



RESEARCH
PROGRAM ON
Forests, Trees and
Agroforestry

Annual Report 2019

CGIAR Research Program on Forests,
Trees and Agroforestry



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5 June 2020

FTA's managing partners: Center for International Forestry Research (CIFOR, lead center), World Agroforestry (ICRAF), Bioversity International, the Tropical Agricultural Research and Higher Education Center (CATIE), the Agricultural Research Centre for International Development (CIRAD), the International Bamboo and Rattan Organisation (INBAR) and Tropenbos International (TBI).



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EXECUTIVE SUMMARY

The CGIAR Research Program on Forests, Trees and Agroforestry (FTA) is the world's largest research for development program to enhance the role of forests, trees and agroforestry for sustainable development and food security and to address climate change. CIFOR leads FTA in partnership with Bioversity International, CATIE, CIRAD, ICRAF, INBAR and Tropenbos International.

FTA has a set of operational priorities which structure its program of work, within the framework of the proposal. These priorities address key development demands and knowledge gaps concerning the implementation of the SDGs and the Paris Agreement on climate change. Some of the main 2019 results follow.

To bridge production gaps and promote resilience, six orphan tree crop reference genomes were sequenced and published, capacity development was conducted, decision tools developed and the work on seeds and seedlings delivery systems supported the establishment of a National Tree Seed Network in Ethiopia.

A Priority Food Tree and Crop Food Composition Database and a user-Guide to support nutrition sensitive agriculture were produced. FTA strengthened its collaboration with A4NH.

The Livelihood systems Flagship coordinated the development of the High Level Panel of Experts (HLPE) report on agroecology and of the Global Commission on Adaptation (GCA) background paper on building resilient agriculture. The options by context approach is increasingly being adopted to orient action on the ground. Policy gaps constraining the scaling up of agroforestry were identified across 8 countries in Africa and national strategies developed for Ethiopia and Nepal.

The study on “Scaling of innovative finance for sustainable landscapes” was presented and discussed in the Global Landscape Forum (GLF) Luxembourg. Inclusive finance and business models were developed with companies across Tanzania, Ghana and Peru. Recommendations were made to the Forest Stewardship Council (FSC). FTA provided the evidence base for the discussion on plantations in the UN Committee on World Food Security (CFS). A strong partnership was established with the International Rubber Study Group (IRSG) and the Global Platform for Sustainable Natural Rubber (GPSNR).

On landscape dynamics, productivity and resilience, important progress was made in 2019 towards effective multifunctional landscapes. An Agroforestry Policy for Nepal was launched in mid-2019 following extensive support to the government. Lessons were drawn from performance-based finance experiments in 34 community forest enterprises in Cameroon within the DFID financed Dryad project. The ecosystems-based adaptation project in the Gambia supported 49 community forests and the restoration of degraded protected areas. FTA also finalized important synthesis publications.

On climate change mitigation and adaptation, the highlights in 2019 were a number of products related to REDD+, mangrove protection and management, bamboo water management, bioenergy, ecosystem-based adaptation, and training and information sharing. These products provide policy advice and support national policy design for REDD+, PFES, NAMAs, and NDCs. Innovative options were developed to produce sustainable bioenergy and in providing policy support, above all in Africa and Indonesia. Analytical and practical work on adaptation were developed in the context of ecosystem-based adaptation and linking adaptation to mitigation.

FTA has brought a gender perspective to global policy processes, particularly the Rio Conventions and their implementation. It has also advanced gender equity across value chains, with the publication of a Conceptual framework to address gender in charcoal value chains, critical insights on the effectiveness of Fairtrade certification on women's inclusion and empowerment and on the role of sustainability standards in driving gender transformative change in value chains, and participatory research used to design gender modules for tea and coffee producers.

In 2019, 84 students were trained, including 47 PhDs. 32 plant breeders, 17 of whom were women, graduated from the fourth class of the African Plant Breeding Academy (AfPBA). 14203 people, a majority of which women, were trained through a wide range of short-term training efforts by FTA partnering centers. FTA also provided capacity building on gender issues to the United Nations Framework Convention on Climate Change and to the Governors' Climate and Forest Task Force

FTA MELIA continued to work on a range of evaluation and impact assessment approaches as part of a balanced strategy to investigate FTA's actual influence. It organized in November 2019 with the ISC and the Management Team a workshop on Impact Assessment for Natural Resources Management and Policy Research in FTA that supported the orientation of the POWB 2020-2021.

Part A: NARRATIVE SECTION

1. Key Results

1.1 Progress Towards SDGs and SLOs (sphere of interest, with research results frequently predating the CRP)

a) overall contribution of the CGIAR towards the SRF targets in the relevant area of work for the CRP, based on rigorous adoption and/or impact data. [Please complete Table 1: Evidence on Progress towards SRF targets \(Sphere of interest\)](#) and make reference to this in the text.

FTA contributes to 9 Sustainable Development Goals (SDGs), all CGIAR Intermediate Development Outcomes (IDOs) and to 31 sub-IDOs. FTA works across four main production systems (natural forests, tree plantations, pastures with trees and cropping systems with trees) dealing with a number of globally traded and/or locally important tree-crop commodities (timber, oil palm, rubber, coffee, cocoa, coconut, wood fuel, fruits, etc.)

Progress towards IDOs in the areas of the CRP often requires a combination of technical and social innovations along value chains, supported by appropriate institutional and policy processes. These different elements were taken up at various levels and were adapted to specific contexts, progressing along engagement strategies. Of particular significance is the fact that progress was balanced among technical innovation, economic and value chains innovation and influence on policy making at various scales from local to national and global. These advances lay the ground for achieving the programs objectives towards IDOs.

b) any areas of learning from impact assessments which have influenced the direction of the program.

At the request of its Independent Steering Committee (ISC), FTA organized in November 2019 a joint ISC- FTA leadership workshop on Impact Assessment for Natural Resources Management and Policy Research. It built a shared understanding within FTA of NRM institutional and policy research impact pathways and of how we can reliably evaluate effectiveness and impact. The results of the workshop were integrated into the FTA POWB 2020 and are expected to produce more high calibre impact assessments than would have occurred without the joint workshop.

1.2 CRP Progress towards Outputs and Outcomes (spheres of control and influence)

1.2.1 Overall CRP progress

The CRP as a whole progressed towards its program outputs and outcomes.

Among the most important progress of the year is the importance, breadth and diversity of FTA's influences on science for decision processes with, in addition to those mentioned hereunder about the cross cutting priorities, the HLPE report on agroecology, the contributions to the Global Commission on Adaptation (GCA) report, to the state of the world's forest genetic resources, to the work of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), gender work with CBD and UNFCCC, on climate change with FAO and with the GCF, at global level as well as at regional and national levels with for instance participation to the Dialogue on NDCs in the

Asian Pacific Forest Week, the adoption of the agroforestry policy in Nepal, the Palm oil dialogue in Jakarta.

Particularly, significant progress was made in the three operational priorities that cut across flagships, on land restoration, nutrition and plantations. The nutrition priority organized a workshop with A4NH which included major policy actors: FAO, IFAD, WFP and members of the open-ended working group preparing the CFS voluntary guidelines on food systems and nutrition. This opened the door to a deeper involvement of FTA in the global science/policy discussions on food systems. This led in turn to influential contributions to CFS guidelines and to FTA leading the work on indicator 14 (contribution of forests and trees to food security and nutrition) of the CPF global core set of indicators. The plantations priority established a strong collaboration with the International Rubber Study Group (IRSG), and successfully informed the discussions in CFS on plantations. The restoration priority prepared, in collaboration with PIM and WLE a synthesis of a survey of the work conducted on restoration in the CGIAR and initiated with FAO the development of a data base of costs and benefits of restoration projects.

1.2.2 Progress by flagships

[Detailed progress by Flagships is described in Annex 2](#)

FP1 Tree genetic resources (TGR) to bridge production gaps and promote resilience

The **Biodiversity safeguarding and conservation** priority organized 2 regional workshops on FGR management in SSA and Asia; and developed genetic conservation units [guidelines](#), and Species distribution modelling with climate suitability for [Coffee and Cocoa in agroforestry](#).

The **Orphan crops** priority delivered the genomic sequence of 6 species, trained 36 African breeders, published an important [article in New Phytologist](#) to raise the profile of orphan crops globally and to support nutrition sensitive tree-crop portfolios. A new Public Private Partnership with AAK was established on the sustainability of shea value chains.

The work on **Seeds and seedlings delivery systems** supported the establishment of a National Tree Seed Network in Ethiopia. Publications supporting seed delivery, mass breeding; habitat suitability; and a climate change atlas for Africa have been developed. The Diversity4Restoration tool was expanded and upgraded to support farmers in selecting the most appropriate material. 14 Breeding Seed Orchards of 7 species were developed and 80 seed sources described and registered in Ethiopia.

In the **Nutrition Priority** a [Priority Food Tree and Crop Food Composition Database](#) and a [user-Guide](#) have been developed to support nutrition sensitive agriculture. [The portfolio approach methodology](#) for mainstreaming and providing year-round micronutrients to smallholder farmers was published.

FP2 Livelihood systems

FP2 coordinated the development of the UN Committee on World Food Security (CFS), High Level Panel of Experts (HLPE) [report on agroecology](#) and the Global Commission on Adaptation (GCA) [background paper on building resilient agriculture](#). The former was accepted by CFS as the basis for [policy convergence](#), while the latter resulted in agroecology being incorporated in the [GCA flagship report](#) and year of action, including a commitment to [expand access to agroecological practices for 60 million smallholder farmers](#). FP2 published key results demonstrating that [certain tree species when grown with coffee](#)

[increase soil organic carbon and microbial abundance](#), relevant to reversing degradation across 120,000 ha of coffee in China. Barry Callebaut, the world's largest cocoa buyer, adopted [FP2's options by context approach](#) as the foundation of its [position on agroforestry](#) and [oil palm farmers in Brazil expressed interest in diversification](#) to build resilience to market fluctuations and climate change. [Policy gaps constraining scaling up agroforestry](#) across 8 countries in Africa were documented and national strategies developed for [Ethiopia](#), [Uganda](#) and [Nepal](#). Income improving performance of 7 market based agroforestry options in [Vietnam](#) and 4 in [Indonesia](#) were published alongside [overcoming constraints to involvement of youth in food value chain upgrading](#) in Uganda.

FP3 Sustainable value chains and investments

In partnership with private companies were developed **inclusive finance and business models** across Tanzania, Ghana and Peru. **Work on innovating finance for sustainable landscapes** included organizing a digital summit at the Global Landscape Forum (GLF) Finance in Luxembourg in November 2019, during which the study on “Scaling of innovative finance for sustainable landscapes” was presented and then discussed in an [eDialogue](#). Recommendations were made in a [policy brief](#) for improvements to indicators and audit rules for the Forest Stewardship Council (FSC). Their relevance to the French National Strategy for the prevention of imported deforestation was acknowledged by the ministry of environment. FP3 work on **plantations and tree crop commodities** included partnering with the International Rubber Study Group (IRSG) and the Global Platform for Sustainable Natural Rubber (GPSNR). As part of a global comparative analysis of rubber smallholders, scientists participated in five [workshops](#) with rubber smallholders, traders, remillers and product manufacturers in five countries. As part of evaluating the **Effectiveness of approaches to sustainable supply**, a change of orientation was observed in the Cameroon Ministry of Agriculture, which has adopted a mix public and private governance [approaches and tools to promote legal and sustainable cocoa for European markets](#).

FP4 Landscape dynamics, productivity and resilience

FP4 progressed toward attaining the vision of effective multifunctional landscapes with trees in 2019. An [Agroforestry Policy for Nepal](#) was launched in mid-2019 following extensive support to the government. Other impact work is centred around three areas. Firstly, analysis of performance and lessons from performance-based finance experiments in 34 community forest enterprises in Cameroon within the DFID financed [Dryad](#) project ([see Joint Enterprise Concept](#)). Secondly, the ecosystems-based adaptation project in the Gambia supported 49 community forests in the development of viable and sustainable enterprises and invested significantly in the restoration of 1400 ha of degraded protected areas. Thirdly, sub-national level green growth planning work continued in Indonesia and Vietnam.

