniques and data management in the research centres. The evolution of the DNA technique from Likor to Sequencer needs further research. The guideline "Schedule of required time to gather characterization data for one coconut genebank accession" will help curators to plan observations and obtain from their heads the technical workforce required.	Global Crop Diversity Trust (GCDT), EMBRAPA
	A comparative evaluation of the 25 genebanks of the COGENT network was initiated based on the following criteria: a) Passport data: total number of active accessions, dates of last Inventory/counting; b) Characterization data: field observations made in genebanks and recorded in the database; c) Utilization and reliability of the controlled pollination technique; d) Data management of the genebank: numbering of palms, data comprehensive storage and duplication, losses of data; and e) "Value" of accessions in terms of rarity and genetic representativeness.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 2.2.2 Conserving germplasm				
Updating of global cacao and coconut conservation strategies (2012)	Cacao: Development of the Global Strategy for the conservation and use of cacao genetic resources	Development of a first draft in May 2011 followed by a Global Consultation meeting in June 2011, at Reading, UK.	Ensured the participation and contributions from a wide range of cacao conservation and use experts and stakeholders in the development and implementation of the global strategy.	CacaoNet (USDA)
	A Global Strategy has been discussed within CacaoNet for a number of years and specific recommendations made for its development in 2011-2012. A consultation meeting in June 2011 reviewed the first version and the final strategy is currently being reviewed by the key stakeholders for finalisation in May 2012.			
COCONUT: Development of a global long-term GR conservation strategy for coconut GR	Visit of International genebanks in Brazil and Côte d'Ivoire Project: "Upgrading international coconut genebanks and evaluating accessions" submitted to the Global Crop Diversity Trust (GCDT)	Project "Upgrading international coconut genebanks and evaluating accessions" accepted and funded by the GCDT. Updated data about accessions in the genebanks.	Updated information needed to refine the strategy. The main limiting factors are the controlled pollination techniques and data management in the research centres, and the international transfer of coconut cultivated *in vitro*.	GCDT, EMBRAPA
	The need to update the current Global Coconut Genetic Resources Conservation Strategy was highlighted in 2009 during a COGENT meeting held in Korea. One of the main limiting factors of this updating process was identified as "making decisions with incomplete or obsolete information". A comparative evaluation of the 25 genebanks of the COGENT network was then initiated (see below).			
COCONUT: *Ex situ* tree crop coconut collections secured in line with Global Strategy	Development of the concepts of virtual/ networked genebanks and Polymotu	Publication produced: Bourdeix, R.; Johnson, V.; Baudouin, L.; Tuia, V. S.; Kete, T.; Planes, S.; Lusty, C.; Weise, S. (2011) Polymotu : A new concept of island-based germplasm bank based on an old Polynesian practice. Ogasawara Research, 37, 33-51.)		
	The Polymotu concept (poly=many, motu=island) is to use the geographical isolation of special sites for conservation and reproduction of individual varieties of plants, trees and even animals. We worked to develop Polymotu in the Kepulauan Seribu National Park at the north of Jakarta, Indonesia. We discussed the need for further research to fully implement this concept.			
Listing of priority accessions in *ex situ* collections (cacao 2012, coconut 2013)	Cacao: a list of priority accessions for long-term conservation based on allelic diversity has been proposed	CacaoNet Consultation meeting and preliminary agreement on a list of priority accessions.	Will ensure the long-term conservation of a minimum set of accessions covering the global genetic diversity of cacao.	CacaoNet (USDA)
	Proposed list currently being reviewed by CacaoNet members and to be agreed by May 2012.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Identification of safety back-up measures for cacao and coconut (2013)	Cacao: discussions on the cryopreservation of Global Strategic Cacao Collection within the context of the Global Strategy	Recommendations for securing the safety back-up of the priority cacao accessions.	Will ensure the secured long-term conservation of the global genetic diversity of cacao.	CacaoNet (USDA)
	Recommendations currently being reviewed by CacaoNet members and to be agreed by May 2012.			
Identification of an early warning system for endangered cacao and coconut germplasm (2013)	Cacao: preliminary discussions within the context of the Global Cacao Strategy on the impact of climate change and the development of an early warning system	CacaoNet Consultation meeting and preliminary recommendations.	Will facilitate the forecast of threats to areas of high genetic diversity and the priority collecting for securing long-term conservation.	CacaoNet (USDA)
	Forms the basis for further project proposal development in 2012.			
Identification of a funding mechanism for International Collections (cacao and coconut 2014)	Cacao: The Global Cacao Strategy provides the framework for the development of an endowment fund for cacao by the Global Crop Diversity Trust	Recommendations on the level of funding required to ensure the conservation of cacao diversity in perpetuity.	Will support the long-term conservation and use of cacao forever.	
	Discussions with the Trust are on-going and the Global Strategy will be finalized in May 2012.			
Development of methods for the *in situ* conservation of cacao and coconuts (2014)	Cacao: discussions and recommendations within the context of the consultation for the global strategy for the conservation and use of cacao genetic resources, are currently being finalized (by May 2012)	Draft recommendations on priority actions to ensure the long-term conservation of the cacao genepool through *in situ* actions to complement *ex situ* conservation.	*In situ* conservation will be a component in the Global Strategy for conservation of cacao genetic resources, to be published in May 2012.	CacaoNet (USDA)
	Draft recommendations currently being reviewed by key stakeholders.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Strategies and methodologies for germplasm conservation developed	State of the World's Forest Genetic Resources Thematic study 7: Use of FGR in decentralized development for food security, poverty reduction and livelihood improvement Provenance boundaries proposed within the ecological suitability domain of 400+ useful trees for east Africa Enhanced long-term conservation of 300 orthodox species with external genebanks Svalbard and Kunming	Co-organised with FAO and Bioversity International, the State of the World's Forest Genetic resources training workshop at ICRAF, Nairobi. ICRAF is leading a thematic study to the global report on the livelihood benefits of trees and tree genetic resources. http://www.fao.org/forestry/fgr/71306/en/ ICRAF's workshop report available. Co-organised with Kew (UK) an international workshop on the Millennium Seed Bank (MSB) partnership for Africa. For the activity on provenance boundaries within the ecological suitability domain of 400+ useful trees for east Africa: Products: The Vegetation and Climate Change in Eastern Africa (VECEA) map covering Ethiopia, Kenya, Malawi, Rwanda, Tanzania, Uganda and Zambia was produced. For each potential natural vegetation type, comprehensive species assemblages are provided, which directly provide the vegetation types where a particular useful tree or shrub species occurs. 250 accessions representing 70 tree species dispatched to Svalbard in September 2011	International workshops on agroforestry tree genetic resources useful in informing practitioners, researchers, policy makers, and academic community on sustainable use of tree genetic resources Collaboration with Millennium Seed Bank Partnership (MSBP) comprising of 123 institutions from 54 countries to accelerate dissemination of knowledge Maps of potential vegetation types directly provide the vegetation types where a particular useful tree or shrub species occur. This will ensure better understanding of intraspecific tree diversity patterns Partnerships with Svalbard to enhance safety duplication of accessions with their genebanks	FAO The Rockefeller Foundation University of Copenhagen (Denmark)
	We hypothesize that vegetation types mapping provide proxies for the provenance boundaries of tree species; where a species occurs in more than one vegetation types, we advise against transferring planting materials across vegetation boundaries. The project has provided comprehensive species assemblages for the different natural vegetation types demarcated. This will inform strategies for establishment of live (field) gene banks and community based genebanks. Furthermore, partnerships with FAO, Bioversity International, University of Copenhagen and Kew (UK) have been initiated to ensure wide-sharing and dissemination of knowledge. Main findings and recommendations of the thematic studies on the State of the World's Forest Genetic Resources workshop will be incorporated into a global report. *Related journal articles can be found under Publications*			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Systems and procedures for conserving genetic diversity of high value trees identified	Conservation guidelines for *ex situ* conservation of *Warburgia ugandensis* and *V. Glandulosa,* endangered recalcitrant species, determined Breeding seedling and clonal seeds orchards established for long-term conservation and seed production of *Warburgia ugandensis* and *V. glandulosa.*	Manuscript on ex *situ* conservation of *Warburgia ugandensis,* an endangered recalcitrant species, prepared. Fund raising proposal to support breeding seedling and clonal seeds orchards for long-term conservation and seed production was not successful.	A paper on *ex situ* conservation of endangered recalcitrant species prepared.	
	The project has prepared a manuscript on *Warburgia ugandensis* but faced resource constraints in establishing seedling and clonal seeds orchard for long-term conservation given the huge capital outlay demands. This challenge is being tackled by exploring ways to use Rural Resource Center approach to meet part of this activity objective for funded activities such as the *Allanblackia* project. *Related journal articles can be found under Publications*			
Output 2.2.3 Access to germplasm				
Making available the current versions of CANGIS (cacao) and CGRD (coconut) on-line (2013)	Cacao: Development of CANGIS with Reading University (UK) and the International Cacao Quarantine Centre (ICQC). Current prototypes have been modified for facilitating the maintenance by Bioversity.	CANGIS initial structure developed.	CANGIS is the global cacao genetic resources information system facilitating the identification of and access to key germplasm and its associated information for use.	CacaoNet (USDA)
	CANGIS, the CacaoNet Germplasm Information System, is a web-based, accession level information database that compiles passport, origin, morpho-taxonomic characterization and pre-evaluation data of each accession or individual tree recorded in the GSCC. It is a key strategic component of the global cacao strategy and will be further developed and tested in 2012.			
Establishing linkages to the global cross-crop system (2014)	Cacao: Discussions on linking CANGIS with other global crop information systems within the context of the Global Cacao Strategy	Workshops and meetings on informatics.-July 2011, Reading (UK) - discussing Cacao genetic resource conservation strategy. Draft document on global strategy.	Ensuring that as CANGIS is developed; it is in line with other similar information systems to allow users to easily do cross-crop searches and analysis.	
	Discussions on linking CANGIS with other global crop information systems to ensure complementarity and harmonizing standards and methodology.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
COCONUT: Upgrading information systems and databases for Coconut	Development of the COGENT website and the online release of the Coconut genetic resources database Visit to International genebanks in Brazil and Côte d'Ivoire	New COGENT website: http://www.cogentnetwork.org/ Old version of the Coconut genetic resources database made available online. Updated data for 2 international genebanks.	Information system available online, but the Coconut Genetic Resources Database needs to be upgraded. Funding obtained from GCDT for students to contribute to upgrading the database in 2012.	
	In 2012, under the Global Crop Diversity Trust (GCDT) project (Upgrading international coconut genebanks and evaluating accessions) and CRP6, 3 students will work on upgrading the CGRD database and making it more easily available.			
COCONUT: Systems and procedures for coconut germplasm sharing developed	Standardization of the cost for the preparation of coconut germplasm for international movements	Agreement of Côte d'Ivoire and the Philippines to standardize costs. Further documentation to be produced in 2012.	This standardization will facilitate international coconut germplasm transfers. This agreement needs to be extended to other COGENT country members.	
	For COGENT country members, coconut germplasm accessibility should not be sold. But germplasm preparation is not free, and this cost must be supported by the receiving country. This cost includes controlled pollinations, coconut harvesting, bagging coconut or extracting embryos, chemical treatments, preparation of phytosanitary certificates, etc.			
Development of New Safe Movement Guidelines in cacao (2012)	Cacao: Technical Guidelines for the Safe Movement of Cacao developed and published in 2010 by CacaoNet, (edited by M.J. End, A.J. Daymond and P. Hadley, 2010)	Safe-Movement guidelines for cacao genetic resources, 2011 – CacaoNet publications available on the Bioversity website.[1]	Directly contributes to the safe-movement of cacao germplasm.	CacaoNet
	The previous version of the Technical Guidelines was co-published by Bioversity and FAO in 2000. Since then, changes have occurred in the level of risk posed by known pests and diseases and our knowledge of some pests and diseases has increased. An expert group reviewed quarantine procedures for cacao genetic resources, considering current pest and disease threats and quarantine procedures associated with germplasm transfer. The new guidelines (2010) describe procedures to minimize risks of pest introductions with cacao germplasm movement and have been expanded to include a broader range of pests and diseases of cacao, each section being updated or written by experts within the field. They highlight the need for complete information concerning phytosanitary status of plant germplasm and the pest risk analysis information on which management options are appropriate. There are sections on intermediate and regional quarantine centres and risks associated with movement of different plant parts. Summary tables are provided of the pests and diseases associated with particular geographical regions and the level of risk presented.			
Making available guidelines on sharing cacao and coconut germplasm (2013)	Cacao: discussions and recommendations within the context of the consultation for the global strategy for the conservation and use of cacao genetic resources, currently being finalized (by May 2012)	Section will be part of the 2012 Global Strategy for the Conservation and Use of Cacao Genetic Resources.	Raising awareness of the issue and recommendations made to participants in a global strategy will assist in facilitating exchange of cacao germplasm.	CacaoNet

Projects	Activity	Events /Products	Contribution to Output	Co-funding
	This is a key issue raised within the context of the consultation for the global strategy for the conservation and use of cacao genetic resources, sharing cacao germplasm, and has been discussed by CacaoNet members. Recommendations are made in the Strategy currently being reviewed by key stakeholders and are expected to guide and facilitate the exchange of cacao germplasm. The Global conservation and use system developed within the Strategy will ensure the availability and accessibility of a greater range of cacao diversity through the international collections at CATIE and CRU and the participation of national collections in evaluation and breeding programs in the use of the materials.			
Accessible seed and seedlings systems promoted	Founder seed populations collected, procured, evaluated and disseminated; quality fruit tree scions made available to community/ individual fruit tree nurseries Methodologies for multiplication and stock plant management for priority species developed and propagation manuals produced	Superior planting material with appropriate propagation protocols made accessible to farmers and readily available for research.	At least five tree species of superior varieties identified from each region sourced and disseminated with appropriate information to farmers as started material for planting and provided for research in regions Superior planting material with appropriate propagation protocols made accessible to farmers and readily available for research being generated.	IFAD-808 Unilever
	The project has made important steps in assessing approaches to seed and seedling deployment systems. Projects needs to hire more staff especially a seed and seedlings specialist to support on-going activities. *Publications related to this work are listed under Publications.*			

Component 2: Management and conservation of forest and tree resources

Theme 2.3: Developing improved silvicultural and monitoring practices for multiple use management of forest ecosystems

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 2.3.1 Improved management practices and monitoring methods for multiple use management of forest ecosystems				
Sustaining forest resources for people and the environment in the Niassa National Reserve in Mozambique	Analysis of use and threat assessment of priority species in Niassa Natural Reserve in Mozambique; focus on honey collection and illegal logging	Most of the tree species that were recorded during earlier household surveys were validated in July 2011. During the validation, a botanist with IIAM, and a UEM graduate student received training from a Kew taxonomist. A knowledgeable local farmer helped the team to obtain specimens matching local names. A species list was developed with local and scientific names. Preliminary analysis of ecological studies indicated that cutting trees for honey was by far the greatest factor in tree mortality in honey harvesting areas. *Terminalia sericea* and *Albizia versicolor* are the most severely affected by the harvesting in all sites. Other tree species that are significantly affected include *Brachystegia spiciformis*, *Julbernardia globiflora* and *Pterocarpus angolensis*. The timber resource remaining in the areas where illegal harvest has taken place is insufficient to warrant development of community forestry.	All results were provided to the Reserve management and the management has been actively involved in planning and implementing the project. Guidelines to address these threats will be produced in 2012.	Austrian Development Agency (ADA)
	Field work was carried out to validate scientific names of most of the tree species that were recorded in surveys carried out in 2010. Preliminary analyses of the 2010 socio-economic studies in the Mecula area and Negomano led to a decision to focus on the impacts of honey harvest in the Mecula region because of the practice of cutting trees to collect the honey, and illegal logging in the Negomano area. Methods were developed and tested, and ecological field research was carried out to assess impacts of each type of harvest on important tree species in two areas of the Niassa National Reserve. Statistical analyses of results of ecological studies were initiated.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Beyond Timber: Reconciling the needs of logging industry with those of forest-dependent people (Bioversity/CIFOR)	Co-organized the inception meeting of the project in Yaoundé, Cameroon Prepared the guides for the socio-economic questionnaires and household surveys Prepared the Terms of Reference for MSc students to be recruited for the surveys	Inception workshop took place among partners: 33 participants from Bioversity and CIFOR, and partners from Cameroon, Gabon and DRC. Contact made with Ministries in charge of forests to facilitate contact with concessionaires. Protocols/guides for field surveys Terms of Reference drafted Research tools for nutrition studies and ecological studies were produced.	Involvement of National Partners from 3 countries: IRAD, IRET and UNIKIS. Early involvement of representatives from Ministries of Forestry and of relevant local NGOs. Research activities are yet to start; specific work plans to be developed in each site.	Congo Basin Forest Fund (CBFF), IRD, CIRAD
	The project was initiated in 2011; the team was assembled; an inception meeting held and negotiations were carried out with national partners to finalize budget and responsibilities. Delays occurred in initial project implementation for a variety of reasons, but chiefly because of the need for negotiation around Letters of Agreement with the project partners and obtaining the approval of logging concessionaires to collaborate with research institutes.			
Multi-use forest co-management by communities, government and the timber industry	SWOT analyses of various aspects of forest management in colonist settlements. Trained national staff and assistants in research methodologies.	Participatory workshops with rural associations to assess development priorities and needs and SWOT of forest management Presentation at a CIFOR-organized symposium on multiple forest use at the Association of Tropical Biology and Conservation annual meeting.	Informing co-management strategies and sustainable development plans for the study settlement and other migrant communities.	Moore Foundation Instituto de Pesquisa Ambiental da Amazonia (IPAM) Brazil
	The project, led by IPAMbegan at the end of 2010, with CIFOR's contribution beginning in May 2011. After initial delays due to sensitivity in the region and the need to build relationships with government and rural association partners, the project is now making steady progress. Key challenges include mistrust of some stakeholders and time required to build this trust and relationships of confidence and mutual collaboration.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Analysis of multiple-use forest management for tropical production forests and assessment of opportunities and barriers to implementing multiple use management systems	Co-organized with IUFRO and CIRAD an International Conference on "Research Priorities in Tropical Silviculture" in Montpellier, France Carried out a global survey on constraints and opportunities in implementing multiple forest use approaches in the tropics Landscape assessment of the impacts of timber extraction within Brazil nut concessions in Peru	Presentations and side events at IUFRO-CIRAD-CIFOR International Conference in Montpellier, France Special Issue in the journal *Forest Ecology and Management* with eleven contributions from across the wet tropics covering biophysical, institutional and socioeconomic aspects of multiple forest use including wildlife management. Several updated maps have been produced on distribution, gazetting and land use types. A consultant's report is available.	Informing the international academic, scientific and practitioner community on the state-of-the-art of multiple forest use initiatives and research. Informing national decision makers and local governments on current policy bottlenecks needed to be overcome to promote forest multifunctionality.	USAID INIA-Spain
	A report put out by CIFOR and national partner Sociedad Peruana de Derecho Ambiental (SPDA) concluded that Brazil nut concessions established in 2002 over more than one million hectares of forest have become de facto timber concessions because of several vacuums that make it very easy to harvest timber with minimal legal and technical basis. It is hoped that the CIFOR-SPDA report this year will lead to modifications of existing policy so to better integrate the management of timber and Brazil nuts.			
Output 2.3.2 New approaches and technologies for restoring forest ecosystems and their goods and services				
Policy options for enhancing restoration of forest ecosystems and their goods and services	Paper on the policy implications of definitional issues of forest degradation	Oral presentation at the Society of Ecological Restoration World Congress in Merida, Mexico.	Informing global policy on why clarity is needed in the operationalization of degradation definitions, and implications for forest restoration and conservation.	CIFOR unrestricted
	Project completed and new activities under this output being implemented in 2012.			
Synthesis paper: Use of native species in biodiversity restoration and management (State of the World's Forest Genetic Resources (SOW-FGR))	Development of thematic study on methods, experiences, results, best practices including genetic aspects and identification of needs and gaps	Side event at Society of Ecological Restoration World Congress in Merida, Mexico, August 2011. Writeshop in Rome, Nov-Dec 2011.	Short articles collected from authors and several chapters completed providing overview of methods used in ecosystem restoration and analysis of the degree to which the methods include important genetic considerations.	FAO
	Writing team was assembled; outline developed and circulated; side-event organized in Mexico; writeshop organized in Rome; and contributions collected and assembled from some 25 authors.			
Output 6.2.3.3 Impact assessment studies on research activities under all four themes				
CRP 6.2 Cross-cutting impact assessment	Identification of projects for which impact assessments will be carried out	The Congo Basin, 'Beyond Timber'; 'Brazil nuts and Timber', Peru projects were selected for baseline studies.	Evaluation of contribution of research projects to outcomes and impacts	Bioversity unrestricted
	Impact assessment resources have been identified. Baseline study to begin in 2012.			

Component 2: Management and conservation of forest and tree resources

Theme 2.4: Developing tools and methods to resolve conflicts about distribution of benefits and resource rights in the use of forest and tree resources

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 2.4.1 Developing tools and methods to resolve conflicts about distribution of benefits and resource rights in the use of forest and tree resources				
Promoting equitable benefit-sharing and conflict resolution	Global literature review of community-concession interactions	CIFOR Occasional paper on community-concession interactions translated into Bahasa Indonesia and French.	Understanding of factors that enhance equitable interactions and enhance conflict resolution/management. Knowledge gaps identified.	CIFOR unrestricted
	Proposal on community-concession interactions (cross continental) intended to enhance collaborative research as an impetus for improved practice and policy reform	Research proposal available.	Addressing knowledge gaps including community-concession benefit sharing models and incentives for cooperation.	CIFOR unrestricted
	Activity 1 has been finalized and activity 2 is in the process of being finalized in early 2012.			

Component 3: Landscape management for environmental services, biodiversity conservation and livelihoods

Theme 3.1: Understanding patterns and drivers of forest (tree cover) transition in decline and restoration phases

- Output 3.1.1 Empirical data sets of quantitative and qualitative tree cover transitions across major ecoclimatic zones
- Output 3.1.2 Empirical data on changes in spatial pattern of tree cover within landscapes in relation to segregation/ integration of functions
- Output 3.1.3 Methods for monitoring and quantifying tree cover refined and linked to data uncertainty
- Output 3.1.4 Proximate and ultimate drivers of land use and tree cover change: inference from spatial patterns, macro-economic statistics and bottom-up driver info
- Output 3.1.5. Policy levers and negotiation opportunities to influence drivers of tree cover transitions, rehabilitation and/or agroforestry transformation

Theme 3.2: Understanding consequences of tree cover transition for livelihoods, environmental goods and services, and adaptive policy

- Output 3.2.1 Tools for and case studies of quantifying buffering of water flows and other hydrological ES linked to tree cover (quantity, quality, pattern) and agriculture
- Output 3.2.2 Tools for and case studies of understanding biodiversity-based environmental services across stages of tree cover transition, incl. pollination, dispersal
- Output 3.2.3 Not just carbon? Quantified tradeoffs between C stocks and other environmen-tal services across tree cover transitions
- Output 3.2.4 Gender, age and wealth-specifi c appreciation of tree cover transitions in relation to demographic transitions and development context
- Output 3.2.5 Tested tools and governance mechanisms for adaptive landscape management of ecology-economics tradeoffs including performance-based incentive systems
- Output 3.2.6 Policies for the agriculture-forestry interface and strategies for sustaining food security, ecological functionality and rural development in multi-use landscape mosaics

Theme 3.3: Learning landscapes where innovative response and policy options are being tested