In terms of global public goods, FTA and its partners prepared a book titled “[Agroforestry in its fifth decade](#)” - in which research on agroforestry over the last forty years is summarized. A special feature was finalized in Ecology and Society journal reviewing [Twenty Years of Community Forestry in Cameroon](#). FTA Scientists also contributed to chapter 2 (drivers) and the Asia Pacific regional assessment reports of the [Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services published in 2019](#). Innovative work has also been done on the migration-environment nexus with conceptual and practical work in the East Africa context ([see links](#)). [Framework for assessing ecosystem services from bamboo forests has been developed with lessons from Asia and Africa](#). Policy and technical

support work continued for the development of an agroforestry policy for the Association of South-East Asian Nations-ASEAN.

FP5 Climate change mitigation and adaptation

The highlights are a number of products related to [REDD+](#), mangrove protection and management, bamboo water management, bioenergy, ecosystem-based adaptation, and training and information sharing, notably [at COP25 in Madrid](#). Countries that saw a lot of activity in 2019 were Ethiopia ([REDD+ workshop](#)), Honduras (terra-I data set and [specific web page](#)), Indonesia (bioenergy [here](#) and [here](#), and REDD+), The Gambia (REDD+), Ghana (bamboo bioenergy) and Vietnam (FLR, mangroves, REDD+; with many products in Vietnamese, accessible to local users). Priority 5, NDCs, produced several key publications and advanced on providing policy advice and supporting national policy design in REDD+, PFES and NAMAs, and the [inclusion of forests and forested landscapes in NDCs](#), in several countries and regions. Priority 6, Bioenergy, continues making progress in both field experimentation and demonstration of innovative options to produce sustainable bioenergy and in providing policy support, above all in [Africa](#) and [Indonesia](#). Priority 7, Blue Carbon/peatlands, focuses on advancing peatland research as basis for policy making. Both Peatlands and the concept of Blue Carbon are [getting more attention from policy makers](#) thanks to FTA research and dissemination activities. The [International Tropical Peatland Center \(ITPC\)](#) continued to be supported by FTA. Priority 8, climate change adaptation, continued producing analytical and practical work on adaptation in the context of ecosystem-based adaptation and [linking adaptation to mitigation](#). Highlights this year were on bamboo and advances in developing detailed, regionalized practical guides on ecosystem-based adaptation in The Gambia.

1.2.3 Variance from Planned Program for this year

*(a) Have any promising research areas been significantly **expanded**?*

The work on climate appropriate portfolios of tree diversity (CAPTD) for diversification of diets and landscape restoration was expanded for a GCF proposal for Sri Lanka as well as to prepare another GCF grant for Rwanda. To highlight the return on investments of CAPTD, ex ante impact assessments were undertaken in Ethiopia through PATSPO funds in support of the Climate Resilient Green Economy (CRGE) strategy of Ethiopia.

Work was expanded on policies and institutional dimensions of greening tree commodities in Africa.

Training of ACP country participants on NDCs was funded by CTA in Wageningen.

At the request of the Africa Group of Negotiators, support work was initiated on the Global Adaptation Goal in the Paris Agreement and how to measure progress.

FTA started developing targeted guidance on the land use and forest sector for the Green Climate Fund in late 2019 and a global platform on Nature Based Solutions. We are also strengthening our work on tropical forest and peatland fires.

*(b) Have any research lines been dropped or significantly **cut back**?*

In FP5 some field work on bamboo was partially cut back due to climatic problems in Brazil. It may still be taken up in 2020.

*(c) Have any Flagships or specific research areas **changed direction**?*

To capitalize on the set of operational priorities identified as part of the priority setting process implemented in 2018, the MT decided to keep the same list of priorities, with the addition of foresight. The MT also decided that gender and capacity development should be mainstreamed into the other priorities, and that a specific priority on gender will be maintained.

The operationalization of the FTA priorities has promoted genuine inter-centre and inter FP collaborations. For instance, for FP1, there is now a very vibrant collaboration between CIFOR and ICRAF in nutrition and a vibrant collaboration between FP1 and FP4 on restoration. This collaboration has extended to joint workshops and fund-raising efforts.

The increasing emphasis on documenting impact has an incidence on the way benefits are assessed, with quantitative assessment becoming more prominent. For instance, in FP 1 quantitative assessment of the benefits of using appropriate productive portfolios of tree diversity for restoration and diversifying diets are to replace more qualitative ones, with results planned to be available in 2020.

1.2.4 Altmetric and Publication highlights

In 2019 FTA produced 560 publications, including 39 books, 50 chapters, 30 journal articles, 89% of which ISI, 52 briefs and 31 papers. FTA also produced 236 communication products, including 104 blogs, 75 factsheet, 72 videos, 49 online presentations, flyers and posters as needed.¹

FTA publications gained an overall [4,794 attention score on Altmetrics](#), have been tweeted over 5,000 times, covered in more than 130 news and blogs, read by over 8,100 readers on Mendeley, and were mentioned 3 times in official policy documents.

Below are the 5 best Altmetric-scored FTA publications:

1. [Biodiversity recovery of Neotropical secondary forests](#), gained the highest Altmetric score ranking at 325. Published in March 2019, the full text has been viewed 16,483 times with the PDF being downloaded 6,257 times. It was also cited 19 times according to Scopus, and has been covered by 23 news outlets. The publication was cited by UK Parliament Briefing notes on 14 Oct 2019.
2. [Extinction filters mediate the global effects of habitat fragmentation on animals](#), gained score 263 from Altmetrics, it has been downloaded 2,070 times and viewed 3,028. The article has been picked up by 13 news outlets, tweet 279 times and cited 7 times.
3. [The future of Blue Carbon science](#), gained a 235 Altmetric score, with 405 total tweets, it was read by 239 Mendeley users and 8 times cited according to Scopus. The article has been viewed 15,000 times since published on the 5 September 2019.
4. [Widespread shortfalls in protected area resourcing undermine efforts to conserve biodiversity](#), with a 172 score in Altmetrics, was cited 14 times, covered in 9 news outlets and twitted 202 times.
5. [Wet and dry tropical forests show opposite successional pathways in wood density but converge over time](#) was viewed and accessed 1,585 times and ranked 156 on

¹ The information is determined through Web of Science, Scopus and the traffic light reporting from partners / direct reporting from each flagship leader.

Altmetrics. It has been tweeted 108 times in total, covered by 14 news outlets and read by 178 Mendeley users. The article has been cited 12 times.

[The full list of journal articles is available here.](#) In May 2019, FTA developed a state-of-the-art [fully searchable publications database](#), gathering the totality of the publications produced since the start of the program in 2011 (more than 5500 unique entries). It was officially launched in June 2019.

1.3 Cross-cutting dimensions (at CRP level)

1.3.1 Gender

a) List any important CRP research findings, methods or tools, capacity development, policy changes or outcomes in the reporting year related to gender issues. Where possible, please use concise bullet points that can be picked out into a System wide annual report, see examples pp 33-34 in CGIAR System-level Report 2017. Aim for 15-30 words (max 40 words) per bullet, written for a non-specialist audience. Please spell out all acronyms.

FTA brings a gender perspective to global policy processes, particularly the Rio Conventions and their implementation:

- FTA was invited to provide capacity building on gender issues for the United Nations Framework Convention on Climate Change - constitutive body on Local Communities and Indigenous Peoples, pre-COP 25
- Following a joint FTA side-event on gender and climate finance at COP25, FTA was invited to provide capacity building on gender mainstreaming to the Governors' Climate and Forest Task Force
- As a result of continuous engagement with the Convention on Biological Diversity (CBD) -secretariat and UN Women, FTA hosted a workshop and played a **key role in informing gender mainstreaming in CBD's post-2020 framework**
- As a result of FTA engagement, gender-specific indicators are included in Chatham House Forest Policy Assessment Framework
- FTA's research on gender and climate finance in Indonesia was shared **at the Asia-Pacific Ministerial Conference on the Beijing+25 Review**
- FTA scientists contributed to the chapter on Sustainable Development Goal (SDG) 5 (Enhance gender equality and empower all women and girls) in a book on forests and the SDGs

FTA strengthens the evidence base on gender and advances gender equity in value chains, across several tree products and geographies:

- **A Conceptual framework to address gender in charcoal value chains** (sector gaining increasing attention among policy makers in Africa) was published and used to redress the misconception that charcoal is dominated by young men, and hence 'not gender-relevant'.
- FTA research provides critical insights on the effectiveness of Fairtrade certification on women's inclusion and empowerment; the role of sustainability standards in driving gender transformative change in value chains
- FTA research on Fairtrade standards, strategies, programs and capacity-building in Indonesia, Kenya and Guatemala will **inform Fairtrade's Gender Strategy and improve certification standards.**

- FTA participatory research is used to **design gender modules** for tea and coffee producers, with examples from several country contexts

FTA gathers evidence, engages, and pushes Gender Transformative Approaches (GTAs):

- FTA was invited to make an expert contribution at the inception workshop of the Rome-Based Agencies' joint project on Gender Transformative Approaches
- FTA was invited as a **panelist at a Committee on World Food Security (CFS)-46 side-event** on 'Understanding gender-transformative approaches: A research perspective'

FTA's gender work on restoration continues to gain momentum:

- FTA established and coordinated, **within the Global Landscapes Forum (GLF), a Gender Constituency** which brings together 26 local, regional and international organizations and agencies.
- The GLF gender constituency convened a **side-event** at GLF Accra and co-convened a workshop at GLF Bonn as well as a **webinar** on gender-responsive restoration.
- Several **FTA products** advanced the state of knowledge on gender and restoration: three Masters' student theses, briefs and reports.
- **An On-farm Restoration Options Profile was** produced, based on an assessment of the impact of on-farm land restoration practices on the time and agency of women in the drylands of eastern Kenya
- FTA, in collaboration with WLE and PIM, organized a **writeshop and session on social inclusion in restoration** at the Society for Ecological Restoration 8th World Conference
- FTA **trained country teams** for FAO-IUCN's large-scale Global Environment Facility (GEF)-funded 'The Restoration Initiative' (TRI) project on gender-responsive restoration.

FTA gathers policy-relevant evidence on gender and tenure amid rapid changes in land use, governance and markets:

- FTA published a **synthesis of findings from Global Comparative Study on forest tenure reforms in Indonesia, Peru and Uganda** that highlights under which conditions implementation processes have improved outcomes for women and other marginalized groups.
- FTA developed a gender-responsive monitoring tool to support more equitable and effective multi-stakeholder forums.

Within the research community:

- FTA scientists led the writing of three of the nine **chapters for the CGIAR-wide publication** on 'Advancing gender equality through agricultural and environmental research for development'.
- FTA brought gender issues to the agenda by organizing a session on gender and migration **at the World Agroforestry Congress.**

b) Mention any important findings that have influenced the direction of the CRP's work, and how things have changed.

Engagement with the development of the post-2020 Global Biodiversity Framework from a gender perspective and FTA's official side-event at COP25 on gender and climate finance have heightened the visibility of the CRP and demonstrated that gender is a legitimate field of concern in research and policy, and a relevant entry point for engaging with global policy processes. As a result, gender researchers have been invited to comment on the draft biodiversity framework on behalf of their centers and CRP and FP Leaders have brought their FP's gender focal points into significant FP processes.

The inclusion of FTA's Gender Research Coordinator as a member of the scientific committee and among the thematic leads for the upcoming FTA conference show how the program is willing to ensure that gender is given needed attention and that relevant issues are adequately represented at the conference.

Findings from a project analyzing Fairtrade impact pathways show the institutional limits of market driven mechanisms alone to transform gender norms in hired labor and smallholder situations. Results suggest the need to better differentiate positive and negative integration of women in plantations and tree crop commodity sectors. These findings were the impetus for a gender clinic to be held in 2020 to examine project designs and incorporate gender analyses in FTA's FP3 portfolio.

c) Have any problems arisen in relation to gender issues or integrating gender into the CRP's research?

The tragic demise of Dr Esther Mwangi, who led the development of FTA's original Gender Strategy and was a prolific Principal Scientist working on gender and inclusion at CIFOR, was a big loss for FTA and the gender and forests research community. Her position has yet to be re-filled.

FTA was selected as recipient for a grant on gender and oil palm value chains by the CGIAR Collaborative Platform for Gender Research. However, as the Platform has changed leadership, the announced funding will no longer be provided. FTA thus allocated 100K\$ to ensure that the winning proposal could still be implemented.