- Output 3.3.1 Network of 'active learning landscapes' on RES/PES mechanisms maintained and enhanced
- Output 3.3.2 Synthesis from action research sites, identifying principles, methods and processes for advancing conservation, use rights and livelihood values
- Output 3.3.3 Identification of improved modalities and approaches to effectively support conservation in forest landscape mosaics
- Output 3.3.4 Participatory models for reserve managemen t: resource use rights, threats to targeted species, guidelines for monitoring
- Output 3.3.5 Impact studies testing assumptions of the CRP6.3 theory of change and output-outc ome-impact pathways

Component 3: Landscape management for environmental services, biodiversity conservation and livelihoods

Theme 3.1: Understanding patterns and drivers of forest (tree cover) transition in decline and restoration phases

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 3.1.1 Empirical data sets of quantitative and qualitative tree cover transitions across major ecoclimatic zones				
Tree cover transitions in historical context and inference on drivers in Indonesia	Literature review, remote sensing, ground truthing, quantitative vegetation assessments and interviews of key informants.	• Land cover maps of Bungo district • Journal publications.	The data can contribute to the whole land use change pattern of the whole country (Indonesia).	• Landscape Mosaic Project, funded by SDC (2010) • ALLREDDI and REDD ALERT Project, funded by EU (2009-2011) • Collaboration with AFRITRON Network with funding from USAID through CIFOR • T-FORCES Project to start in Asia; an extension of AFRITRON, with funding from the EU.
	The activity will be continued and expected to result a journal publication for the whole country (Indonesia) in 2012.			
Output 3.1.2 Empirical data on changes in spatial pattern of tree cover within landscapes in relation to segregation/ integration of functions				
Swidden landscapes in REDD+ perspective	Approach for spatial delineation of swidden systems based on landscape mosaics Analysis of influence of landscape configuration on provision and marketing of environmental services in coffee agroforestry landscapes	Journal publication PhD Thesis/Journal article	The approach could be used in a swidden compatible monitoring, reporting and verification (MRV) system of a future REDD+ framework.	CIFOR and CIRAD
	A paper exploring FragStat analysis of dynamic landscape mosaics is 'in press'			
Output 3.1.3 Methods for monitoring and quantifying tree cover refined and linked to data uncertainty				
Tree cover and carbon stock estimation.	• Using ALUCT method with 4 stages: (1) Designing legend categories; (2) Image acquisition and pre-processing; (3) Image classification and (4) Post-interpretation analysis. • Estimating carbon stock from the land cover changes in Indonesia and National Forest Inventory data • Analysis of three maps with different resolution in Vietnam • Analysis of above ground biomass from the forests of Central Africa based on permanent sample plot data	• Land cover maps • Land cover change analysis of Indonesia (1990, 2000, 2005) • Data on carbon stock estimation of Indonesia • Brief (leaflet) publication] • Journal articles	The research has tested the ALUCT method for analysing land use change and multiple-resolution method to compare land categories.	TUL-SEA Project funded by BMZ (2011), ALLREDDI Project, funded by EU (2009-2011) and CIFOR
	Further analysis on allometrics in Indonesia forest types and uncertainty of biomass estimates is under way and will lead to journal publication.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 3.1.4 Proximate and ultimate drivers of land use and tree cover change: inference from spatial patterns, macro-economic statistics and bottom-up driver info				
Introduction of landscapes and the land use change	• Understanding forest transition in Philippines • Discussion on feedback loops added to four conceptual models linking land change with driving forces and actors in Indonesia. • Study on evolving relations between agriculture and forest in Laos • Study on knowledge that is relevant to policy making in rubber expansion in Laos • Discussion on the lack of on-farm tree planting in Ethiopia • Study on road as drivers of change in trajectories across the Tri-National Frontier in MAP, the South Western Amazon • LOAM assessment in the Tri-National de la Sangha, Central Africa (with IUCN and others) • Assessment of the role of forest resource management on land use planning (Indonesia)	Journal publication.	Provide information on the people/ governance understanding of the drivers of changes and the feedback.	REDD ALERT, ALLREDDI, COLUPSIA funded by EU, REALU funded by NORAD, RUPES funded by IFAD and CIFOR
	Further activities in 2012: understanding drivers of forest conversion and land use changes: historical analyses towards REALU intervention.			
Agroforestry technology and the effect	• Identifying five tropical landscapes, the people and governance • Study on human health effect of pesticide in West Africa • Study on causes and consequences of shifting cultivation and its alternative in the hill tracts of eastern Bangladesh • Study on maize expansion impact to household and production systems in northern Laos • Study on human-fire interactions in tropical forest regions • Study on patterns of diffusion and adoption of conservation agriculture Laos	Journal article	The research will provide information whether farmers will keep their system or not as the effect of the technology to the health and cost.	ICRAF
	Further study will be continued for inventory and economics of various forest and tree-based technologies.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Socio-economic management as drivers of land use and tree cover change impact	• Manage the transition from farmers' groups to agricultural cooperatives in Laos • Study on socio-economic and environmental impacts, and the role of institutions in artisanal mining in forest landscapes in the Congo Basin • Study on the processes of large scale land acquisition by investors in sub-Saharan Africa • Understanding the contribution of forests to local livelihoods (PEN) through analysis of global data set.	Journal articles	Provide information on the people/ governance understanding of the drivers of changes and the feedback.	CIFOR, IRD, DfID
	STATUS			
Output 3.1.5. Policy levers and negotiation opportunities to influence drivers of tree cover transitions, rehabilitation and/or agroforestry transformation				
National case studies of policies on agroforestry and tree planting in priority countries of Asia	• Study on land tenure and land use policy in Indonesia • Analysis on policy on forest, agroforest management and land use change in Indonesia, China, Laos, Republic of Korea and Bangladesh • Study on the governance of tropical forested landscapes • Study on institutional aspects of artisanal mining in forest landscapes in western Congo Basin • Study on geological resources and good governance in Sub-Saharan Africa • Understanding dynamic of the charcoal trade in Southern Africa and emerging livelihood options • Documenting the forest/coffee transition in coffee agroforestry systems with remote sensing classification of alternative production systems	National journal, book and policy briefs.	The policy study/ analysis can be used as policy maker's consideration in the development program on forest rehabilitation and/ or agroforestry.	CLUA, RUPES Project, funded by IFAD, and CIFOR, IRD and CIRAD, Finnish Government
	Complete report in global with priority on Asia, Africa and Latin America will be produced in 2012.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Baseline tree cover change scenarios by location & driver typology	• Study on spatial planning linked with REDD strategy in Indonesia • Study on forest loss and management in land reform settlements in the Brazilian Amazon	National policy briefs and journal article.	The study on spatial planning and smallholder decision to plant tree can influence the policy maker/ government in their development planning (spatial planning) in related also with REDD scheme.	CLUA, ALLREDDI and REDD ALERT funded by EU and RUPES Project, funded by IFAD and CIFOR
	The baseline tree cover change scenarios across Indonesia will be written as journal paper in 2012			
Developing "Green Mining" through land reclamation and agroforestry development in China	• Campaign on 'new forest' in China by planting trees • Review two pilots of National Parks in China	Xu Jianchu. 2011. China's new forests aren't as green as they seem. Nature. 477: P. 371. Zhou D and Grumbine RE. 2011. National parks in China: Experiments with protecting nature and human livelihoods in Yunnan province, Peoples' Republic of China (PRC). Biological Conservation. 144. (5) P. 1314-1321. URL	The activity/ review were involving the local government and can be consideration in policy making.	
	Journal article will be produced in 2012.			
Impact study of existing improved land tenure and other land management	• Explore marginalized forest peoples' perceptions of the legitimacy of governance • Participatory action research for catalyzing adaptive management • Explore the use of scoping models in conservation and development • Study on non-timber forest products in global context • Explore the background, substance, and prospects of global forest tenure transition • Study on information flows, decision making and social acceptability in displacement processes • Analysis of issues related to free and prior informed consent for protected area management	Books and journal articles	The result that mostly came from the local people/ stakeholder can be used as input for policy making decision.	CIFOR, CLUA COLUPSIA CIRAD - CIFOR funded by EU (2010 – 2014)
	STATUS			

Theme 3.2: Understanding consequences of tree cover transition for livelihoods, environmental goods and services, and adaptive policy

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 3.2.1 Tools for and case studies of quantifying buffering of water flows and other hydrological ES linked to tree cover (quantity, quality, pattern) and agriculture				
Flow persistence principle and algorithm	Developing and testing the FlowPer tools with some available data.	GenRiver Manual (including FlowPer) and leaflet of FlowPer.	The tools are ready for further test in the site.	TUL-SEA Project funded by BMZ, RUPES Project funded by IFAD
	The project will be continued in 2012 for calibration and further testing. With available hydrology data, journal article is expected to be produced in 2012.			
Study on hydrology	• analyzing seasonal and regional trends of evapo-transpiration in Nigeria • evaluating effects of water application rate and frequency on seedling growth • study on the effect of the nitrogen-fixing legume tree and inorganic fertilizer on rain use efficiency (RUE) • RHA of Peusangan Watershed, Aceh, Indonesia • Study on the impact of climate change on water resources and local livelihood • Study on ecosystem services and hydroelectricity in Central America using modeling service flows	Journal articles and working papers.	The experiences provide data and analysis on hydrology that can be further for ES.	TUL-SEA Project funded by BMZ, RUPES and PRESA funded by IFAD, WWF Indonesia
	Next steps from the hydrology studies, reconciling knowledge systems and co-investment in enhancing watershed services in the uplands will be conducted in 2012.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 3.2.2 Tools for and case studies of understanding biodiversity-based environmental services across stages of tree cover transition, incl. pollination, dispersal				
Understanding the consequences of the forest transition for environmental goods and services and livelihoods	• Biodiversity study in rubber plantation in Indonesia • Study on Orang Utan, the people and economic situation of the surroundings • Study on forest cover, use and dietary intake and profitability analysis of cropping systems in the East Usambaras, Tanzania • Investigation on conservation and compensation process, and livelihood responses of affected people in conservation corridor • Study on community structure and diversity of tropical forest mammals • Study on forests, biodiversity and food security • Study on trends and drivers of human–elephant conflicts in coffee agroforestry landscapes of Kodagu, Western Ghats, India • Study on management of Non Timber Forest Products (NTFPs) across the Nam Khan Watershed, Laos • Study on forests vs. livelihoods in the Congo and Amazon Basins • Study on tree diversity and conservation value of Ngovanyang's lowland forests, Cameroon • Study on soils on exposed Sunda Shelf shaped biogeographic patterns in the equatorial forests of Southeast Asia • Predicting alpha diversity of African rain forests • Analysis of influence of landscape configuration on provision and marketing of environmental services // Certification manual for Ecosystem Services submitted to FSC	Journal articles, book chapters and working paper.	The research has analysed the biodiversity impact of the land use change/ tree cover transition, the interaction with people and also economic situation	United Nations Environment Programme through PanEco, TUL-SEA Project funded by BMZ.
	Similar study/ analysis to understanding the consequences of the forest transition for environmental goods and services and livelihoods will be conducted in Thailand in 2012.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Agrobiodiversity and intensification of agriculture	Study on process of crop seed certification in general and tree germplasm certification Review the agroforestry tree seed supply system in Malawi Study on ethnobotanical survey of the uses of Annonaceae around Mount Cameroon Study on inventory and distribution of the Annonaceae, tree population dynamics of three altitudinal vegetation communities along on Mount Cameroon Remote sensing analysis reveals habitat, dispersal corridors and expanded distribution for the Critically Endangered Cross River gorilla Assessment to see the fruit for the trees in Borneo Establish IUCN red list criteria for threatened ecosystems Study on African golden cat *Caracal aurata* Preliminary assessment of *Cecropia*, an American tree, in Java, Indonesia Study on cecropias, snarks and boojums Study on fruit Trees and Useful Plants in Amazonian Global review of the contribution of NTFP's to conservation	Journal articles	The research can show the challenge of agro-biodiversity in providing certification of tree germplasm and further can affect the livelihood. PRESA funded by IFAD	
	Further studies will be continued for other countries especially in Asia.			
Output 3.2.3 Not just carbon? Quantified tradeoffs between C stocks and other environmental services across tree cover transitions				
Trees in multifunctional landscapes in Asia: rapid appraisal tools across knowledge systems	• Developing manual for carbon stock measurement • Analyzing the climate change linked with tree genetic resource management, land use-induced risks to watershed services, rural livelihood, socio-economic, trees as provider of ES and impact on Agriculture and Adaptation • Study on the impacts of land use conversion and improved management practices on soil organic carbon	Journal articles, books/ book chapters, policy brief and working paper.	The activities have shown that tree cover transition has contributed to C emission. Further impact on climate change are also influenced the tree genetic resource, watershed function, socio-economic and also agricultural adaptation.	ALLREDDI funded by EU, PRESA and RUPES funded by IFAD
	The methods will be continued to be implemented and tested, and the book contains of all the tools experiences will be produced in 2012			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 3.2.4 Gender, age and wealth-specific appreciation of tree cover transitions in relation to demographic transitions and development context				
Supporting multi functionality to enhance trees as sources of environmental services	• Discussion on the interrelationships among people, trees and local climate and all the surrounding issues of trees as sources of ES • Forests, Trees and Human Health • The impacts of selective logging on non-timber forest products of livelihood importance • Models of multiple-use management for timber, non-timber and environmental service provision (Amazonia) • Initiatives of tropical agroforestry to sustainable agriculture: A case study of Capasia Village, Northern Bangladesh • The interweave of people and place: biocultural diversity in migrant and indigenous livelihoods around Mount Cameroon • Rubber agroforests' profitability, the importance of secondary products. • Falling back on forests: how forest-dwelling people cope with catastrophe or "shocks" in a changing landscape • Brazil's social movement, women and forests: A case study from the National Council of Rubber Tappers. • From conflict of use to multiple use: forest management innovations by small holders in Amazonian logging frontiers • Spatial changes in the use of Non Timber Forest Products in four villages of Viengkham District, Luang Prabang Province, Lao PDR • Farmers' perspectives about agroforests conversion to plantations in Sumatra: lessons learnt from Bungo district (Jambi, Indonesia)	Book chapter	The discussions have been conducted across ages, gender and wealth specific in order to get perspectives on trees as sources of environmental services.	RUPES and PRESA funded by IFAD
	The next step will link demography, migration and gendered land use perspectives of ES.			
Analysis of women's roles in ecosystem management and land-use decision making processes	• Study on the opportunities and challenges for conservation between forests, women and health (see Special Issue of International Forestry Review)			CIFOR
	STATUS			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 3.2.5 Tested tools and governance mechanisms for adaptive landscape management of ecology-economics tradeoffs including performance-based incentive systems				
Commodification, compensation and coinvestment paradigms of PES analyzed for fairness and efficiency dimensions	• Support and facilitate PES reward mechanisms • Supporting farmers with land-use technologies • Assessment some key issues associated with design and implementation of RES • Study on understanding and integrating local perceptions of trees and forests into incentives for sustainable landscape management • Study on geographic indications and landscape labeling in Kodagu district, India • PES for improved ecosystem water services in Pimampiro town, Ecuador	Journal articles, book chapter, reports, working paper and leaflets/ briefs.	The activities have involved stakeholders and local government so there will be consideration on the ecology-economics tradeoffs including performance-based incentive systems in government mechanism.	RUPES and PRESA, funded by IFAD
	Journal article on PES analyzed for fairness and efficiency dimensions will be produced in 2012. Journal article of "Grain for Green" and 5 million hectare programme in China and Vietnam to be published in 2012. CIFOR's global comparative study on REDD has also applied at new research methodologies aiming at understanding policy network analysis (both national and local level) related to PES as well as support the new Forest Protection and Development Plan 2012 – 2020, Vietnam Forestry Strategy 2006- 2020 through research linking national PES policies and program with national REDD program and National Climate Change Strategy. In addition, a study on how communities spend and manage the PES money for the last 4 years and how these payments impact on performance of forests managed by community is now conducted in Son La province.			
Toolbox for landscape and trade off appraisal available and accessible to practitioners and policy makers at various levels	• Agroforestry Day of Indonesia in September 2011	National Seminar on Agroforestry Day in Indonesia, and the seminar booklet.	The publication and event produced and shared tools/ experiences for landscape and trade-off appraisal that can influence governance mechanisms for adaptive landscape management.	RUPES and PRESA funded by IFAD, ALLREDDI and REDD ALERT funded by EU, and REALU funded by NORAD
	The tools and experiences will be updated in TUL-SEA website, which will be re-structured in 2012.			
Tools: Land Use Planning for low carbon emission (LUWES)	• Facilitate the local government/ stakeholders to plan for low emission development.	Policy briefs.	Assist the government to preparing/ planning for low emission development.	ALLREDDI and REDD ALERT funded by EU, REALU funded by NORAD
	The tools are ready for used and expected more inputs from other sites for improvement.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 3.2.6 Policies for the agriculture-forestry interface and strategies for sustaining food security, ecological functionality and rural development in multi-use landscape mosaics				
Protected areas in relation to landscape multi-functionality	• Discuss the policy gaps in order to institutionalise payments for watershed services in Kenya • Study on Chinese conservation values, policies and practices	Journal article and policy brief.	The study and discussion can be treated as inputs for policy maker.	PRESA funded by IFAD, and MacArthur Foundation
	Further discussion will continue in other sites/ country. Book on "Evidence-based conservation in the Lower Mekong" to be published in 2012 (Earthscan).			
Sharing experiences and discussion on policies and management for the agriculture-forestry interface	• Discussion on the efforts for reconciliation between conservation and livelihoods in Northern Pakistan • Impacts study on community conservation and payments for environmental services on an indigenous community of Oaxaca, Mexico. • Study on biodiversity support to food security • Study to find solution of depleting tropical forest at a landscape scale in Bangladesh • Study on translating science into policy for forest biodiversity and the delivery of ecosystem goods and services • Analysis on property rights and collective action for poverty reduction • Study on equitable collective action and policy change for poverty reduction and improved natural resource management in the Eastern African highlands • Study on governance and NTFP chains in the Takamanda-Mone Landscape, Cameroon • Study on the role of collective action in securing property rights for the poor in Jambi Province, Indonesia • Exploring the challenges of developing a right-based approach to conservation in Indonesia • Study on the role of wild species in governance of tropical forested landscapes • Study on the reconciling smallholder forest culture in managing forest at a landscape scale in the uplands of Eastern Bangladesh • Review affirmative policy on an uneven playing field as implications for REDD • Study on decision support systems in agriculture	Books and journal articles	The experiences and discussions can be inputs for policy making.	CIFOR
	Provide brief status update on project #2 as it relates to this output for 2011 – CIFOR			

Theme 3.3: Learning landscapes where innovative response and policy options are being tested

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 3.3.1 Network of 'active learning landscapes' on RES/PES mechanisms maintained and enhanced				
Rewards for environmental services in Asia and Africa (RUPES and PRESA)	In Viet Nam, in support of nation-wide implementation of the national policy on Payments for Forest Environmental Services (PFES), a five-module training program for designing and implementing PES in Bac Kan province is being conducted based on the experience of RUPES.			
	STATUS			
Output 3.3.2 Synthesis from action research sites, identifying principles, methods and processes for advancing conservation, use rights and livelihood values				
Adaptation to climate change	Synthesis, discussion and evaluation on adaptation to climate change, social protection in agroforestry systems, climate in Asia and the Pacific, scientific knowledge linked with policy action, and the MRV of agricultural NAMAs.	Journal articles, book, book chapters, policy briefs and working papers/ reports.	The activities have provided experiences and inputs for the synthesis from action research sites.	ALLREDDI and REDD ALERT funded by EU, REALU funded by NORAD
	The activities will continue in 2012 as the issue in climate change is still growing and required further analysis.			
Policy review	• Synthesis and evaluation on the efforts to harness science in support of sustainability in the developing world • review the National Agroforestry Policy • Review the role of the district government in directing landscape dynamics in Bungo District, Jambi province, in Indonesia	Journal article, proceeding, book chapter and working paper	The result can assist in identifying principles, methods and processes for advancing conservation, use rights and livelihood values.	

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 3.3.3 Identification of improved modalities and approaches to effectively support conservation in forest landscape mosaics				
Analysis of the circumstances where different conservation approaches can be effective in delivering environmental services and improved livelihoods	• Monitoring participatory land use planning for better impact on landscapes and livelihoods in Nambor, Sobchia and Pakhok villages, Phonxay district, Luang Prabang province, Laos • Impact study of legal awareness, trust, and participation toward forests outside protected areas in India • Impacts study of co-management on western chimpanzee (habitat and conservation) in Nialama Classified Forest, Republic of Guinea	Journal articles and book.	The activities provide community and stakeholder's review/ perspectives to support the conservation in forest landscape mosaics.	IRD and CIFOR
Output 3.3.4 Participatory models for reserve management: resource use rights, threats to targeted species, guidelines for monitoring				
Baseline characterization of current capacity and issues identified by stakeholders	• Measuring participation on village land use planning in northern Laos • Study on minefields in collaborative governance and indicators for assessing governance in forested landscapes • Landscape simulation for participatory land use planning in Northern Laos	Books and journal articles	The activities will provide basic information on community/ stakeholder participation and governance indicators for participatory models for reserve management	
Output 3.3.5 Impact studies testing assumptions of the CRP6.3 theory of change and output-outcome-impact pathways				
None				
None				

Component 4: Climate change adaptation and mitigation

Theme 4.1: Harnessing forest, trees and agroforestry for climate change mitigation

Theme 4.2: Enhancing climate change adaptation through forests, trees and agroforestry

Theme 4.3: Understanding the role of forests, trees and agroforestry in achieving synergies between climate change mitigation and adaptation

- **Output 4.1.1** Informing international and national level policy processes
- **Output 4.1.2** Informing subnational and local initiatives
- **Output 4.1.3** Best-practice methods
- **Output 4.2.1** Informing international and national level policy processes
- **Output 4.2.2** Informing subnational and local initiatives
- **Output 4.2.3** Best-practice methods
- **Output 4.3.1** Informing international and national level policy processes
- **Output 4.3.2** Informing subnational and local initiatives
- **Output 4.3.3** Best-practice methods

Component 4: Climate change adaptation and mitigation

Theme 4.1: Harnessing forest, trees and agroforestry for climate change mitigation

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 4.1.1 Informing international and national level policy processes				
Project 1: Global comparative study	Assessment of national REDD+ policies processes in Peru, Bolivia, Brazil, Burkina Faso, Congo, Cameroun, Tanzania, Mozambique, Nepal, Vietnam, Indonesia, Papua New Guinea. Discourse and media analysis in Peru, Bolivia, Brazil, Congo, Cameroun, Tanzania, Nepal, Vietnam, Indonesia. REDD+ Policy content analysis in Peru, Bolivia, Brazil, Congo, Cameroun, Tanzania, Nepal, Vietnam, Indonesia. Specific policy studies to capture emerging or country specific issues and questions.	Events: 1. Forest Day 2. Forest Indonesia 3. UNFCCC Expert meeting on reference emissions levels 4. Side event: REDD on the Ground, COP 17 Durban 5. Training for REDD projects on MRV 6. National assessment methodology workshops for partners in Nepal, Peru, Bolivia, and DRC 7. Writing workshops in Indonesia and Vietnam. Products: Country REDD+ profiles published Media discourse analyses published Paper on lessons for REDD+ from measures to control illegal logging in Indonesia. Case study of forest allocation policy in Indonesia. Institutional assessment for REDD in Congo Basin. Case study on Gender, climate change and REDD in the Congo Basin Several case studies on forest governance in Latin America. Assessment of REDD in African dry forests.	Several national level analyses and studies contribute to informing national and international REDD policy level processes. We continue to work closely with key agencies in partner countries and our information is widely solicited. For example, our project website receives over 16,000 visits each month. We have had over 1.1 million REDD+ publications downloaded from our website since 2008. Our book *Realising REDD+: National strategy & policy options* has been downloaded 289,000 times in English, Indonesian, Spanish & French – and viewed 73,000 on Google Books. Forest day is our most important outreach activity and in 2011, we had over 1,100 participants including 211 UNFCCC negotiators. Forest Indonesia was hosted by the President and attended by over 950 people. Our ability to have impact through these events relies heavily on our research output. Smaller workshops are essential to building partnerships with local institutions and engaging them in the research process. Many of the products from this project come from these workshops.	Project was co-funded by: NORAD AusAID FinAID DECC (UK) EU (REDD-ALERT; I-REDD) DFID GEF FFEM