1.3.2 Youth and other aspects of Social inclusion / "Leaving No-one Behind²"

FTA takes an intersectional perspective to gender research: examining how gender interacts with other factors of social differentiation that can cause marginalization and exclusions. Highlights from this work include:

- FTA authored a **chapter on intersectionality** for The Edward Elgar Handbook of Critical Agrarian Studies (in press)
- FTA scientists co-author the chapter on Sustainable Development Goal (SDGs) 10 (Reduce Inequalities) in edited book on forests and the SDGs
- FTA is the lead for the **chapter on poverty in IUFRO's Global Assessment on Forests and Poverty**: 'Chapter 4: Levers for influencing the factors, processes and conditions related to forests and tree-based landscapes that constrain or enable poverty reduction'.

² Leaving no-one behind is a key facet of the SDGs: <https://unstats.un.org/sdgs/report/2016/leaving-no-one-behind>

- FTA research on tenure reforms in Indonesia, Peru and Uganda shed light on how age, socio-economic status and ethnicity influence marginalized groups' rights to resources.
- Fairtrade research in Indonesia, Kenya and Guatemala foregrounded how age and ethnicity (including customary and indigenous communities) influence participation in coffee value chains, and the extent to which existing standards allow inclusion of marginalized groups.
- FTA's two grants from the CGIAR Collaborative Platform on Gender Research focused on the feminization of agriculture show how women's and men's mobility patterns and livelihood opportunities are conditioned by age, socio-economic status, and other factors of social differentiation.
- Research in Burkina Faso shows that widows and women who do not have adult sons are excluded from informal organizations that mediate access to restoration projects and their benefits. Implementing NGOs are changing their intervention approach due to these findings.
- An FTA-WLE-PIM session on 'Restoration for whom, by whom' at the Society for Ecological Restoration's 8th World Conference underscored the need and approaches to address social exclusions created by global to local restoration processes. This session will form the basis of a special issue on the topic to be submitted in 2020.
- An FTA-led chapter on assessing women's empowerment in agriculture for the CGIAR-wide publication on 'Advancing gender equality through agricultural and environmental research for development' highlighted the need and approaches to focus on intersecting inequalities for understanding empowerment.
- FTA is contributing to research conducted by World Agroforestry Centre, ICRISAT, the Cynefin Centre and Bangor University, on rural household aspirations and imagined future livelihood strategies in relation to on- and off-farm income sources. As part of its contribution FTA is **studying how aspirations across age and gender converge and diverge** and how they reflect men and women's changing positions in the household as well as normative constraints.

1.3.3 Capacity Development

FTA continued its Capacity Development efforts during the current reporting period. The FTA **Capacity Needs Analysis** was finalized and is under final design for publication. In 2019, **84 students were trained, out of which 47 were PhDs.**

As part of the efforts for upgrading the skills of African plant breeders, an additional **32 plant breeders**, 17 of whom were women, graduated in December 2019 from the fourth class of the [African Plant Breeding Academy \(AfPBA\)](#), which is the landmark capacity development initiative of the African Orphan Crops Consortium (AOCC) and African Union.

14203 people, a majority of which women, were trained through a wide range of short-term training efforts by FTA partnering centers, as summarized in table 7.

FTA provided capacity building on gender issues to the United Nations Framework Convention on Climate Change - constitutive body on Local Communities and Indigenous Peoples.

FTA was invited to provide capacity building on gender mainstreaming to the **Governors' Climate and Forest Task Force.**

1.3.4 Climate Change

Through FP5, but also as a whole, many of the FTA priorities address climate change, drawing attention to and actively promoting the use of forests, trees and agroforestry in climate change mitigation and adaptation. In 2019 FP2 were commissioned to write a background paper for the [Global Commission on Adaptation on the contribution of agroecological approaches to building climate resilient agriculture](#). This was published, presented at the [GCA meeting in Daka](#) in July and resulted in agroecological practices becoming an explicit feature of the [overall GCA report](#), and its agriculture and food security action track and year of action commitments, including improving access to agroecological practices for 60 million smallholder farmers. FP2 also published new tree ring research showing how [carbon isotope composition of riparian trees in the Volta region of Ghana can be used to reconstruct climate variability and assess ecological responses to climate change](#), as well as a key review showing that while [water use efficiency of trees has increased as ambient CO₂ levels have risen this hasn't necessarily led to faster stem radial growth](#) because more carbon is allocated to roots and moisture limitation restricts tree growth. Forestry and land use [could contribute to as much as 30% of the solution to CC adaptation and mitigation](#). We are aware that without viable, contextualized options on the ground, but also without the right policies and incentives, it will be impossible to achieve the climate objectives. Policy breakthroughs may trigger broad transformational change across a large area of forested landscapes. We work simultaneously on developing tree crop-based systems on the ground, economic incentives, and [enabling policy frameworks](#). Activities such as breeding and [mapping of the distribution](#) of indigenous agroforestry species under climate change, smallholder development for greater resilience through development of value chains, market access, and novel products such as [bioenergy crops on marginal land](#), forest landscape restoration, nature-based solutions, [REDD+](#), [PFES](#), and [forest monitoring](#) are all addressing climate change. The [Global Landscapes Forum](#) broadly supports the Decade of Restoration. In view of the massive emission reductions required to keep global warming below 1.5 degrees by 2030, all these activities underpin the substantial contribution from forests, trees and agroforestry to mitigation, and increasingly relevant, to adaptation. Our goals are substantial and ambitious, and we believe that our broad, integrated, and multi-disciplinary approach across all levels of activity and engagement will be a key contribution to global mitigation and adaptation achievements.

2. Effectiveness and Efficiency

2.1 Management and governance

[The ISC](#), with the BoT of the Lead Center are the two key components of the **governance** of FTA. After CIFOR and ICRAF merge, the two Centers have now one common BoT as of 2019.

From a **management** perspective, [the terms of reference of FTA MT](#) have been revised. The new ToR clarify decision making including when there is no consensus in the MT and the way to solve disputes.

[Michael Brady](#) (CIFOR) was appointed FP3 Leader following a call for nominations opened to candidates proposed by all program participants and given the unanimous recommendation of the FTA Management Team expressed at its face-to face meeting on 25-27 March 2019 in Nairobi.

2.2 Partnerships

2.2.1 Highlights of External Partnerships

An increasingly productive partnership was developed with the Green Climate Fund (GCF) in particular with GCF divisions for forests and land use, and for ecosystems and ecosystem services. Both conceptual work (sectoral guidance) and direct project development work provided the groundwork for strong future engagement along the impact pathways. FTA continued collaborating with IUCN on development of GCF initiatives in Rwanda and for other African countries.

FTA worked closely with UNWomen and the CBD to integrate gender considerations in the post-2020 Global Biodiversity Framework.

A new public-private partnership with the world's leading buyer of Shea nuts, AAK working directly with Shea communities in the Sahel was set up, including the University of Copenhagen. The ambition is to ensure sustainability for the Shea value chains and better livelihoods for the women who are the main harvesters of Shea nuts throughout the Sahel.

The partnerships within (AOCC) and AfPBA have an additional two new private companies (Benson Hill Biosystems and Dovetail Genomics) with expertise in genome-based plant breeding and genomics respectively; the partnership has now published 8 genomes.

FTA initiated a partnership with the International Rubber Study Group (IRSG) and became a member of the Global Platform for Sustainable Natural Rubber (GPSNR).

FTA has developed partnerships with the Governments of Gambia and of Sri Lanka in the implementation of GCF projects on Large scale ecosystem-based adaptation in community forestry and Country climate action readiness respectively. It has also initiated, two new partnerships in the development of GCF Concept Notes in both Cameroon and Kenya in collaboration with NDAs.

FTA partnered with the Government of Nepal to develop an agroforestry policy which was launched in 2019. Discussions started on possible implementation planning and execution work. In terms of regional bodies, FTA worked with the Association of South East Asian Nations on the development of the ASEAN Agroforestry Policy, including training and supporting the African Group of Negotiators Expert Support in the area of adaptation science.

FTA furthered its partnerships with FAO with (i) a co-publication on vulnerability assessments of forests and forest dependent people, (ii) the preparation of a co-publication on integration of forests and agroforestry in national adaptation plans and (iii) collaboration for the development of a database of costs and benefits of landscape restoration projects.

Leading the HLPE and GCA agroecology reports created an opportunity to form a closer partnership with FAO, UNEP and Biovision around identification and addressing knowledge gaps pertaining to agroecological transitions that has led to the formation of a putative transformative partnership platform around using agroecological transitions to build climate resilient agriculture that we intend to develop in 2020 to become a vehicle for collective endeavor in this area.

2.2.2 Cross-CGIAR Partnerships

FTA continued expanding its collaboration with other CRPs, especially WLE, PIM, CCAFS, A4NH, GLDC, RTB, the Genebank Platform, the Excellence in Breeding Platform and the Gender Platform, with some significant achievements.

In various cases it led to co-leveraging of resources, for instance to organize a session on socially inclusive restoration at the 8th Annual Conference of the Society for Ecological restoration (SER) and to communicate on it.

FTA collaborated extensively on different aspects of tree genetic resource management. For instance, with the Genebank Platform on availing germplasm to research projects; facilitating acquisition from other sources or working together on the development of characterization data, and sharing existing data.

FTA collaborated with PIM and WLE to prepare a synthesis of the work conducted on restoration in the various CRPs and centers. FTA also collaborated with PIM on multi-stakeholder platform case studies. FTA and PIM jointly hosted an event on land tenure during the GLF in Accra showcasing our research. This catalyzed sharing research among researchers and enriching collaboration in other ways for instance a researcher from FTA attending a political economy training organized by PIM.

New collaboration with A4NH was developed as part of FTA's priority on enhanced nutrition and food security. FTA participated in two workshops organized by A4NH and A4NH participated in an international workshop on "Forests, trees and agroforestry for better food systems and improved nutrition" organized by FTA in July 2019.

At a key meeting of the CGIAR and French research institutions in Montpellier in June we were able to develop a call for action to address evidence gaps constraining agroecological transition and a common agenda to develop research in this area across particularly FTA, GLDC and WLE but also potentially WHEAT, RICE and MAIZE.

2. 3. Intellectual Assets

(a) Have any intellectual assets been strategically managed by the CRP (together with the relevant Center) this year?

In 2019 FTA continued to integrate existing and produced intellectual assets by FTA research projects.

2.3.1 FTA Data Management

In 2019, the Data Management team consolidated data on species from various FTA projects in a single database. FTA provides the platform while data are maintained and owned by the respective Centres.

The geospatial component reported last year has now been fully integrated to the FTA data portal under the 'Map' feature.

Genome data and germplasm collection and selection of re-sequencing lines

- a) FTA continued to generate genome data under the African Orphan Crops Consortium (AOCC)³ which is publicly accessible and for open access.
- b) The sequencing data is available from the respective journal websites and on genome data server as follows:
 - a. Apple-Ring Acacia (*Faidherbia albida*), <http://dx.doi.org/10.5524/101054>
 - b. Bambara Groundnut (*Vigna subterranea*), <http://dx.doi.org/10.5524/101055>

³ AOCC is a consortium based in ICRAF HQ, Nairobi, comprises of African Union's New Partnership for Africa's Development (AU-NEPAD Agency); Mars, Incorporated; World Agroforestry Centre (ICRAF); BGI; Thermo Fisher Scientific (formerly Life Technologies); World Wildlife Fund; University of California, Davis; CyVerse (previously iPlant Collaborative); LGC; Illumina; Google; UNICEF; and Biosciences eastern and central Africa – International Livestock Research Institute (BecA/ILRI) Hub, <http://africanorphancrops.org/about/>

- c. Hyacinth Bean (*Lablab purpureus*), <http://dx.doi.org/10.5524/101056>
- d. Marula (*Sclerocarya birrea*), <http://dx.doi.org/10.5524/101057>
- e. Horseradish Tree (*Moringa oleifera*), <http://dx.doi.org/10.5524/101058>
- f. Jackfruit (*Artocarpus heterophyllus*), <https://doi.org/10.3390/genes11010027>
- g. Breadfruit (*Artocarpus altilis*) <https://doi.org/10.3390/genes11010027>
- h. African eggplant (*Solanum aethiopicum*), <https://doi.org/10.1093/gigascience/giz115>

There have been no specific issue or concern in making the above sequenced information publicly available.