Projects	Activity	Events /Products	Contribution to Output	Co-funding
	We have successfully launched or continued research activities together with partners in nine countries: Peru, Bolivia, Brazil, Congo, Cameroun, Tanzania, Nepal, Vietnam, and Indonesia. In three additional countries (Burkina Faso, Mozambique and PNG), parts of the methodology have been implemented (country profiles, and in the case of PNG the media-based discourse analysis as well). Snapshot of REDD+ in PNG (country profile) has been published as CIFOR info briefs. A media-based discourse analysis and a first analysis of the context in which REDD+ emerges in the case countries has been finalized in Brazil, Bolivia, Cameroon, Vietnam, Indonesia. The reports have been through a peer reviewed process and were published or are in the process of being published as CIFOR occasional papers, working papers and info briefs. Other major activities and accomplishments are related to capacity building, outreach and dissemination of our results into the policy making arenas: Through partners we have successfully linked to national strategy formulation processes and through the findings of the country profile (among other documents) we have provided facts and evidence to inform national REDD+ policy design. CIFOR could support this via capacity building (training, feedback and learning loops, etc), and dissemination (examples from Cameroon, Indonesia, Brazil and Mozambique). In addition to policy makers and REDD practitioners, academics are taking up our methodology and contributing to our outputs (see for example the Policy Research Department of University of Southampton, the University of Helsinki, and others).			
Project 2: Accountability Local Level Initiative to Reduce Emission from Deforestation and Degradation in Indonesia (ALLREDDI)	Developing national carbon accounting systems that comply with Tier 3 of the IPCC guidelines for AFOLU (Agriculture, Forestry and Other Land Uses), complementing and maximizing existing efforts; Strengthening national and sub-national capacity in carbon accounting and monitoring; and Designing operational REDD mechanisms in five settings for REDD	An accounting and monitoring system that relates local level action to national emission data towards international agreements; Credible estimates of the dynamics of carbon stocks at the national level over the past 20 years that complies with Tier 3 reporting guidelines of the IPCC; REDD designs for five pilot areas, including baselines nested within national policy, providing efficient & fair payment distribution; Operational guidelines for REDD for approval by the designated national authority in Indonesia	Indonesia is at the centre of interest of the current debate on reducing greenhouse gas emissions from deforestation and degradation because it has, over the past decade, regarded as the country with the third highest emissions (and the number 1 for land use based emissions, with per capita emissions some 30% above those in the EU), although there is considerable debate and uncertainty over the numbers; Credible carbon accounting system for Indonesia that can be used in the negotiation for REDD incentives at an international level is not in place yet. Government of Indonesia needs some support to develop and implement such system; Lack of data and robust method to show additionality and to negotiate fair and efficient sub-national baselines that are nested to national systems; Public fund only will not be sufficient; market is potentially high, but fluctuates and with high transaction costs, looks at land use sector as a high risk investment, due to complexities in showing additionality, retaining permanence, monitoring leakage and therefore rigorous monitoring/reporting/ verification is needed; Working examples are non-existent and scarce; demonstration areas are to be set.	Funded by EU
	This project ended in 2011			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Project 3: Architecture of REALU: Reducing Emissions from All Land Uses- REALU (Phase II)	Backstop country level planning and implementation of whole landscape approaches to REDD+ through the provisions of methods, tools and relevant training and multiple levels within the framework of multi-lateral initiatives such as the Forest Carbon Partnership Facility (FCPF) and UN-REDD. Explore in 4 demonstration landscapes (in Asia, Africa and Latin America) how whole landscape approaches to REDD+ or a broader approach to reducing emissions from all land uses (REALU) can enhance the protection of natural forests, reduce net emissions while reducing poverty and respecting rights and resources access. Engage in global comparative action research that explores the relationships between efforts to reduce emissions from deforestation and forest degradation in developing countries (REDD), rural poverty, livelihood strategies and other land use options, their greenhouse gas emission profiles and "carbon rights" (an extension of REALU phase I currently funded by NORAD). Enhance local capacities and expand the global debate on REDD and other mitigation strategies through the validation and dissemination of a comprehensive REALU framework	National level backstopping of science and policy through the development of methodologies, tools and incentive schemes within the framework of multi-lateral programmes such as FCPF and UN-REDD: this aligns with GRP5.2 output target that is developing a full tool box for carbon sequestration project design. Development and operationalization of 4 REDD+/REALU demonstration landscapes serving as concrete sites for learning-by-doing emission reduction through land use change: this aligns with both GRP 5.1 (though integrated land use and natural resources management, facilitating understanding of the relationship between land use and climate change) and GRP5.2 (knowledge on trade-offs between alternative land uses that destroys forests in the context of REDD). Global comparative analysis (cross-regional) of readiness for landscape approaches considering land-use inter-sectoral challenges, opportunities and linkages in the tropical forest margins, based on ASB long term engagement within a number of countries in Asia, Africa and Latin America: this aligns with GRP5.1 and GRP 5.2 as the above output. Efficient documentation of pilot experiences, communication, knowledge sharing and networking amongst REDD++ scientists, analysts, practitioners and policy makers, including multi-stakeholder events to design and provide guidance for effective climate change mitigation strategies in the post 2012 context: this aligns with GRP 5.1 (strategies for mainstreaming climate change in agriculture and NRM), and GRP 5.2 (guideline for REDD that will benefit small farmers and local communities)	In general, RELAU aims at quantifying the interface between 'forest' and 'non-forest' land uses, in terms of drivers of change, cross-sectoral linkages and impacts. These efforts will contribute to national land use emission reduction strategies that will build upon and extend beyond the "REDDiness" activities currently envisaged. As a 'stand alone', REDD will likely be hampered by methodological problems of leakage, definition, measurement methodology and imbalance between and among developed and developing countries.	NORAD

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Project 4: Opportunity Costs in REDD+ programs	Development of training materials. Regional and national workshops and instruction. Application of methodology at national level.	Events: 1. Regional Opportunity Cost training workshop held in Cali, Colombia. 2. National Opportunity Cost training workshop held in Lima, Peru. 3. Workshop and Application of methodology at country-level for Panama.	The opportunity cost training and methods package supports governments and others in the development of REDD+ programs, including the development of information to support future negotiations in an international carbon market.	World Bank, NORAD, ASB Partnership for the Tropical Forest Margins, UN-REDD
	Over 100 Latin American professionals were trained in theory, application and software for assessing the opportunity costs of avoided deforestation. Training manuals available in both Spanish and English, available on the websites of the InterAmerican Development Bank and the World Bank. The project for Panama began in late 2011 and ends in mid-2012. A full opportunity cost analysis is being carried out for the entire country of Panama.			
Output 4.1.2 Informing subnational and local initiatives				
Project 1: Global comparative study	Assessing the linkages between national policy frameworks and demonstration projects, looking specifically at proponent challenges in an uncertain policy and financial environments. Assessing how projects are linking drivers of deforestation with actions to reduce deforestation. Assessing community welfare in REDD+ demonstration projects along several dimensions, including FPIC, gender and livelihoods. Assessing environmental effectiveness and efficiency of REDD+ demonstration projects in achieving emissions reductions. Assessing environmental effectiveness and efficiency of REDD+ demonstration projects in protecting biodiversity.	Events: 1. Forest Day 2. Forest Indonesia 3. Side event: REDD on the Ground, COP 17 Durban 4. Training for REDD projects on MRV Products: Manual on social science methods in REDD to understand how livelihoods are affected by REDD projects. Manual on implementation of MRV standards in REDD+ demonstration projects. Case study on payments for carbon services in large scale pilot REDD projects.	As we noted in output 4.1.2, for this project our website and other social media are important communication tools to get our outputs into the hands of our target audience that is involved in sub-national and local initiatives. We also have print copies and CDs of all of the project's papers and manuals. We have strong anecdotal evidence and formal survey results from follow-up to major events like Forest Day that project implementers are using our materials in the designs of their projects and coming to our outreach activities. On a smaller scale we are actively engaged in returning research results to projects and participating communities. We have begun the first feedback activities and by the middle of 2012, we will have completed feedback to all 170 participating communities.	Project was co-funded by: NORAD AusAID FinAID DECC (UK) EU (REDD-ALERT; I-REDD) DFID GEF FFEM

Projects	Activity	Events /Products	Contribution to Output	Co-funding
	We focused on completion of baseline data collection, data entry and cleaning, preparation for returning results to village respondents and proponent organizations, and presenting results on the process of establishing REDD+ project sites, publishing and launching a report on methods for evaluation of livelihood outcomes at REDD+ project sites, publishing of technical guidelines for the field research, and laying the groundwork for research on the carbon effectiveness of REDD+ projects. Our field research was conducted through an intensive mode at 13 project sites, meaning the units of analysis are not just the project and the village, but also the household, and there is comparison of four intervention villages with four control villages. There was extensive research at six project sites, meaning the units of analysis were just the project and the village (no household survey), and the research was carried out at just four intervention villages with no matched controls. At one project site (Bolsa Floresta) is not longitudinal (BACI or BA) because the REDD+ interventions have already been introduced. We have surveyed 170 villages and 3498 households researched, including the Bolsa Floresta villages and households. As of December 2011 the socioeconomic baseline data collection has been completed at 20 sites. Data entry is conducted in the five countries and then transferred to Bogor for centralized entry and data cleaning. We have prepared the data for sharing with villager respondents and with proponent organizations and this activity has begun. It will be completed in early 2012.			
Project 2: Pro-Poor Rewards for Environmental Services in Africa (PRESA)	Landscape-level engagement: Foster the development, implementation and assessment of workable environmental service agreements in the highlands of Uluguru Mountains. Policy and private-sector engagement: Catalyze policy support and private-sector participation in environmental service agreements in Tanzania. PRESA Community of practice: Provide proactive and responsive support to the dissemination and application of assessment tools, negotiation methodologies, prototype mechanisms and monitoring tools among a PRESA community of practice, including NGOs and national organizations active in the innovation of new approaches to pro-poor rewards for environmental services in Tanzania.	A set of landscapes in the highlands of East and West Africa have workable environmental service agreements providing fair rewards to ecosystem stewards. Private companies become increasingly involved in a range of initiatives for ecosystem management in the highlands of Kenya, Tanzania, Uganda and Guinea, including policy dialog with public agencies and fair contracts for ecosystem management. Improved quality and increased number of environmental service reward mechanisms in place and operational in the highlands of East and West Africa.	By building knowledge about rewards for environmental services and sharing this knowledge with a network of sites across Africa, the PRESA project will help to address these constraints and complement efforts across the continent and beyond, for establishing fair and effective environmental service agreements.	IFAD; European Commission Government of Finland

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 4.1.3 Best-practice methods				
Project 1: Global comparative study	A new approach to Reference Emissions Levels was developed and tested in 4 countries. National capacity for measurement, reporting, and verification was assessed in all non-Annex 1 countries. Field data collection of the effects of land use change on GHG emissions was completed in Kenya, continues in Indonesia and Cameroon and planned in Peru. Participatory carbon measurement with communities was begun in Indonesia Participation in IPCC Wetlands special supplement to National Greenhouse Gas Inventory Guidelines.	Events: 1. Forest Day 2. Forest Indonesia 3. UNFCCC Expert meeting on reference emissions levels 4. Training for REDD projects on MRV Products: Synthesis papers on effects of deforestation on carbon stocks in peatlands. Manual on implementation of MRV standards in REDD+ demonstration projects Participation in CNN documentary on forests in Indonesia. Analysis of the effects of tree fallows on soil C sequestration Analysis of international standards for different purposes in REDD+ demonstration projects Studies on determining leakage in REDD+ demonstration projects. Methods for C inventory in biofuels projects. Assessment of C footprints of biofuels.	As we noted in the section for output 4.1.1.in this project, the website and other social media are important outreach mechanisms to ensure that our research results reach our target audiences. Our blog now gets over 25 thousand visitors per month REDD could be a vehicle for sustainable forest management in developing countries. Assessing reference emissions levels (RELs) remains one of the technical hurdles to making REDD feasible in developing countries. This work is a first step in overcoming this obstacle. As part of our research effort, we developed and tested several new data driven approaches to making quantitative estimates of future deforestation. We bundled these into a stepwise approach and presented them to the UNFCCC expert workshop on RELs. This approach was adopted in the December decisions in Durban. We completed a comparative assessment of the current monitoring capacities of all tropical non-Annex I countries using different global data sources. This analysis should help guide investments in capacity building. We are just beginning outreach on this work. Our work on emissions factors is contributing to improving national GHG inventories, at the moment primarily through the IPCC Task Force on GHG inventories. We are also engaged in outreach at the national level. Participatory MRV research is designed to help empower communities to take ownership of some of the technical aspects of REDD projects and understand their impacts. It is also designed to facilitate better medium-scale spatial planning.	Project was co-funded by: NORAD AusAID FinAID DECC (UK) EU (REDD-ALERT; I-REDD) DFID GEF FFEM

Projects	Activity	Events /Products	Contribution to Output	Co-funding
	We have collected data on emissions factors that are available in different sources to facilitate national monitoring and GHG accounting in four of the six case study countries – Indonesia, Vietnam, Bolivia, and Cameroun. Work was begun in Peru. Field work was finished in Kenya, and is ongoing in Indonesia and Cameroon. Preparations for field work are being made in Peru. We have completed the first step in our comparative assessment of current monitoring capacities of all tropical non-Annex I countries. The current capacities were studied by looking at the national engagement of a country in the REDD+ process and the existing capacities for monitoring of forest cover and carbon stock changes, thereby taking into account certain REDD+ and remote sensing technical challenges which are different for each country. Capacity gaps were defined as the difference between what is required for REDD+ monitoring under national circumstances and the current monitoring capacity of a country. In our next steps, we will be looking at why capacity remains low following all of the efforts by international organizations to engage in capacity building in this area and we will examine options for addressing the problem. Estimating RLs hinges on the availability of comprehensive and good-quality data, in particular on historical rates of deforestation, degradation and emission factors. Because data availability varies between countries, the uncertainty of RL estimates will vary also. To address this we developed a stepwise approach to setting RLs, analogous with the IPCC system for greenhouse gas inventories. A tiered approach for RLs allows for broad country participation, address national data availability and uncertainty management, and allow countries to progress from one tier to another as data availability improves. We have developed Step 1 RLs for all 99 non-Annex 1 countries and Step 2 approaches for 3 countries. We will develop Step 2 approaches in several other countries that we are studying and we will attempt at least one Step 3 RL. Research on community based MRV is just beginning and will be scaled up in the coming years.			
Project 2: Carbon Benefits Project: Measurement, Monitoring and Modelling	Measurement of terrestrial carbon on heterogeneous landscapes with many landcover types that include smallholders in developing countries. A cost effective and accurate system documenting the mitigation of atmospheric carbon levels as a global environmental public good and thus provides a way to compare and document project performance in climate change mitigation (a global environmental public good). The system will facilitate projects that create climate adaptation, mitigation and conservation benefits by reinforcing their ability to demonstrate carbon benefits, thus making projects that include a carbon component more attractive. The system will assist land use carbon project developers in selecting methods that combine livelihood benefits with climate change mitigation benefits.	A protocol for Measuring and Monitoring Soil Carbon Stocks in Agricultural Landscapes was produced and made available under the Carbon Benefits Project toolkit. A proposal to extend this work was produced with the aim to quantify the uncertainties in soil carbon estimates and improve guidelines for planning soil carbon measurements.	Approximately 30% of greenhouse gas emissions come from land use and land use change. Sustainable land management (SLM) projects have the potential to not only reduce GHG emissions, by reducing emissions from biomass burning, biomass decomposition and the decomposition of soil organic matter, but also to sequester carbon (C) through practices that increase biomass production and promote the build up of soil organic matter and therefore provide global environmental benefits. The GEF finances a wide range of SLM activities in developing countries from reforestation and agroforestry projects, to projects that protect wetlands or foster sustainable farming methods. The carbon benefits of these and other non GEF SLM projects are likely to be considerable. However at the moment it is difficult to compare the C benefits of different land management interventions as a range of different methods are used to measure them. Equally it is difficult for SLM activities in developing countries to gain the financial rewards they deserve from emerging carbon markets	GEF

Projects	Activity	Events /Products	Contribution to Output	Co-funding
	We have completed the field component if this work and all datasets have been finalized. Modelling work is well under way and will be completed in the beginning of 2012. The integrative framework is complete and the final pieces of the tool box will be put into place when they become ready. We will continue with writing up and publishing this work in the coming months. Capacity building and road testing the tools will be done in collaboration with GEF projects.			
Project 3: Population and Environment Web Mapping for the Sustainable Amazon – MAPAZ	Development of online tools to assess deforestation, land use, population, biomass, vegetation, biodiversity, fires and opportunity costs of avoided deforestation Dissemination activities with science and policy community	Online dialog with professionals working on REDD and ecosystem services issues Presentation of MAPAZ to 15,000 attendees of the ESRI International Users Conference, San Diego, CA, USA.	MAPAZ provide an online tool for analysts and policy makers to organize information, assess deforestation and calculate opportunity costs of avoided deforestation.	List sources of co-funding for project #3 World Bank
	Co-funding by the World Bank for MAPAZ ended at the end of 2011. As this was a project of the Amazon Initiative, the effort will be carried on by Procitropicos, a research agency working with national agricultural research institutes of the Amazon countries. Help guides and video tutorial for the application have been developed.			
Project 4: Near real-time remote sensing for deforestation monitoring, reporting and verification (MRV)	Methodological development to improve detection of areas recently deforested. Development of online application for locating deforestation hot-spots in South America (http://maps.terra-i.org/). Dissemination and knowledge sharing activities in regional media.	Participation in 1st technical Americas GEO Conference: Regional Forest Monitoring, Lima, Peru. Regional workshop: 2nd meeting of Subregional technical committee on "Analysis of Land Cover Change Dynamics" Bogota, Colombia.	Our Website provides public domain access to deforestation monitoring tools for governments, NGO's, the scientific community and others.	The Nature Conservancy
	Terra-I has been used by Colombia and Ecuador for their forest monitoring activities, in conjunction with their own MRV systems. Help guides and video tutorial for the application have been developed.			

Component 4: Climate change adaptation and mitigation

Theme 4.2: Enhancing climate change adaptation through forests, trees and agroforestry

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 4.2.1 Informing international and national level policy processes				
CIFOR project portfolio on adaptation	Policy analysis at the national and regional scale (Indonesia, Central Africa, West Africa). Policy analysis at the global scale (National Adaptation Programmes of Action). Analysis of international negotiations. Assessment of policy instruments for adaptation (payment for environmental services).	Several events in international and regional arenas (Forest Day, side-event during UNFCCC CoP in Durban, meetings in the Congo Basin with the Congo Basin Partnership on Forests, COMIFAC-CEEAC, regional event in Bangkok with FAO-UNEP). Several events organized with national policymakers (e.g., with parliamentarians in Cameroon, with national stakeholders in DRC, CAR, Cameroon, Mali and Burkina Faso). Paper on ecosystem services in the National Adaptation Programmes of Action. Paper on forests and climate change adaptation policies in Cameroon. Paper on the Cancún Agreements. Paper on ecosystem-based adaptation to climate change and payments for environmental services? Contributions to the World Resources Report on Decision making in a changing climate. Paper on institutional adaptive capacity and climate change in the Congo Basin. Paper on forest policies and climate change adaptation in Cameroon. Paper on policy and institutions related to forest fires in Indonesia.	Policy analysis and communication with national policymakers in global, regional and national events contribute to informing international and national level policy processes related to adaptation.	African Development Bank, French Fund for the Global Environment (FFEM), IDRC.

Projects	Activity	Events /Products	Contribution to Output	Co-funding
	Several CIFOR projects fall under this theme: CoFCCA and COBAM in the Congo Basin, ACFAO in West Africa, Cristal-Forests in East and West Africa, AdaptEA in East Africa (currently starting), ForCC (Lao, Honduras, Burkina Faso). Some products of an already concluded project (TroFCCA in West Africa, Central America, Indonesia) were also published in 2011. Policy analysis has been conducted in the context of the COBAM and CoFCCA projects in Central Africa and papers have been produced on policy analysis after the end of previous project (TroFCCA in Asia, West Africa and Latin America). Policy analysis has taken place in a project starting in West Africa (ACFAO). Communication activities have targeted national and regional policymakers, as well as local stakeholders invited to meeting, for example in Central and West Africa. In addition, 36 students have been trained on adaptation-related issues in Central Africa and meetings have been organized with university teachers to mainstream climate change into university curricula in Central Africa. Students in communication and journalists have also been trained on adaptation to climate change. Web-based communication has been strengthened with the redesign of our websites on adaptation. Ten blog articles on adaptation have been published. The results of our research in Central America have been used in a Stern-type review on the economics of climate change in Central America produced by CEPAL (Economic Commission for Latin America and the Caribbean).			
Output 4.2.2 Informing subnational and local initiatives				
Project 1: CIFOR project portfolio on adaptation	Local vulnerability assessments in Central Africa and West Africa. Gender-differentiated analysis of vulnerability in West Africa. Survey on the perceptions and actions of forest managers. Literature reviews.	Meetings with national stakeholders on vulnerability and adaptation in Central Africa. State of knowledge report, brief and communication materials on adaptation and forests, with PROFOR. Paper on gender and adaptation to climate change in Mali. Paper on vulnerability to environmental changes in Mali. Paper on the impacts of climate change on vegetation and terrestrial water cycle in Mesoamerica. Paper on risk perceptions and actions related to the adaptation of tropical production forests to climate change. Paper on local practices for forestry and adaptation to climate change in Ghana.	Analyses of local vulnerability and communications of the results have contributed to informing subnational and local initiatives related to rural development and forest management.	African Development Bank, French Fund for the Global Environment (FFEM), IDRC.
	Local vulnerability assessments have been conducted in the context of COBAM and CoFCCA projects in Central Africa and are ongoing in the ACFAO project in West Africa. Impact assessments from previous project (TroFCCA) have been published.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Parkland trees and livelihoods: adapting to climate change in the West African Sahel	Facilitate better participatory research, knowledge exchange and adaptation to climate change Diversify, improve and conserve native tree species in parkland agroforests Diversify and increase the value of tree products marketed through community-based enterprises Disseminate the knowledge generated, innovations and strategies at the national, regional and international levels	Local solutions are implemented in participating villages to adapt to climate change. Networks are disseminating knowledge, innovations and strategies about climate change adaptation within and among project sites Parklands are diversified, better managed and conserved in participating villages Adaptation of native tree species is improved in parklands of participating villages A broader range of high-quality tree products is produced and marketed in participating villages	Rural communities in the West African Sahel are very concerned about the projected hotter/ drier and more variable climatic conditions in the future. Increasing the adaptation and diversity of native tree species in the parklands, and the diversity and quality of tree products are key strategies that the communities identified to minimize risks to their livelihoods in the face of the projected climate change.	IFAD
Project #3 contributing to this output	List activities under project #3 contributing to this output	List events/products under project #3 contributing to this output	How do the activities, events/products listed contribute to output targets linked to output	List sources of co-funding for project #3
Output 4.2.3 Best-practice methods				
Project 1: CIFOR project portfolio on adaptation	Testing tools for adaptation. Developing principles and guidelines for ecosystem-based adaptation. Developing and testing tool for vulnerability assessment (CRiSTAL-Forests). Survey on the needs of stakeholders for informed decisions on ecosystem-based adaptation in Asia-Pacific. Domain 2 website restructuration and links to the weAdapt platform on adaptation tools and guidance.	Meeting with SEI and UCT for evaluating tools for climate data analysis, vulnerability assessment, adaptation planning. Two international meetings for developing principles and guidelines for ecosystem-based adaptation. Methodological paper on mapping ecosystem services for vulnerable sectors in Central America. Draft principles and guidelines for integrating ecosystem-based approaches to adaptation in project and policy design. Brief on informing decisions on ecosystem-based approaches for the adaptation of people in the Asia and Pacific region. Indicators for assessing vulnerability to climate change in a national park.	The analysis of needs of stakeholders for tools, the involvement of diverse stakeholders during tool development and the field testing of tools will contribute to their adoption. Communication around tools and methods will increase research impacts.	UNITAR C3D, Conservation International;
	Collaboration has taken place with international organizations (Conservation International, WWF, CATIE, IUCN...) for defining principles and guidelines for ecosystem-based adaptation. A tool for vulnerability assessment is being developed and tested with IISD (CRiSTAL-Forests). Publications on tools and methods are shared through our websites.			