(b) If relevant, indicate any published patents and/or plant variety right applications (or equivalent) associated with intellectual assets developed in the CRP and filed by Centers and/or partners involved in the CRP, giving a name or number or link to identify them.

N/A (For the reporting year of 2019, no PVP or patent has been filed for any AOCC technology since the consortium intends to keep its products open access. Innovations such as DNA extraction are still published as open access).

(c) List any critical issues or challenges encountered in the management of intellectual assets in the context of the CRP (or put N/A).

Handling sensitive data has continued to be a challenge because the notion of sensitive data is broad and often difficult to precisely characterize in terms of scope or criteria. There may be data which could have a negative impact if released or disclosed even though a previous screening process has been conducted by the data manager and team. Progress is needed on an agreed definition and scope of what constitutes sensitive data to minimize risks.

Challenges on improving tree germplasm are due to very lengthy gestation period and seed to seed cycle. Therefore, FTA has continued using existing germplasm maintained in various gene banks including that of ICRAF which has some phenotyping information gathered over a period of time.

2.4 Monitoring, Evaluation, Impact Assessment and Learning (MELIA)

The MELIA team led the preparation of the November 2019 workshop on Impact Assessment for Natural Resources Management and Policy Research in FTA, requested by the Independent Steering committee of FTA. The preparations included a mapping of FTA's evaluation studies against the program's Theory of Change in order to identify gaps in coverage. As a result, the MELIA team identified a set of integrated studies that will be carried out in 2020-21.

The MELIA team has also provided feedback and inputs to Flagships in the revision of their end of program outcomes and milestones. This review will be finalized in 2020 and will factor-in the shortening by one year of the duration of the CRPs.

In addition, two new articles were prepared concerning the challenges in effectively assessing the impact of transdisciplinary research:

- [“A refined method for theory-based evaluation of the societal impacts of research”](#) provides a detailed description of concepts and a method for assessing the relationship between transdisciplinary research processes, outputs, and outcomes.
- [“Linking Transdisciplinary Research Characteristics and Quality to Effectiveness: A Comparative Analysis of Five Research-for-Development Projects”](#) reports lessons from outcome evaluations of five FTA projects.

2.5 Efficiency

FTA's priority-setting framework promotes focus, alignment, and coherence of the workplans. It has fostered cross FP work and reduced transaction costs while enabling more in-depth collaborative, transparent and inclusive work on defining work plans. It allows for best use of W1/2 and bilateral resources under budget constraints, building on the comparative advantages of FTA and its partners in order to maximize value for money, effectiveness and impact. The investment made in 2018 on 3-year work programs by priority, discussed and endorsed in the MT, considerably reduced in 2019 transaction costs for the preparation and implementation of the POWB.

Collaboration with other CPRs as well as with other partners have also generated efficiency gains. For instance, joint funding by FTA-WLE for comparative research on gender and restoration allows both CRPs to gather robust evidence in a larger number of contexts, thereby increasing the representativeness of their findings, and allowing them to engage with a greater number of partners in a concerted manner.

Collaboration between FTA and the Genebank Platform on the development of characterization data and addressing priority tree health issues resulted in a cost-saving partnership, as it enabled to source resources and personnel from the Genebank Platform.

2.6 Management of Risks to Your CRP

The major programmatic risk that FTA is facing is the one of recurrent uncertainty in W1-2 funding. This poses special constraints especially to non CGIAR partners that are not able to pre-finance work and so cannot start working as long as resources are not cashed-in. This risk is addressed by a contingency planning mechanism for W1-2 funds. The 2019 POWB was split into three tiers of decreased probability of funding. Each activity and corresponding output of the 2019 POWB was associated with one of the three tiers, reflecting their relative priority in the POWB. This contingency mechanism provides total transparency and clarity to partners and it allows FTA to efficiently manage disbursement along the year. In 2019 Tiers 3 activities were not funded as risk of decreased allocations was deemed high. When final 2019 allocations were notified at the end of 2019 and were higher than expected, a carry forward was created, to be used in 2020 in total alignment with FTA's priorities.

The residual programmatic risk which is the non-delivery risk of FTA partners is managed by a quarterly traffic light reporting system overseen by the MSU and the MT. This enables program management to follow delivery very closely, and in case of delays to put corrective measures in place. In case an activity is canceled by a partner the funds are returned by that partner to the program.

The programmatic risk of under-optimal positioning of the research portfolio towards outcomes is mitigated by the prioritization process and annual work planning that aligns use of W1-2 and bilaterals to the program's theory of change and towards end of program outcomes.

Institutional risks (as per the [CGIAR Risk Management Guidelines](#)) and their management falls under the remit of FTA partners.

2.7 Use of W1-2 Funding

W1-2 allocations and associated workplans result from (i) principles and criteria for prioritization agreed upon by the management team and the ISC ([see Annex 1](#) for the criteria), (ii) strategic orientations considering end-of-program objectives discussed with the

ISC, (iii) analysis of all draft work plans submitted by FPs to the MT, and (iv) consideration of past delivery performance by the scientific teams.

W1-2 funds prioritize work that leads to the generation of IPGs, including those that can influence policy generation and policy implementation, promote uptake and impact potential on the ground and challenge established theories, exploring early leads on potential new ideas.

FTA is one of the few CRP having implemented an activity-level and deliverable-level disaggregation of all W1-2 funded research. All W1-2 fund allocations to partners are disaggregated down to the level of activities and deliverables, which also enables program management to track performance and delivery, and to take this into account in management decisions. The activities receiving W1-2 funding are summarized in the traffic light report available on request.

3. Financial Summary

In 2019, FTA was once again the CRP receiving the lowest amount of W1/2 funds compared to its total budget, for reasons unrelated to program relevance or performance. To deal with recurrent W1/2 funding uncertainties (overall amount and calendar of disbursements), FTA now integrates into its budget a contingency planning mechanism, to help all partners better manage cash flows according to operational priorities, and to manage recurrent important ex-ante uncertainty on actual FTA funding in a transparent and effective manner. The mechanism is based on the definition of three tiers of budget linked to their estimated probability of actual funding (each tier with its set of activities and outputs) (see section 2.6).

During the year, the MSU gave instructions to partners to engage in Tier 1 and 2 activities (priority activities), but not in Tier 3 activities, due to the likelihood of funding shortfalls as per the information available from the CGIAR System Management Office (SMO).

End September 2019, FTA had received 6.6m USD W1-2 and to manage the situation it was decided to remove Tier 3 activities from the 2019 POWB, and carry forward to 2020 any fund in excess of Tier 1 and Tier 2, if any such funds were to be received later in the year.

In practice, when the final 2019 allocations were notified by the SMO mid December 2019, this led to a carrying forward of USD 1,035,295 at program level. These funds will be disbursed by CIFOR, the lead center in 2020, as per a process fully aligned with FTA's priorities (see section 2.6).

Overall, 2019 disbursements of W1-2 funds by the lead center CIFOR to program participants (including itself) amounted to USD 8,736,176. This is equal to the sum of USD 9,194,987 (2019 final allocations by the SMO against an original FINPLAN of USD 9,400,000), plus USD 1,036,175 of program-level carry-over from 2018 (as per the contingency planning mechanism of 2018), minus USD 1,494,986 carried-over by the lead center into 2020 (as per the contingency planning mechanism of 2019).

Some 2019 Tier 1/2 resources disbursed to partners by the lead center, will be spent by the partners in 2020 to finalize their originally planned outputs; this is because some of the funding was delivered to partners very late in the year, due to delays in the calendar of disbursements by the SMO. The execution of these activities is monitored by the FTA MSU, as per traffic light reporting.

Part B. TABLES

Table 1: Evidence on Progress towards SRF targets (Sphere of interest)

(see page below)

SLO Target (2022)	Brief summary of new evidence of CGIAR contribution	Expected additional contribution before end of 2022 <i>Optional narrative. Evidence not required.</i>
<p>1.1. 100 million more farm households have adopted improved varieties, breeds, trees, and/or management practices</p>	<p>Evidence of improved innovations in management for community forests policy and practice in Cameroon over the last 20 years, impacting more than 71,400 households (approximately 500,000 people) in 400 CF communities. Major innovations identified are the introduction of pre-emption rights and steps toward sustainable forest management (ban on industrial logging, development of certification standards, and the introduction of the environmental notice in lieu of a full environmental impact assessment for CF activities).</p> <p>Evidence: Minang, P. A., L. A. Duguma, F. Bernard, D. Foundjem-Tita and Z. Tchoundjeu. 2019. Evolution of community forestry in Cameroon: an innovation ecosystems perspective. Ecology and Society 24 (1):1. https://www.ecologyandsociety.org/vol24/iss1/...</p> <p>10,000 farmers adopted options x context land restoration techniques across 4 African countries evidenced in external mid-term evaluation of IFAD/EU dryland restoration project http://www.adansonia-consulting.ch/document/restoration_of_degraded_land.pdf</p> <p>69,540 farmers adopted CG-informed agroforestry innovations in Western Kenya Hughes,K., Morgan,S., Baylis,K., Oduol,J., Smith-Dumont,E., Vâgen,T., Kegode,H., 2020. Assessing the downstream socioeconomic impacts of agroforestry in Kenya. World Development. 128: 104835. https://doi.org/10.1016/j.worlddev.2019.104835</p> <p>145,274 households across eight African countries adopted farmer managed natural regeneration through <i>options by context</i> greening Africa project evidenced in project annual report https://www.dropbox.com/s/n2zf9f7b1ukkzz8/greening%20year%202_AnnualReport_EXTERNAL_EM_AIL.pdf?dl=</p> <p>6159 farmers planted trees across 3 African countries (with 35,134 people reached through wider dissemination and training but adoption not tracked) through option x context engagement as evidenced in Trees4FoodSecurity progress report. http://apps.worldagroforestry.org/sites/default/files/outputs/Muthuri%20et%20al,%202019.%20T4FS-2%20project%20Overview%20and%20Project%20magazine.pdf</p> <p>219,694 farmers adopted practices through the <i>options by context approach</i> developed by FTA/ICRAF used to promote sustainable agriculture across 5 African countries as evidenced in the DryDev end of</p>	<p>The Regreening Africa program, an investment of 20 M USD, targets 500,000 households across 8 African countries (Ethiopia, Ghana, Kenya, Mali, Niger, Rwanda, Senegal, Somalia) by 2022</p> <p>The Resilient Food Systems program (116 M USD) targets 2 million households across 12 African countries</p> <p>The GCF Knuckles ecosystem-based adaptation project (49 M USD) targets 1.3 million beneficiaries in Sri Lanka</p> <p>Global Commission on Adaptation year of action targets better access to agroecological practices for 60 M smallholders</p> <p>Andhra Pradesh Community Managed Natural Farming (100 M USD) targets adoption of agroecological practices by 500,000 farmers in Andhra Pradesh</p> <p>Progress towards the SLO targets often requires a combination of</p>