Component 4: Climate change adaptation and mitigation

Theme 4.3: Understanding the role of forests, trees and agroforestry in achieving synergies between climate change mitigation and adaptation

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 4.3.1 Informing international and national level policy processes				
Project 1: CIFOR project portfolio on adaptation and mitigation	Analysis of policies in Latin America and the potential for synergies between adaptation and mitigation. Analysis of policymaker discourses on adaptation and mitigation in the Congo Basin. Preparation of conceptual framework and communication materials (brief on "synergies between adaptation and mitigation in a nutshell"). Development of a website on the synergies between adaptation and mitigation (COBAM project). Creation of an initiative page on forests and synergies between adaptation and mitigation on the weAdapt platform.	Paper on linking adaptation and mitigation in forest policies in Latin America. Paper on the political discourses on adaptation and mitigation in the Congo Basin. Brief on the synergies between adaptation and mitigation in policies.	Policy analyses highlight the need to bridge the two separate adaptation and mitigation communities.	IDRC, African Development Bank.
	The COBAM project (Congo Basin Forests and Climate Change: Synergies between Adaptation and Mitigation) is under implementation and has been analyzing policies related to adaptation and mitigation in 2011.			
Project contributing to this output in 2011 NAME?	Facilitate better participatory research, knowledge exchange and adaptation to climate change Diversify, improve and conserve native tree species in parkland agroforests Diversify and increase the value of tree products marketed through community-based enterprises Disseminate the knowledge generated, innovations and strategies at the national, regional and international levels	Local solutions are implemented in participating villages to adapt to climate change. Networks are disseminating knowledge, innovations and strategies about climate change adaptation within and among project sites Parklands are diversified, better managed and conserved in participating villages Adaptation of native tree species is improved in parklands of participating villages A broader range of high-quality tree products is produced and marketed in participating villages	Rural communities in the West African Sahel are very concerned about the projected hotter/ drier and more variable climatic conditions in the future. Increasing the adaptation and diversity of native tree species in the parklands, and the diversity and quality of tree products are key strategies that the communities identified to minimize risks to their livelihoods in the face of the projected climate change.	IFAD

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 4.3.2 Informing subnational and local initiatives				
Project 1: CIFOR project portfolio on adaptation and mitigation	Analysis of local initiatives in Latin America and the potential for synergies between adaptation and mitigation. Preparation of conceptual framework and communication materials (brief on "synergies between adaptation and mitigation in a nutshell"). Preparation of a study on social return of investment of including adaptation into REDD+. Development of a website on the synergies between adaptation and mitigation (COBAM project). Creation of an initiative page on forests and synergies between adaptation and mitigation on the weAdapt platform.	Paper on linking adaptation and mitigation in forest projects in Latin America. Brief on the synergies between adaptation and mitigation in local initiatives. Brief on adaptation and mitigation in tropical wetland ecosystems of Indonesia.	The products represent a first step towards the development of this new research area in CRP6.	GIZ, African Development Bank, USAID
	The COBAM project (Congo Basin Forests and Climate Change: Synergies between Adaptation and Mitigation) is under implementation and includes several research activities at the local level. A new project (SOBRA: Social Return in Investment of Adaptation in REDD+) is starting and will study REDD initiatives in Indonesia and the Philippines.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 4.3.3 Best-practice methods				
Project 1: Tropical Wetlands Initiatives for Climate Adaptation and Mitigation	Organization of workshop and Outreach Database development Interdisciplinary field, laboratory, remote sensing, and modelling efforts Assemble data sets into policy relevant reports, maps and other information sources accessible to the public Inferring carbon densities from the maps using pedotransfer and allometric functions.	Training workshop on the Protocol for C-stocks Assessment, Bogor March 2011 Sampling methodologies workshop and Seminar, Merida and Mexico City International workshop on wetlands, Bali 11-14 April 2011 UNFCCC SB-34 Side event on tropical wetlands, Bonn 10 June 2011 2 media training workshops on the relationship of wetlands and mangroves to climate change	Wetlands have increasingly become global and national interests, especially in the arena of climate change mitigation and adaptation. The implementation of the Tropical Wetlands Initiatives for Climate Adaptation and Mitigation (TWINCAM) under the Wetland Global Carbon Survey Project supported by USAID is both relevant and timely. It is so appropriate that in a relatively short period it has gained wide attention and participation. Global communities such as the Blue Carbon Working Group organized by Conservation International and IUCN, who are involved in issues around coastal ecosystems (including mangroves) share common interests that require integration. The Working Group seeks further collaboration for more effective impacts on the policy community. The TWINCAM project is fostering such collaborations to facilitate science-policy dialogue at regional, national and global levels.	USAID
	Our intensive work has mainly been implemented in Indonesia and Mexico, and shared with other tropical countries that contain extensive wetland areas such as Bangladesh, India, Mozambique, Cameroon and Gabon. Output has been shared through open communication, workshops, consultations and desk studies through literature review. Counterparts in these and several other Central and South American countries have been identified for the establishment of future project sites. To make the study truly global in context, the processes within IPCC will have to be backed up with ground work to assess emission factors and their underlying causes to enable development of effective mitigation strategies.			

Component 5: Impacts of trade and investment on forests and people

Theme 5.1: Understanding the processes and impacts of forest-related trade and investment

Theme 5.2: Enhancing responses and policy options to mitigate negative impacts and enhance positive impacts from trade and investment

Output 5.1.1 Assessment of processes and factors through which trade and investment influence on forests and people

Output 5.1.2 Analysis of the impacts associated with trade and investment trends on forests and people's livelihoods

Output 5.1.3 Methods for improved assessments on forest-related economic and ecological impacts from trade and investment

Output 5.2.1 Lessons learned on market driven processes and international sustainability initiatives

Output 5.2.2 Improved policy regulations and institutional options for managing impacts associated with trade and investment

Output 5.2.3 Informed processes and platforms of policy analysis and dialogue on improved governance of trade and investment

Component 5: Impacts of trade and investment on forests and people

Theme 5.1: Understanding the processes and impacts of forest-related trade and investment

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 5.1.1 Assessment of processes and factors through which trade and investment influence on forests and people				
Analyzing the conditions that influence on the location and magnitude of trade and investment associated with feedstock supply and biofuel production in tropical areas	. Review of the main factors that influence on large-scale land acquisition and their implications for forests and local people's livelihoods with Terra Institute . Completion of a preliminary inventory of large-scale investments in different countries including major crops for biofuel production	. Completion of a literature review and formulation of an analytical framework to understand the main dynamics of large-scale investment and land acquisition in the tropics . Elaboration of a preliminary version of an interactive web map on large-scale investments for main feedstocks for biofuel production across Sub Saharan Africa, Southeast Asia and Latin America	Provide preliminary information on the main trends and processes shaping large-scale investments with potential impacts on forests and people's livelihoods in forest landscapes	EC
	These activities have been implemented under an EC funded project on Bioenergy which finalized in September 2011, although a no-cost extension has been approved by the EC until March 2012. A second phase is being negotiated in order to explore more in depth the geographies of trade and investment related not only to main feedstocks for biofuel production, but also to food and fodder markets in the context of the growing integration of these markets			
Informing the knowledge on the dynamics related to Chinese trade and investment in Africa with emphasis on tradeoffs to national economies, local livelihoods and forest environment	Main project activities included supporting the mid-term evaluation GIZ, a number of dissemination and consultation events and finalization and publication of two reports	• . Lecture to Chinese forestry policy makers at "5th executive Forest Policy Short Course" hosted by FAO, May 2011, Beijing • . Presentation at "Forests, Markets, Policy & Practice - 4th International Conference and Technical Workshops", June 22 & 23, Shanghai • . Presentation at ITTO/Chinese Academy of Forestry conference "Perspective on Global Tropical Wood Products Market: Potential and Challenge" 13-14 October 2011 • . Presentation by Huang Wenbin (ICRAF China) at a seminar on Chinese investment in Africa organized by WWF in Yaoundé, Cameroon, December 7, 2011. • . Published two project reports, 1) "Analysis of Chinese overseas investment policies" and 2) "Analysis of approvals for Chinese companies to invest in Africa's mining, agriculture and forestry sectors"	The activities in the second half of 2011 were geared towards launching fieldwork in 2012, and raising awareness about the project and initial results among forestry policy makers and organizations in China, the Congo Basin and the Miombo woodlands region.	BMZ/GIZ/BEAF
	The project made progress in its second year, which marked the end of the scoping phase of research and the launch of fieldwork, with a number of publications completed. The project continues until August, 2013, with the bulk of activities and products to be produced in 2012 and 2013.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Assessment of the socio-ecological conditions shaping the geographies of investment for large-scale land acquisition for food, fodder and bio-fuel production	• . Report characterizing plasma and independent smallholder oil palm producers and their relation with palm oil mills • . Analysis of profitability of oil palm production at various scales and locations and opportunity costs of carbon emissions in Indonesia.	Main activities undertaken: Detail analysis of oil palm cultivation in Indonesia using the data derived from the study on Carbon Footprint of Palm Oil Production in Indonesia, a collaborative research work between ICRAF and IPOC. By December 2011, first data analysis had been done, and some findings have been written. More analysis is required for the profitability assessment and opportunity cost analysis of oil palm production in Indonesia. Report writing is still on progress	• . The report provides knowledge of the profiles and the roles of smallholder in oil palm cultivation, how they involved in the sub sector of industry, why it is so attractive, and what are the economics importance to the livelihoods. . • . The report provides better understanding of the financial gain from each unit of GHG emissions occurring during the development and cultivation of oil palm at the plantation level.	IPOC
	These activities have been undertaken as part of a collaborative project between ICRAF and the Indonesian Oil Palm Commission (IPOC). Fieldwork has been conducted and data collected. Reports are still on progress.			
Output 5.1.2 Analysis of the impacts associated with trade and investment trends on forests and people's livelihoods				
Assessment of the local impacts from globalized trade and investment related to biofuel development	• . Completion of six reports from a similar number of case studies in Indonesia, Malaysia, Zambia, Ghana, Mexico and Brazil on the local social and economic impacts of biofuel expansion	• . Published a special issue in Ecology and Society, comprising eight papers, focused on the "Local social and environmental impacts of biofuels" edited by L. German, G. Schoneveld and P. Pacheco • . Published a Working Paper with the local and environmental impacts of oil palm development in Malaysia	Informing on the potential impacts of biofuel development on local populations and economies, and on the carbon debt associated with biofuel expansion.	EC
	These activities have been implemented under the Project EC Bioenergy which finalized in September 2011, although a no-cost extension has been approved by the EC until March 2012. A second phase is being negotiated in order to explore impacts of biofuel development more in-depth across regions.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Analysis of the dynamics related with the functioning of domestic timber markets	• . Long-term socio-economic assessment of upstream (harvesting) and downstream (transport and selling) activities related to domestic and regional timber trade in Cameroon, Gabon and DRC; • . Organised a session with the Ministry of Forestry (MINFOF) and domestic timber operators at the PROMOTE 2011 Event in Yaoundé, Cameroon	. Presentations at 5 regional and international events: • Workshop on the Development of a SADC Regional FLEGT Programme, Johannesburg, South Africa, 26-28 Oct 2011 • ATIBT/IFIA Racewood, Pointe-Noire (Congo), 30 Sep. 2011 • Central Africa Forest governance forum, Yaoundé, Cameroon, Nov. 21-22, 2011 • Workshop IFIA/ITTO/FAO, Towards a development strategy for the timber industry in the Congo Basin, Libreville, 14-15 June 2011 • PROMOTE 2011, Yaoundé, Cameroon, Dec. 2011. . Three Occasional Papers on the situation and socio-economic dynamics of domestic timber markets in Cameroon, Gabon and the Republic of the Congo.	Informing the international community and concerned governments about the scope and impacts of timber trade and domestic timber markets;	EC
	This project is in its second year of implementation (mid-2010 / mid-2013) and deliverables and expenditure are on-track, as also confirmed by the approval of narrative and financial reports by the EC for the period June-2010 to December 2011. Key challenges include upscaling data collection in Ecuador and Indonesia and getting engaged with policy makers in those countries, as previewed for 2012.			
Assessing impacts on economic development and forests from Chinese trade and investment in Africa	Recruited 4 African graduate students (3 PhD and 1 Masters candidates), establishing contracts with two new project partners, and two methods and field training workshops for project teams in the two main regions of the project (Miombo Woodlands region and Congo Basin region).	• . Published three project reports, 1) "Chinese trade and investment and its impact on forests: A scoping study on the Miombo Woodlands" 2) "Chinese aid, trade and investment and the forests of the Democratic Republic of Congo" and 3) "Chinese trade and investment and the forests of the Congo Basin: Synthesis of scoping studies in Cameroon, Democratic Republic of Congo and Gabon"	The reports produced provided overviews of Chinese trade and investment in 6 sub-Saharan African countries and their potential impacts. The students and partners engaged in 2011 will follow up on the hypotheses developed in these reports in 2012 and shed light on the changes occurring in forest landscapes where significant Chinese interests are focused, while bringing perspective to international perceptions of Chinese social and ecological impacts in Africa formed by the media but supported by few empirical studies.	BMZ/GIZ/BEAF
	The project made progress in its second year, which marked the end of the scoping phase of research and the launch of fieldwork, with a number of publications completed. The project continues until August, 2013, with the bulk of activities and products to be produced in 2012 and 2013.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Assessing impacts on plantation expansion in Papua, Indonesia with regard to the environment, economy, and indigenous land rights	• . PRA-survey in Papua as one of the sites for detailed research • . Workplan discussion with partners and methods fine-tuning in East Kalimantan • . Secondary statistical data collection at the national and sub-national level • . Development of the timber sector analysis for Indonesia	• . Draft paper on log export ban in Papua and the state of wood processing industries in the province • . Supply-demand timber sector data sets for Indonesia • . Supply-demand timber data sets for 3 sites in particular: central Java, East Kalimantan, Papua	Informing the international community and concerned governments about the scope and impacts of timber trade and domestic timber markets;	CORDAID
	The project made progress in assessing some of the main implications from large-scale expansion in the province of Papua, Indonesia, and lead to important discussions on the strategies to manage these investments under broader strategies for low carbon economic development. This project closed in Dec. 2011.			
Assessment of the implications of large scale land acquisition for fibre, food, and fuel in Indonesia and formulated policy options for achieving more sustainable outcomes	Assessments of spatial and social dimensions of oil palm production by smallholders and companies related with the impacts of trade and investments completed and published	In preparation a report discussing oil palm investment and settlement development in Indonesia	The results of the assessment will provide better understanding the indirect impact of investment in palm oil production in such area	IPOC
	These activities have been undertaken as part of a collaborative project between ICRAF and the Indonesian Oil Palm Commission (IPOC). Fieldwork has been conducted and data collected. Reports are still on progress.			
Output 5.1.3 Methods for improved assessments on forest-related economic and ecological impacts from trade and investment				
Analysis of methods for carbon accounting and formulation of alternative models for a full assessment of carbon emissions in the land use and energy sectors	• . Revisiting literature for assessing current methods for carbon accounting, and proposing new methods • . LCA assessment of several feedstock for biofuels under diverse situations, and analysis of carbon debt	• . Two working papers on methods of carbon accounting • . One paper analyzing carbon debt related with different options of feedstock supply for biofuel production	Assessing the environmental implications of biofuel feedstock development is critical due to their implications for carbon emissions and mitigation. Thus LCA is required to determine with more precision the impacts on carbon debt.	EC Bioenergy Project
	This project has been completed in March 2012. Additional resources are negotiated in order to continue developing this body of work.			