	<p>program report. https://www.dropbox.com/s/gr79maco6iveizh/DryDev%20End%20PProgramme%20report2020123.docx?dl=0</p> <p>In Andhra Pradesh over 190,000 farmers reached with nearly 27,000 practicing at least one innovation as shown by an evaluation of reach and early adoption of agroecological farming practices https://www.dropbox.com/s/cdypml5za3y6qkn/2018-19 data collection round - Performance Evaluation_19_02_20.pdf?dl=0</p>	<p>technical and social innovations along value chains, supported by appropriate institutional and policy processes. Progress made along the ToC on technical and social innovations as well as towards favourable policy environment will allow progress towards targets before end of 2022 as well as after this date. Assessments of achieved and projected outcomes will be conducted in 2020-2021.</p>
<p>1.2. 30 million people, of which 50% are women, assisted to exit poverty</p>	<p>No new evidence in 2019</p>	<p>Progress towards the SLO targets often requires a combination of technical and social innovations along value chains, supported by appropriate institutional and policy processes. Progress made along the ToC on technical and social innovations as well as towards favourable policy environment will allow progress towards targets before end of 2022 as well as after this date. Assessments of achieved and projected outcomes will be conducted in 2020-2021.</p>
<p>2.1. Improve the rate of yield increase for major food staples from current <1% to 1.2-1.5% per year</p>	<p>No new evidence in 2019</p>	<p>Progress towards the SLO targets often requires a combination of technical and social innovations along value chains, supported by appropriate institutional and policy processes. Progress made along the ToC on technical and social innovations as well as towards</p>

		favourable policy environment will allow progress towards targets before end of 2022 as well as after this date. Assessments of achieved and projected outcomes will be conducted in 2020-2021.
2.2. 30 million more people, of which 50% are women, meeting minimum dietary energy requirements	No new evidence in 2019	Progress towards the SLO targets often requires a combination of technical and social innovations along value chains, supported by appropriate institutional and policy processes. Progress made along the ToC on technical and social innovations as well as towards favourable policy environment will allow progress towards targets before end of 2022 as well as after this date. Assessments of achieved and projected outcomes will be conducted in 2020-2021.
2.3. 150 million more people, of which 50% are women, without deficiencies in one or more essential micronutrients	No new evidence in 2019	Progress towards the SLO targets often requires a combination of technical and social innovations along value chains, supported by appropriate institutional and policy processes. Progress made along the ToC on technical and social innovations as well as towards favourable policy environment will allow progress towards targets before end of 2022 as well as after this date. Assessments of achieved and projected outcomes will be

		conducted in 2020-2021.
3.1. 5% increase in water and nutrient efficiency in agroecosystems	No new evidence in 2019	Progress towards the SLO targets often requires a combination of technical and social innovations along value chains, supported by appropriate institutional and policy processes. Progress made along the ToC on technical and social innovations as well as towards favourable policy environment will allow progress towards targets before end of 2022 as well as after this date. Assessments of achieved and projected outcomes will be conducted in 2020-2021.
3.2. Reduction in 'agriculturally'-related greenhouse gas emissions by 5%	<p>Outcomes for more efficient and effective REDD+ and PFES design and fighting peatland fires (reducing GHG emissions from forests – often driven by agricultural development) are reported in a 2018-2019 midterm assessment of the Global Comp. Study of REDD+ (GCS-REDD+) for Vietnam (PFES), Ethiopia (REDD+), and there are other FP5 outcomes for Indonesia (fires – no evidence in 2019), Peru (peatlands), and for forest monitoring in Honduras.</p> <p>Positive impacts on emissions reductions (sinks) of restoration results and of deforestation reductions have not been quantified yet.</p>	<p>Policy frameworks and capacity are being developed broadly across all relevant forested tropical countries, thus once all this is in place, a policy breakthrough in REDD+ is expected to result in large-scale changes.</p> <p>Progress towards the SLO targets often requires a combination of technical and social innovations along value chains, supported by appropriate institutional and policy processes. Progress made along the ToC on technical and social innovations as well as towards favourable policy environment will allow progress towards targets before end of 2022 as well as after</p>

		this date. Assessments of achieved and projected outcomes will be conducted in 2020-2021.
3.3. 55 M ha degraded land area restored	<p>64,050 ha restored through agroforestry innovations in Western Kenya Hughes,K., Morgan,S., Baylis,K., Oduol,J., Smith-Dumont,E., Vågen,T., Kegode,H., 2020. Assessing the downstream socioeconomic impacts of agroforestry in Kenya. World Development. 128: 104835. https://doi.org/10.1016/j.worlddev.2019.104835</p> <p>162,697 ha across eight African countries under restoration through <i>options by context</i> greening Africa project evidenced in project annual report https://www.dropbox.com/s/n2zf9f7b1ukkzz8/regreening%20year%202_AnnualReport_EXTERNAL_EMAIL.pdf?dl=0</p> <p>85,556 ha restored in Niger (10,491 upper watershed, 75,065 assisted natural regeneration) evidenced in Resilient Food Systems annual report p66) http://www.resilientfoodsystems.co/sites/default/files/2020-03/RFS_Annual%20Report_2019.pdf</p> <p>265,902 ha restored through the options by context approach across 5 African countries as evidenced in the DryDev end of program report (122,850 ha of degraded communal land rehabilitated, 90,058 ha of farmland managed under improved practices and climate smart practices adopted on 52,994 ha of farmland). https://www.dropbox.com/s/gr79maco6iveizh/DryDev%20End%20PRogramme%20report2020123.docx?dl=0</p> <p>Assisted Natural Regeneration (ANR) on 1400 ha in the Kiang West National Park in the Gambia. Included fire tracing for the entire perimeter and for trees. Protecting over 30000 Trees.</p>	<p>Resilient Food Systems program (116 M USD) targets 3.2 million ha of restoration across 12 African countries.</p> <p>The Regreening Africa program, an investment of 20 M USD, aims to reverse land degradation on 1 million hectares across 8 countries in sub-Saharan Africa (Ethiopia, Ghana, Kenya, Mali, Niger, Rwanda, Senegal, Somalia) by 2022.</p> <p>Work to continue on two more national Parks and 49 Degraded Community forests in 2020 and 2021</p> <p>Two Sectoral Guidance documents are being prepared by a CIFOR team on Forests and Land Use, and Ecosystems and Ecosystem Services, for the GCF, which will bear on future GCF projects in these areas (delivery in 2020).</p> <p>Progress towards the SLO targets often requires a combination of technical and social innovations along value chains, supported by appropriate institutional and policy</p>

		<p>processes. Progress made along the ToC on technical and social innovations as well as towards favourable policy environment will allow progress towards targets before end of 2022 as well as after this date. Assessments of achieved and projected outcomes will be conducted in 2020-2021.</p>
<p>3.4. 2.5 M ha forest saved from deforestation</p>	<p>FTA and PIM research provided the evidence needed for concession renewal and continued community stewardship of 400,000 hectares of tropical forests in Guatemala. https://www.rainforest-alliance.org/press-releases/carmelita-community-forestry-concession-granted-25-year-extension</p> <p>https://conap.gob.gt/estas-son-las-actualizaciones-de-las-normas-para-prorrogar-concesiones-en-la-biosfera-maya/</p> <p>96,000 ha of community forests protected from deforestation by being put on pathway to sustainable forest management in Cameroon under the Financing Sustainable community forest enterprises in Cameroon (Dryad) project.</p> <p>Bernard, F. and P. A. Minang. 2019. Community forestry and REDD+ in Cameroon: what next? Ecology and Society 24 (1):14. https://www.ecologyandsociety.org/vol24/iss1/art14/ http://apps.worldagroforestry.org/downloads/Publications/PDFS/TB19062.p</p>	<p>Policy frameworks and capacity are being developed broadly across all relevant forested tropical countries, thus once all this is in place, a policy breakthrough in REDD+ is expected to result in large-scale changes.</p> <p>Two Sectoral Guidance documents are being prepared by a CIFOR team on Forests and Land Use, and Ecosystems and Ecosystem Services, for the GCF, which will bear on future GCF projects in these areas (delivery in 2020).</p> <p>Progress towards the SLO targets often requires a combination of technical and social innovations along value chains, supported by appropriate institutional and policy processes. Progress made along the ToC on technical and social innovations as well as towards favourable policy environment will allow progress towards targets before end of 2022 as well as after this date. Assessments of achieved</p>

		and projected outcomes will be conducted in 2020-2021.
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Table 2: Condensed list of policy contributions in this reporting year (Sphere of Influence)

Column 1	Column 2A	Column 2	Column 3	Column 4a	Column 4b	Column 4c	Column 4d	Column 4e
Title of policy, legal instrument, investment or curriculum to which CGIAR contributed (max 30 words) <i>Spell out acronyms in every row</i>	Description of policy, legal instrument, investment or curriculum to which CGIAR contributed (30 words). See guidance for what to cover.	Level of Maturity	Link to sub-IDOs (max. 2)	CGIAR cross-cutting marker score				Link to OICR (obligatory if Level of Maturity is 2 or 3) or link to evidence (e.g. PDF generated from MIS)
				gender	youth	capdev	Climate Change	
ASEAN Guidelines for Agroforestry Development	The ASEAN Guidelines for Agroforestry Development is an important milestone towards increasing the prosperity, connectivity, resilience and security of the peoples of ASEAN Member States.	Level 2	<ul style="list-style-type: none"> Increased resilience of agro-ecosystems and communities, especially those including smallholders Increased availability of diverse 	1 - Significant	1 - Significant	1 - Significant	1 - Significant	OICR3354

			nutrient-rich food					
Agroforestry Policy for Nepal launched	An Agroforestry Policy for Nepal was launched in mid-2019 following extensive support to the government by ICRAF and partners since 2015.	Level 2	<ul style="list-style-type: none"> Increased availability of diverse nutrient-rich foods Increased resilience of agro-ecosystems and communities, especially those including smallholder 	1 - Significant	1 - Significant	1 - Significant	1 - Significant	OICR3367
Strategy for improving financial literacy among MSMEs in agriculture value chains	Adaptation of existing financial literacy experiences to conditions in tropical landscapes, oriented towards strengthening financial inclusion of	Level 1	<ul style="list-style-type: none"> Reduced market barriers 	1 - Not Targeted	1 - Not Targeted	2 - Principal	0 - Not Targeted	<p>Tropenbos partners are starting to adapt the financial literacy strategy to include financial literacy in their work plans.</p> <p>Financial Literacy Enhancement Study. Development of a useable definition and strategy framework to improve financial literacy for MSMEs in agriculture value chains.</p> <p>https://www.tropenbos.org/file.php/2322/facs_tropenbos_study_rev_final_20200228.pdf</p>

	smallholder farmers.							
Technical norms for renewal of forest concessions in the Maya Biosphere Reserve, Guatemala	Evidence of the socioeconomic performance of community forest concessions in the Maya Biosphere Reserve informed the revision of technical norms for concession renewal by Guatemala's Council for protected areas.	Level 2	<ul style="list-style-type: none"> • Gender-equitable control of productive assets and resources • Increased access to productive assets, including natural resource 	1 - Significant	1 - Significant	0 - Not Targeted	0 - Not Targeted	OICR3328
Ecosystem-based adaptation protocols developed in partnership with the Ministry of Climate Change, Natural Resources		Level 1	<ul style="list-style-type: none"> • Reduced net greenhouse gas emissions from agriculture, forests and other forms of land-use (More sustainab 	1 - Significant	1 - Significant	2 - Principal	2 - Principal	<p>The GCF funded Large-scale Ecosystem-based Adaptation Project in The Gambia aims at rehabilitating up to 10,000 hectares of degraded forest and wildlife parks through reforestation, enrichment planting, conservation of rare or endangered species as well as the restoration of 3,000 hectares of abandoned and marginal agricultural lands.</p> <p>In this context, scientists from ICRAF have carried out extensive work on ecosystem-based adaptation, involving mostly practical guides called ecosystem-based adaptation protocols that are specific to each community context. ICRAF has developed 24 such ecosystem-based adaptation protocols in partnership with the Ministry of Climate Change, Natural Resources of The Gambia. Besides, a comprehensive ecosystem-based adaptation monitoring platform has been fully developed and is now in</p>

of The Gambia			ly managed agro-ecosystems) • Enhanced capacity to deal with climatic risks and extremes (Mitigation and adaptation achieved)					testing phase. A comprehensive diagnostic study including the baseline status of adaptation practices was developed for over 100 communities in The Gambia. A working paper was published (http://www.worldagroforestry.org/blog/2020/03/03/gambia-controlling-wild-fire-offers-nature-based-solution-diminishing-wild-food-and). http://dx.doi.org/10.5716/WP20001.PDF http://old.worldagroforestry.org/downloads/Publications/PDFS/TB20012.pdf http://meccnar.gm/blog/268
New methodology to assess vulnerability of forests and forest-dependent people to climate change	The framework, co-published with FAO, provides practical technical guidance for forest vulnerability assessment in the context of climate change.	Level 1	• Enhanced capacity to deal with climatic risks and extremes (Mitigation and adaptation achieved) • Enabled environment for	1 - Significant	1 - Significant	1 - Significant	2 - Principal	FTA, in collaboration with FAO, has developed a new methodology for assessing the vulnerability of forests and forest-dependent people to climate change. The single, common approach, or framework methodology, was unveiled at a side event at the UN Climate Change Conference COP 25 in December 2019 in Madrid, and is contained in a new book published as part of the FAO Forestry Paper series. The publication provides practitioners with step-by-step guidance for conducting vulnerability assessments using the most appropriate tools. The guide will be useful for anyone conducting vulnerability assessments involving trees or forests, including forest owners, managers and administrators in the private and public sectors and in community forestry organizations, and land-use planners. FAO and CIFOR. 2019. FAO Framework Methodology for Climate Change Vulnerability Assessments of Forests and Forest Dependent People. Rome.