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Developing methods for value chain analysis and assessment of environmental impacts linked to Chinese investment in Africa	In late 2011, the project worked with partners and new project team members to develop methods for 1) value chain analysis and 2) assessment of forest land use and cover change, related to areas of corporate activity, focusing on areas with a high degree of resource demand and investment from China.	Above-mentioned field training workshops.	The development of value chain methods and remote sensing analysis specific to this project will improve the general state of knowledge regarding the differential characteristics and impacts of Chinese market activities in Africa, which has been lacking in the literature until now.	BMZ/GIZ/BEAF
	These activities to develop methods are on-going in 2012, when they will be launched, tested, and further refined by the project team.			
Tools for improved analysis of the geography of greenhouse gas emissions embedded in trade and life-cycle analysis under varying biophysical and technological conditions	Proposed improved frameworks and methods for assessing opportunities to reduce emissions through avoided land-use change through feedstock and fossil fuel substitution	A monograph and/or Policy Brief	Available methodologies for assessing greenhouse gas emissions and life cycle analysis of oil palm development under different ecological conditions in Indonesia with potential for informing policy making	IPOC
	These activities have been undertaken as part of a collaborative project between ICRAF and the Indonesian Oil Palm Commission (IPOC). Fieldwork has been conducted and data collected. Reports are still on progress.			

Component 5: Impacts of trade and investment on forests and people

Theme 5.2: Enhancing responses and policy options to mitigate negative impacts and enhance positive impacts from trade and investment

Projects	Activity	Events /Products	Contribution to Output	Co-funding
Output 5.2.1 Lessons learned on market driven processes and international sustainability initiatives				
Assessed the effectiveness on market-based instruments for reducing the impact of feedstock expansion for biofuel development on deforestation	. Review of literature on the different market-based instruments that may contribute to manage the impacts of feedstock expansion for biofuel development	• . Published a report reviewing the likely effectiveness of the different market-based instruments in reducing deforestation as result of biofuel feedstock expansion • . Published a report containing a review of environmental issues associated with the development of biofuel sustainability frameworks • . Published a report on the social sustainability of EU-approved voluntary schemes for biofuels: Implications for rural livelihoods	Different reviews have been published assessing the social and environmental principles and guidelines adopted by several schemes for promoting more sustainable biofuels development, along with suggestions for improving the scope of their implementation	EC Bioenergy Project
	These activities constitute key deliverables of a project which has been concluded in March 2012, which constitute important pieces for assessing the scope of different guidelines for sustainable development of biofuel development, and suggesting ways for improving them			
Output 5.2.2 Improved policy regulations and institutional options for managing impacts associated with trade and investment				
Provided inputs to the Roundtable on Sustainable Biofuels (RSB) in the development of guidelines for social sustainability	Attended a meeting of RSB to discuss the guidelines for the implementation of social standards as part of the certification guidelines	. Peer review of 3 draft documents (screening tool, food security guidelines, rural and social development guidelines)	Certification of biofuels is one of the most promising processes contributing to manage the impacts associated with trade and investment. In this line, the RSB is one of the schemes that will contribute to implement certification.	EC Bioenergy Project
	This project has been completed in March 2011. It has contributed with key building blocks in terms of what are the main impacts from trade and investment with regard to biofuel development. These constitute inputs to inform institutional options, such as the ones related to biofuel certification schemes.			
Analysis on the legal and regulatory frameworks for shaping the development of sustainable biofuel sector	Undertaken literature reviews, systematization of secondary data, and interviews for assessing the legal and institutional frameworks for biofuel development in six countries	• . Completed six working papers assessing the legal and institutional frameworks for biofuel development in six countries, two in Asia (Indonesia and Malaysia), two in Africa (Ghana and Zambia), and two in Latin America (Mexico and Brazil) • . A policy brief with a comparative assessment of legal framework drawing main findings and lessons	Distilling lessons from existing policy frameworks for supporting the sustainable development of biofuel development, and their main shortcomings and loopholes is important in order to advance towards improved legislation that could correct the unexpected negative impacts	EC Bioenergy Project

Projects	Activity	Events /Products	Contribution to Output	Co-funding
	This project has been completed in March 2011. It has contributed with key cases to understand the role that legal and policy frameworks, with a multi-sectoral approach, have in shaping biofuel development in six country case studies.			
Output 5.2.3 Informed processes and platforms of policy analysis and dialogue on improved governance of trade and investment				
Strategic engagement with policy processes for enhancing sustainable options for oil palm development within broader initiatives for enhancing land and forest governance	• . Organized two south-south exchanges for promoting more sustainable and equitable options for feedstock biofuel development • , Dissemination of lessons through CIFOR mass media platform and publications	• . South-south exchange on options for more equitable and sustainable development of oil palm (Bogor, September 2011) • . South-south exchange in the context of a policy African workshop for discussing impacts and options for sustainable biofuel production (South Africa, September 2011)	South-south exchanges constitute key activities to inform with knowledge and lessons from different contexts, on what policy incentives work, and what do not, specific policy dialogues which are taking place in specific countries, such as Indonesia and Brazil. These two countries are fundamental in managing sustainable forest resources, and thus in climate change mitigation.	EC Bioenergy Project
	This project has been completed in March 2012 articulating an important network of policy decision-makers in key countries such as Indonesia and Brazil, as well as policy makers in several countries in eastern and southern Africa. This has important potential to contribute to policy debate.			
Provided inputs for the debate on enhancing mechanisms for regulation of timber trade and domestic markets	Periodic updates of preliminary results and findings stemming from long-term data collection provided to the Governments of Cameroon, Congo and Gabon, as well as to the EC.	• . Presentations at 5 regional and international events (see Output Target 2 under Output 5.1.2, Theme 1 for a detailed list of events) • . Three Occasional Papers on the situation and socio-economic dynamics of domestic timber markets in Cameroon, Gabon and the Republic of the Congo.	Informed and shaped the agenda of Governments and the EC on the scope and dynamics of timber trade and domestic timber markets; Results and recommendations considered during the VPA negotiations between concerned countries and the EC.	EC PROFORMAL Project
	This project is in its second year of implementation (mid-2010 / mid-2013) and deliverables and expenditure are on-track, as also confirmed by the approval of narrative and financial reports by the EC for the period June-2010 to December 2011. Key challenges include upscaling data collection in Ecuador and Indonesia and getting engaged with policy makers in those countries, as previewed for 2012.			
Dissemination on the findings from Chinese trade and investment in Africa to inform regional policy dialogues	Above-mentioned reports included several policy recommendations.	• . Presentation at "Forests, Markets, Policy & Practice - 4th International Conference and Technical Workshops", June 22 & 23, Shanghai • . Presentation at ITTO/Chinese Academy of Forestry conference "Perspective on Global Tropical Wood Products Market: Potential and Challenge" 13-14 October 2011	These products and events are part of building a dissemination/uptake pathway for future policy engagement in China and African producing countries in 2012 and beyond, in order to contribute to Output 5.2.2.	BMZ/GIZ/BEAF; FAO
	The work of the project is becoming known by government actors in the countries of interest and also among organizations who have complementary work or interests. Because of our efforts to create communications channels within China and internationally, we have received several invitations to present our work at events where policy makers meet and have become part of the dialog relevant to the effects of Chinese activities in Africa.			

Annex 4. CRP6 Publications

Smallholder production systems and markets

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