			climate resilience					http://www.fao.org/3/ca7064en/CA7064EN.pdf http://www.fao.org/forestry/news/96561/en/
Framework for smallholder risk assessment to be used by investors	An analytical framework for assessing perceived and real risks associated with sustainable land use investments and associated risk management strategies by investors, smallholders and small and medium enterprises.	Level 1	<ul style="list-style-type: none"> Reduced market barriers 	0 - Not Targeted	0 - Not Targeted	1 - Significant	1 - Significant	<p>The framework is being used for the design of follow-up case studies to validate the framework together with private sector and NGO partners.</p> <p>Louman, B., Naranjo, M.A., Stoian, D. 2020. Opportunities and challenges for de-risking investments in sustainable smallholder land use systems https://www.tropenbos.org/file.php/2326/smallholder_risk_management_strategies_-_draft_clean.pdf </p>
Strategy to enhance benefits of diversification in agriculture	Scientists from ICRAF contribute to thematic study for the FAO Commission on Genetic Resources for Food and Agriculture	Level 1	<ul style="list-style-type: none"> More efficient use of inputs Increased conservation and use of genetic resources 	0 - Not Targeted	0 - Not Targeted	0 - Not Targeted	1 - Significant	<p>A team of scientists from 13 research organizations, including ICRAF, has produced a thematic study for FAO's flagship publication the State of the World's Biodiversity for food and agriculture, Contributions of biodiversity to the sustainable intensification of food production.</p> <p>Dawson, I K and Attwood, S J and Park, S E and Jamnadass, R and Powell, W and Sunderland, T and Kindt, R and McMullin, S and Hoebe, P N and Baddeley, J and Staver, C and Vadez, V and Carsan, S and Roshetko, J M and Amri, A and Karamura, E and Karamura, D and van Breugel, P and Hossain, M E and Phillips, M and Ashok Kumar, A and Lilleso, J P B and Benzie, J and Sabastian, G E and Ekesa, B and Ocimati, W and Graudal, L (2019) Contributions of biodiversity to the sustainable</p>

								intensification of food production – Thematic study for The State of the World's Biodiversity for Food and Agriculture. In: The State of the World's Biodiversity for Food and Agriculture 2. FAO 2, Italy 2. ISBN 978-9251312704. http://oar.icrisat.org/id/eprint/11207
Strategy to enhance the use of agroforestry in agricultural diversification	Scientists from ICRAF contribute to thematic study on agroforestry for the FAO Commission on Genetic Resources for Food and Agriculture	Level 1	<ul style="list-style-type: none"> Increased resilience of agro-ecosystems and communities, especially those including smallholder 	1 - Significant	1 - Significant	0 - Not Targeted	1 - Significant	Cornelius, Jonathan P; Jules Bayala, Trent Blare, Delia Catacutan, Ann Degrande, Roeland Kindt, Beria Leimona, Sarah-Lan Mathez, Andrew Miccolis, Devashree Naik, Javed Rizvi, James M Roshetko, Leigh Ann Winowiecki. Agroforestry, pp 233-241 in FAO. 2019. The State of the World's Biodiversity for Food and Agriculture, J. Bélanger & D. Pilling (eds.). FAO Commission on Genetic Resources for Food and Agriculture Assessments. Rome. 572 pp. (http://www.fao.org/3/CA3129EN/CA3129EN.pdf) Licence: CC BY-NC-SA 3.0 IGO.
Tree Genetic Resources Policy available to stakeholders	This policy is intended to facilitate awareness of and ensure compliance to the international agreements and national legislation on plant genetic resources	Level 1	<ul style="list-style-type: none"> More efficient use of inputs Increased conservation and use of genetic resources 	0 - Not Targeted	0 - Not Targeted	0 - Not Targeted	1 - Significant	The policy intends to support attention to appropriate international and national policies governing material transfer/use agreements It was published on ICRAF's website and shared with regions for use with partners http://apps.worldagroforestry.org/products/grunew/downloads/GeneticResourcesPolicy.pdf
African Plant Breeding			<ul style="list-style-type: none"> Enhance 					The goal of the African Plant Breeding Academy, hosted by ICRAF, is to train practicing African plant breeders in the most

Academy (AfPBA). Curriculum to train practicing African plant breeders in the most advanced theory and technologies for plant breeding in support of critical decisions for crop improvement.		Level 1	d institutional capacity of partner research organizations	1 - Significant	1 - Significant	2 - Principal	1 - Significant	advanced theory and technologies for plant breeding in support of critical decisions for crop improvement. This includes the latest concepts in plant breeding, quantitative genetics, statistics and experimental design. It also includes accurate and precise trait evaluations, development of appropriate strategies to integrate genomics into breeding programs, and experience in identifying and utilizing genomic data and DNA-based markers in breeding programs. http://pba.ucdavis.edu/PBA_in_Africa/Africa_Plant_Breeding_Academy_Class_V/
Territorial Intelligence Plan, a new territorial development strategy for Paragominas county in Brazil	Providing data and scenarios for the microzoning law in Paragominas county that will support restoration strategies compatible with zero-net deforestation scenarios	Level 1	<ul style="list-style-type: none"> Increased capacity for innovations in partner research organizations Conducive agricultural policy environment 	0 - Not Targeted	0 - Not Targeted	0 - Not Targeted	2 - Principal	<p>The Territorial Intelligence Plan for Paragominas County was presented in France in November 2019. This development plan will be supported by the TERRAMAZ project, the fruit of a partnership between CIRAD and the Agence Française de Développement (AFD) in Brazil. One of its main objectives is the development of a territorial certification model aimed at making the territory more attractive both environmentally and economically and safer for all its current stakeholders as well as for investors.</p> <p>https://bresil.cirad.fr/actualites/le-dp-amazonie-et-la-prefecture-de-paragominas-pa-interviennent-sur-la-protection-de-la-foret-amazonienne-a-la-cop-25</p> <p>https://paragominas.pa.gov.br/prefeitura-traca-nova-estrategia-de-desenvolvimento-territorial/</p> <p>https://www.diplomatie.gouv.fr/fr/politique-etrangere-de-la-france/diplomatie-scientifique-et-universitaire/veille-scientifique-et-technologique/bresil/article/la-ville-de-paragominas-presente-en-france-son-modele-de-reference-en-matiere</p>

TerrAmaz: Financial support for the implementation of territorial policies in the Amazon biome to combat deforestation	Financial support from the Agence Française de Développement to combat deforestation and promote transition to a development model combining social development, low-carbon economic development and biodiversity conservation.	Level 1	<ul style="list-style-type: none"> Increased capacity for innovations in partner research organizations Conducive agricultural policy environment 	1 - Significant	1 - Significant	1 - Significant	2 - Principal	<p>The financial support aims to support the territories of the Amazon biome in the implementation of their policies to fight against deforestation and transition to a development model combining social development, low carbon economic development and biodiversity conservation. It would be financed by a subsidy of 9 million euros which will be managed by a consortium of operators. The project will support actions in 5 pilot territories selected in countries with high forest cover and affected by significant deforestation dynamics: Brazil, Colombia, Ecuador and Peru. The pilot territories selected for this project are: Paragominas (Brazil), Guaviare (Colombia), Cotriguaçu (Brazil), Buffer Zone of Yasuni Park (Ecuador), Madre De Dios (Peru).</p> <p>The implementation of this regional operation will give an important place to several French actors, notably AVSF and CIRAD. This operation constitutes a major contribution from AFD to the implementation of the French strategy to combat imported deforestation (SNDI), adopted in 2018. It is in line with SNDI's priorities for the Amazon.</p>
Support to national REDD+ policies in Ethiopia, Indonesia, Peru, The Gambia, and Vietnam.	Provision of information, knowledge and tools to design efficient, effective and equitable REDD+ policies and actions	Level 1	<ul style="list-style-type: none"> Reduced net greenhouse gas emissions from agriculture, forests and other forms of land-use (Mitigation and adaptation) 	1 - Significant	0 - Not Targeted	2 - Principal	2 - Principal	<p>CIFOR's Global Comparative Study (GCS) on REDD+ has produced over 700 papers in ten years through a collaborative 'co-production' process with country and global partners that creates intellectual ownership, understanding and engagement with actors in policy and practice at all levels – internationally, nationally and subnationally –, giving these stakeholders the information, knowledge and tools to design efficient, effective and equitable REDD+ policies and actions. The impact of this project approach has been assessed twice in recent years (Overseas Development Institute in 2015; Resources & Synergies Development (R&SD) in 2018–2019), resulting in the verification and documentation of GCS REDD+ 'impact stories. In this context, in 2019, FP5 provided support to national REDD+ policies in Ethiopia, Indonesia, Peru, The Gambia, and Vietnam.</p>

			<p>achieved)</p> <ul style="list-style-type: none"> Enhanced capacity to deal with climatic risks and extremes (Mitigation and adaptation achieved) 					
FTA's research and recommendations inform the gender-responsive design of policy documents produced in the negotiation processes in the Convention on Biological Diversity (CBD)	FTA's targeted engagement strategy informs global reports and negotiation processes in the Convention on Biological Diversity (CBD)	Level 1	<ul style="list-style-type: none"> Gender-equitable control of productive assets and resources Improved capacity of women and young people to participate in decision-making 	2 - Principal	0 - Not Targeted	0 - Not Targeted	1 - Significant	OICR3369
FTA recommendations shape the design of	As a result of this strategic engagement with the	Level 1	<ul style="list-style-type: none"> Gender-equitable control of productiv 					OICR3369

gender indicators for SDG13 on climate change	UNFCCC secretariat, FTA recommendations on gender indicators for SDG13 were incorporated in the 'Equal Measures 2030' global report.		e assets and resources • Improved capacity of women and young people to participate in decision-making	2 - Principal	0 - Not Targeted	0 - Not Targeted	1 - Significant	
Strategy for application of genetics to enhance adoption of orphan crops to improve food and nutrition	The strategy considers how the production of new and orphan crops may support human and environmental health objectives, paying particular attention to the situation in tropical and subtropical low-income nations.	Level 1	• More efficient use of inputs • Increased conservation and use of genetic resources	0 - Not Targeted	0 - Not Targeted	1 - Significant	1 - Significant	The strategy considers how the production of new and orphan crops may support human and environmental health objectives, paying particular attention to the situation in tropical and subtropical low-income nations. We illustrate an approach for defining appropriate genetic improvement pathways for a range of exemplar-requiring new and orphan crops, based on comparison with a panel of more widely understood crop models. The intention is to indicate genetics-based research avenues to support the mainstreaming of new and orphan crops in food production systems. Policy issues related to the use of genetic technologies, such as the effective application of the Nagoya Protocol (on access to, and the fair and equitable sharing of the benefits arising from the utilization of, genetic resources), also need to be addressed for new and orphan crops. Dawson IK, Powell W, Hendre P, Bančič J, Hickey JM, Kindt R, Hoad S, Hale I, Jamnadass R: The role of genetics in mainstreaming the production of new and orphan crops to diversify food systems and support human nutrition. New Phytologist, 2019. https://doi.org/10.1111/nph.15895
Strategy to adopt	A fruit tree portfolio	Level 1	• More efficient					To better incorporate fruits into local food systems while addressing the challenge of seasonal availability, ICRAF has

diverse food trees in agriculture to improve food and nutrition	approach developed by ICRAF that can be scaled to inform policies for sustainable intensification of fruit production to meet food and nutrient gaps, based on national food-based dietary guidelines.		use of inputs • Enhanced adaptive capacity to climate risks (More sustainably managed agro-ecosystems)	1 - Significant	1 - Significant	1 - Significant	1 - Significant	developed a methodology based on “fruit tree portfolios” that selects socio-ecologically suitable and nutritionally important fruit tree species for farm production, to meet local consumption needs. The fruit tree portfolio approach can be scaled to inform policies for sustainable intensification of fruit production to meet food and nutrient gaps, based on national food-based dietary guidelines. The portfolio approach can be expanded to incorporate other nutritious foods and starchy staples to address not only vitamin but protein, mineral and calorific/energy intake needs, for a wider, ‘diversified diet’ approach. The strategy is being piloted on several locations in East Africa. McMullin, S., Njogu., Wekesa, B., Gachui, A., Ngethe, E., Stadlmayr, B., Jamnadass, R., Kehlenbeck, K. (2019). Developing fruit tree portfolios that link agriculture more effectively with nutrition and health: a new approach for providing year-round micronutrients to smallholder farmers. Food Security: The Science, Sociology and Economics of Food Production and Access to Food. https://doi.org/10.1007/s12571-019-00970-7
Contributions to the development of the CFS Voluntary Guidelines on food systems and nutrition		Level 1	Increased availability of diverse nutrient-rich foods Increased access to diverse nutrient-rich foods	1 - Significant	0 - Not Targeted	0 - Not Targeted	0 - Not Targeted	The CFS Voluntary Guidelines are expected to counter the existing policy fragmentation between the food, agriculture and health sectors while also addressing livelihood and sustainability challenges and to contribute to making food systems nutrition-sensitive and promoting secure access to safe, diverse and high-quality diets for everyone. The Voluntary Guidelines are expected to be endorsed by the CFS in October 2020.
Development of UNDPFF indicator to	Indicator 14 of the Global Core set of	Level 1	Increased availability of	1 - Significant	0 - Not Targeted	1 - Significant	0 - Not Targeted	Proposals from FTA were the basis of discussion on Indicator 14 and agreed upon during the Expert Workshop in support of the CPF Joint Initiative on streamlining forest related reporting:

assess the contributions of forests and trees to Food security and Nutrition	indicators of UNFFF will be used at national and global level to assess forest related goals and their contributions to the SDGs.		diverse nutrient-rich foods Increased access of diverse nutrient-rich foods					Strengthening the Global Core Set of Forest-related Indicators to support the implementation of the 2030 Agenda and the UN Strategic Plan for Forests. CIFOR was part of the Steering Committee for the preparation and organization of the Expert Working Seminar. in http://www.cpfweb.org/96871/en/ http://www.cpfweb.org/49035-025d09a3673eb81df286cc335fe902c5f.pdf
Support to national Payment for Ecosystem Services policy in Vietnam	National policy and laws on monitoring and evaluation of PFES are being refined based on CIFOR research findings.	Level 2	<ul style="list-style-type: none"> • Conducive agricultural policy environment • Land, water and forest degradation (Including deforestation) minimized and reversed 	1 - Significant	0 - Not Targeted	2 - Principal	2 - Principal	OICR3481
Global Commission on Adaptation adopts new report,	FTA was commissioned to write the background paper on the contribution of	Level 2	<ul style="list-style-type: none"> • Land, water and forest degradation (Including 	1 - Significant	1 - Significant	1 - Significant	2 - Principal	OICR3479

agriculture and food security action track and year of action	agroecological approaches to building climate resilient agriculture that led to inclusion of agroecological practices in action track and year of action commitments		deforestation) minimize d and reversed • Increased resilience of agro-ecosystems and communities, especially those including smallholder					
National Agroforestry Development Strategy (2020-2030) in Ethiopia	FTA's ICRAF scientist embedded in the Ministry of Agriculture with an explicit role of ensuring that the strategy is evidence-based resulting from government evaluation of the Trees4FoodSecurity project.	Level 1	• Land, water and forest degradation (Including deforestation) minimize d and reversed • Increased resilience of agro-ecosystems and communities, especially	1 - Significant	1 - Significant	1 - Significant	1 - Significant	FTA has an ICRAF scientist embedded in the Ministry of Agriculture with an explicit role of ensuring that the strategy is evidence-based resulting from government evaluation of the Trees4FoodSecurity project Draft strategy produced in December 2019 and tabled for approval https://www.dropbox.com/s/xrtpnmdy30h6umv/ET-NAF%20Strategy-Final%5B1%5D.docx?dl=0

			those including smallholders					
FTA Options by Context approach adopted in Barry Callebaut position on cocoa agroforestry	The world's largest cocoa buyer adopts FTA Options by Context in its position on agroforestry	Level 2	<ul style="list-style-type: none"> Increased resilience of agro-ecosystems and communities, especially those including smallholders Land, water and forest degradation (Including deforestation) minimized and reverse 	1 - Significant	1 - Significant	1 - Significant	1 - Significant	OICR3479
Committee on World Food Security (CFS) policy convergence process on agroecologic	FTA-FP2 led the development of the High Level Panel of Experts (HLPE) report and	Level 1	<ul style="list-style-type: none"> Land, water and forest degradation (Including deforestation) 	2 - Principal	2 - Principal	2 - Principal	2 - Principal	<p>HLPE report and recommendations produced and well received at launch and subsequently adopted as the basis of an ongoing policy convergence process at CFS.</p> <p>Report: http://www.fao.org/3/ca5602en/ca5602en.pdf</p> <p>Policy convergence process: http://www.fao.org/cfs/workingspace/workstreams/agapp/en/</p>

al and other innovative approaches	recommendations that were accepted as the basis for the ongoing policy convergence process		minimized and reversed • Increased resilience of agro-ecosystems and communities, especially those including smallholders					
National Bamboo Strategy and Action Plan in Uganda	Research from FTA and from the International Bamboo and Rattan Organisation's Dutch-Sino-East Africa Bamboo Development Programme enabled development of a Ten-Year Uganda National Bamboo Strategy and Action Plan.	Level 2	<ul style="list-style-type: none"> • Conducive agricultural policy environment • Increased capacity for innovation in partner development organizations and in poor and vulnerable 	0 - Not Targeted	0 - Not Targeted	0 - Not Targeted	0 - Not Targeted	OICR3482

			communit ies • Increased capacity for innovatio ns in partner research organizati ons					
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Table 3: List of Outcome/ Impact Case Reports from this reporting year (Sphere of Influence)

Title of Outcome/ Impact Case Report (OICR)	Link to full OICR	Maturity level	Status
OICR2808 - Changed understanding and more informed policy, governance, and implementation of Agroforestry concessions in Peru.	Link	Level 1	New Outcome/Impact Case
OICR3328 - FTA and PIM research informs the renewal of community forest concessions in the Maya Biosphere Reserve (Guatemala)	Link	Level 2	New Outcome/Impact Case
OICR3354 - ASEAN Guidelines for Agroforestry Development set to revolutionize land use in Southeast Asia	Link	Level 2	New Outcome/Impact Case
OICR3367 - Nepal becomes the second country in the world to have a national agroforestry policy, with support from ICRAF	Link	Level 2	New Outcome/Impact Case
OICR3369 - Engagement strategy has seen FTA's research and recommendations inform the gender-responsive design and implementation of global policy processes	Link	Level 1	New Outcome/Impact Case
OICR3479 - Options by context approach to agronomic innovation profoundly changed International, Government, NGO and private sector policy and practice across 14 countries.	Link	Level 2	New Outcome/Impact Case
OICR3482 - Research from FTA and from the International Bamboo and Rattan Organisation's Dutch-Sino-East Africa Bamboo Development Programme enabled development of a Ten-Year Uganda National Bamboo Strategy and Action Plan.	Link	Level 2	New Outcome/Impact Case
OICR3481 - FTA Research informs the development of a Monitoring and Evaluation System for Vietnam's national Payment for Forest Environmental Services (PFES) system	Link	Level 2	New Outcome/Impact Case

Table 4: Condensed list of innovations by stage for this reporting year

Title of innovation with link	Innovation Type	Stage of innovation	Geographic scope (with location)
Vegan Community Ecology Package	Research and Communication Methodologies and Tools	Stage 3: available/ ready for uptake (AV)	Global
New version of the Agroforestry Species Switchboard.	Research and Communication Methodologies and Tools	Stage 3: available/ ready for uptake (AV)	Global
Two new BiodiversityR packages for Community Ecology and Suitability Analysis	Research and Communication Methodologies and Tools	Stage 3: available/ ready for uptake (AV)	Global
A methodology for the landscape assessment of financial flows	Research and Communication Methodologies and Tools	Stage 2: successful piloting (PIL - end of piloting phase)	Multi-national, Ghana, Indonesia
FTA and PIM research showing the economic benefits of community forest concessions makes the case for continued community stewardship of 400,000 hectares of tropical forests in Guatemala	Social Science	Stage 4: uptake by next user (USE)	Sub-national, Guatemala
WorldFlora: Standardize Plant Names According to World Flora Online Taxonomic Backbone. Version 1.1.	Research and Communication Methodologies and Tools	Stage 3: available/ ready for uptake (AV)	Global
Priority Food Tree and Crop Food Composition Database	Research and Communication Methodologies and Tools	Stage 3: available/ ready for uptake (AV)	Global
New tools for crop wild relative conservation planning	Other (Planning Tools)	Stage 3: available/ ready for uptake (AV)	Global
One new maxlike package developed: Model Species Distributions by Estimating the Probability of Occurrence Using Presence-Only Data	Research and Communication Methodologies and Tools	Stage 3: available/ ready for uptake (AV)	Global
Payment for Forest Environmental Services policy learning tool	Social Science	Stage 3: available/ ready for uptake (AV)	National, Vietnam
Ecosystem-based adaptation monitoring platform in the Gambia	Research and Communication Methodologies and Tools	Stage 2: successful piloting (PIL - end of piloting phase)	National, Gambia
The role of multi-stakeholder forums in subnational jurisdictions: Methods training manual and tools for in-depth research	Social Science	Stage 1: discovery/proof of concept (PC - end of research phase)	Multi-national, Indonesia, Brazil, Ethiopia, Peru

The Economics of Ecosystem Restoration (TEER): Database of costs and benefits of restoration. Partnership with FAO and others.	Research and Communication Methodologies and Tools	Stage 1: discovery/proof of concept (PC - end of research phase)	Global
Tool for Joint Community Forest Enterprise	Social Science & Tools	Stage 2: successful piloting (PIL - end of piloting phase)	Sub-national, Cameroon
Integrated modelling capacity to incorporate APSIM crop model predictions in Simile livelihood trajectory models	Research and Communication Methodologies and Tools	Stage 3: available/ ready for uptake (AV)	Global
Locally adapted planting basins	Production systems and Management practices	Stage 2: successful piloting (PIL - end of piloting phase)	Multi-national, Ethiopia, Mali, Niger, Kenya
Options by context (OxC) approach to agronomic innovation	Research and Communication Methodologies and Tools	Stage 4: uptake by next user (USE)	Global

Table 5: Summary of status of Planned Outcomes and Milestones (Sphere of Influence-Control)

FP	FP Outcomes 2022	Sub-IDOs	Summary narrative on progress against each FP outcome this year. 100	Milestone 2019	2019 milestones status	Provide evidence for completed milestones (refer back to means of verification, and link to evidence wherever possible) or explanation for extended, cancelled or changed 50 words	Link to evidence
FP 1	Managers and policy makers adopt effective monitoring methods, tools and practices to mitigate threats to valuable tree genetic resources, and implement suitable safeguarding strategies in line with international initiatives, such as the Global Plan of Action for Forest Genetic Resources and the Global Strategy on Conservation and Use of Cacao Genetic Resources	<p>Increased conservation and use of genetic resources</p> <p>Enhanced conservation of habitats and resources</p> <p>Increased capacity of beneficiaries to adopt research outputs</p>	<p>For 2017-2019, the target indicator of achievement used has been the number of key boundary partner institutions engaged/ adopting/applying the innovations provided, i.e. no. of national institutions and international organizations engaged in tree genetic resource conservation that are adopting tools and indicators (threat analysis) in developing tree genetic resource conservation plans. The annual target of 3-5 institutions in three regions has been achieved.</p> <p>A midterm assessment (for the period 2017-2019) of outcome status for FP1 has been initiated based on the outcome targets specified in the programme document (FTA 2016). Results for</p>	User-friendly characterization methods and indicators with practical guidelines for their application in monitoring the status and trends of TGR and associated threats, with case study applications.	Complete	Distribution maps of 65 native Asian species were finalized; 20 studies on the screening of diversity and measures for maintenance (safeguarding, conservation, and valuation) have been published.	<p>https://cgiar-my.sharepoint.com/:b/g/personal/r_jalonen_cgjar_org/EdcdXGyUaKdCil7QMD-6R0wBbk8YmoMkyOTO0jDnit00kQ?e=YqutGf</p> <p>https://onlinelibrary.wiley.com/doi/abs/10.1111/gcb.15028;</p> <p>https://doi.org/10.1002/ppp3.31</p> <p>https://doi.org/10.1017/S1479262118000527</p> <p>https://doi.org/10.1017/S1479262118000515</p> <p>https://doi.org/10.1017/S1479262118000497</p> <p>https://doi.org/10.1016/j.gecco.2019.e00544</p> <p>https://doi.org/10.1002/ece3.5755</p> <p>https://dx.doi.org/10.15446/caldasia.v41n1.78348</p> <p>http://dx.doi.org/10.15446/caldasia.v41n1.71327</p> <p>https://doi.org/10.1007/s10592-019-01191-3</p> <p>https://doi.org/10.1080/00128325.2019.1598060</p> <p>https://doi.org/10.1007/s13225-019-</p>

		this outcome are not yet available.				00429-2 https://doi.org/10.1016/j.ppees.2019.01.002 https://doi.org/10.1111/mec.15138 https://doi.org/10.1093/aobpla/plz079 https://doi.org/10.1111/1365-2745.13331
Agricultural and horticultural research partners adopt cost-effective domestication approaches for priority tree species, based on impacts and maximizing efficiency, and considering trade-offs involved in intensification	Enhanced genetic gain. Enhanced adaptive capacity to climate risks. Conducive agricultural policy environment.	For 2017-2019, the target indicator of achievement used has been the number of key boundary partner institutions engaged/adopting/applying the innovations provided, i.e. no. of national (private or public) tree breeding institutions or entities adopting 'genetic business plans' applying diversity, adaptation and economic returns in their breeding strategy; the annual target of 3-5 institutions in three regions has been achieved. A midterm assessment (for the period 2017-2019) of outcome status for FP1 has been initiated based on the outcome targets specified in the programme document (FTA 2016). Preliminary results show high performance with respect	Public-private consortia engaged in tree domestication.	Complete	Most activities have been performed in collaboration with AOCC and the Gene Bank Platform. Seven studies related to strategic considerations for diversifying food consumption and production systems with nutrient rich orphan crops; more than 20 studies/datasets on characterization of priority species; seven studies on cultivar development; three studies related to business model development; and four on genome sequencing covering the genomes of six species. A new public-private partnership was established with AAK on development of Shea.	https://doi.org/10.1111/nph.15895 https://doi.org/10.34725/DVN/FIPP7F https://doi.org/10.9734/ejmp/2019/v27i330115 https://doi.org/10.3390/f10070551 https://doi.org/10.1016/B978-0-08-100596-5.21534-5 https://doi.org/10.3390/su11123243 https://hdl.handle.net/10568/107127 https://doi.org/10.1016/j.sciaf.2019.e00149 https://doi.org/10.1007/s11056-018-9673-1 https://doi.org/10.3390/f10020124 https://www.ijournalse.org/index.php/ESJ/article/view/123 https://doi.org/10.1155/2019/8681238 https://doi.org/10.1007/s10457-017-0135-0 https://doi.org/10.1007/s00484-018-1598-z https://doi.org/10.1007/s00484-017-1448-4 https://doi.org/10.1007/978-3-319-92798-5_10

			to all four targets of this outcome.			http://dx.doi.org/10.5716/WP19007.PDF https://doi.org/10.1080/14728028.2019.1600434 https://doi.org/10.1007/s00425-019-03156-9 https://doi.org/10.1093/gigascience/giz115 http://hdl.handle.net/1854/LU-8584585 http://dx.doi.org/10.5524/101054 http://dx.doi.org/10.5524/101056 http://dx.doi.org/10.5524/101057
National governments, extension services and private partners adopt cost-effective and equitable tree planting material delivery pipelines, with appropriate decision-support tools, to supply high quality site-appropriate tree planting material to smallholders and other growers	More efficient use of inputs. Improved forecasting of impacts of climate change and targeted technology development Enhanced institutional capacity of partner research	For 2017-2019, the target indicator of achievement used has been the number of key boundary partner institutions engaged/adopting/applying the innovations provided, i.e. no. of national (private or public) tree germplasm supplying institutions or entities adopting 'genetic business plans' applying diversity, adaptation and economic returns in their deployment strategy; the annual target of 3-5 institutions in three regions has been achieved. A midterm assessment (for the period 2017-2019) of outcome status for FP1 has been initiated based	Appropriate quality standards (e.g. accreditation schemes) developed and promoted to actors in the germplasm production and delivery sector.	Complete	An ICRAF Tree Genetic Resources Policy was published. A National Tree Seed Network was established in Ethiopia. A new version of the Agroforestry Species Switchboard; and the Diversity4Restoration tool expanded and re-developed. Six studies on seed delivery and mass breeding; two studies on habitat suitability; 9 (15) of 150 maps (for 2020); design of climate change atlas for Africa (documented in three presentations/ posters); six research and communication software packages; three guidelines on good planting material (a general one for India and two species specific ones for Africa); four studies related to indicator development; and a contribution to the European process of indicator	http://www.worldagroforestry.org/output/agroforestry-species-switchboard-20-synthesis-information-sources-support-tree-research-and https://CRAN.R-project.org/package=BiodiversityR . (2019/2 & 2019/6) https://cran.r-project.org https://github.com/vegandevs/vegan https://CRAN.R-project.org/package=WorldFlora

		organizations	on the outcome targets specified in the programme document (FTA 2016). Results for this outcome are not yet available.			development. 14 BSOs of 7 species established, with a further 13 of 8 species under development in 2019/20. 80 seed sources described and registered.	
FP2	Improved food security and livelihood opportunities for 20 million smallholder households (100 million people) and more productive and equitable management of natural resources over an area of at least 50 million ha. This outcome integrates some outputs from other research clusters through their scaling.	More productive and equitable management of natural resources Increased access to diverse, nutrient-rich food Increased livelihood opportunities	Negotiation tools assist evidence generated by FTA being used by policy makers, extension staff and farmers to promote agroforestry options that improve food security and livelihood opportunities. In 2019 the GCA year of action, agriculture and food security track committed to extend access to agroecological practices for 60 M smallholder farmers as a result of the evidence in the GCA background paper commissioned from FP2 by GCA. Mid-term review of EU/IFAD dryland restoration project confirmed impressive upscaling with more than 50,000 beneficiaries reached and the project may significantly contribute to SDGs 1 and 2. Evaluation of reach and early adoption of agroecological farming practices in Andhra Pradesh found >190,000	Negotiation support tools influencing the management of ecosystem service provision bridging field and farm level land use decisions with local landscape impacts in at least three African countries	Complete	Sustainable agricultural intensification decision dashboards developed for Zambia, Tanzania and Ethiopia	<p>Milestone:</p> <p>http://landscapeportal.org/SairlaTanzania/</p> <p>http://landscapeportal.org/SairlaEthiopia/</p> <p>http://landscapeportal.org/SairlaZambia/</p> <p>Outcome:</p> <p>https://gca.org/global-commission-on-adaptation/report</p> <p>http://www.adansoniaconsulting.ch/document/restoration_of_degraded_land.pdf</p> <p>https://www.dropbox.com/s/cdypml5za3y6qkn/2018-19%20data%20collection%20round%20-%20Performance%20Evaluation_19_02_20.pdf?dl=0</p>

			farmers reached with nearly 27,000 practising.				
Improved livelihood opportunities involving timber, fruit and NTFPs contributing a 25% increase in income for over 5 million people and more equitable management of natural resources, including a 25% increase in women's participation in decisions involving tree and forest management and utilization and improvement in substantive representation of women in community forest management institutions.	Increased livelihood opportunities More productive and equitable management of natural resources	Comparative analysis of different approaches to value chain development result in better decisions on interventions to promote value chain innovation platforms and their ultimate success in upgrading value chains for farmers. Accumulation of on average 50 USD assets per capita per year and average additional household income of 43 USD per year from a suite of agroforestry practices (fodder, fertiliser, fuelwood and fruit trees), widely adopted in Western Kenya. Mean adoption index of 28% (combining uptake and intensity of practices and species adopted).	Comparative analysis of different approaches to establishing value chain innovation platforms for at least two countries in Africa	Complete	Evaluation of value chain innovation platforms in Uganda and Zambia	<p>Milestone:</p> <p>Overcoming challenges to involving young people in food value chain development</p> <p>https://link.springer.com/chapter/10.1007/978-3-030-23969-5_6</p> <p>Role of Farmers' Entrepreneurial Orientation</p> <p>https://link.springer.com/chapter/10.1007/978-3-319-92798-5_17</p> <p>Village chicken and bean value chains in Zambia</p> <p>http://apps.worldagroforestry.org/downloads/Publications/PDFS/PO19044.pdf</p> <p>Outcome:</p> <p>https://doi.org/10.1016/j.worlddev.2019.104835</p>	
Diversified tree-crop production systems covering 5	Agricultural systems intensified	Development of diversification options and assessment of their performance is a	Diversification options for oilpalm, coffee and cocoa across	Complete	Diversification options for oilpalm in Brazil, coffee in China, Vietnam and Uganda; and cocoa in Cameroon were developed,	<p>Oilpalm:</p> <p>http://www.etfrn.org/file.php/443/2-3miccolis.pdf</p>	

million ha and improving diets and livelihood opportunities for 20 million people in smallholder producer households.	and diversified in ways that protect soils and water Increased livelihood opportunities	precursor to their uptake and promotion by government extension systems and other development actors. In NGOs and the private sector.	different contexts in Asia, Latin America and Africa		aspects of their management and outcomes better understood and performance evaluated across Asia, Latin America and Africa	http://old.worldagroforestry.org/downloads/Publications/PDFS/B19029.pdf https://agroforestry2019.cirad.fr/FichiersComplementaires/webconf/4_50_MLCCOLIS%20A/index.html Coffee: https://doi.org/10.1007/s11104-019-04004-1 https://agroforestry2019.cirad.fr/FichiersComplementaires/webconf/5_58_MAI%20PHUONG/index.html https://doi.org/10.1016/j.agrformet.2018.12.006 https://doi.org/10.1007/s10457-017-0172-8 Cocoa: https://doi.org/10.1016/j.agee.2019.02.004 .
Increased access to diverse, nutrient-rich food for 20 million people by closing yield gaps by trees in agricultural systems, improving and maintaining soil health,	Diversified enterprise opportunities Increased access to diverse, nutrient-rich food	Simulation models allow prediction of impact of trees and other agroecological practices on long term food security.	Simulation models of impacts of trees on system intensification of smallholder production systems.	Complete	Livelihood trajectory models incorporating globally-calibrated crop models (APSIM) with smallholder intensification developed for smallholder production systems in Kenya and Ethiopia	https://www.slideshare.net/agroforestry/developing-livelihood-trajectory-models-for-screening-and-scaling-agroforestry-options https://www.tandfonline.com/doi/full/10.1080/14728028.2018.1564146

	intensifying system interactions (fodder and fuelwood), directly contributing to production, reducing and reversing land degradation, and increasing the resilience of smallholder livelihoods.	Land, water and forest degradation minimized and reversed					
	Reducing yield gaps through improved pasture management and animal husbandry on over 15 million ha and 1 million animals and contributing to reducing and reversing land degradation on over 5 million ha.	Land, water and forest degradation (Including deforestation) minimized and reversed	Climate smart cattle grazing options for tropical dry forest complement existing silvopastoral options developed by FP2 and available for extension and incorporation in ecosystem service payment schemes thereby leading to their adoption by farmers.	Options for climate smart silvopastoral systems development across different contexts in Central America	Complete	Cattle grazing options developed for dry tropical forest areas in Central America	http://201.207.189.89/handle/11554/9201
FP3	Public and private actors adopt effective governance arrangements, mechanisms and tools for ensuring	Diversified enterprise opportunities	Published policy brief, highlighting several weaknesses in Forest Stewardship Council standard implementation and recommending improvements to	Completed knowledge products and engagements on innovative solutions for addressing implementation	Extended	In Cameroon, the sustainability of the timber and cocoa sectors is achieved through increasing recognition of private governance tools by public authorities, both in production areas and to ensure product traceability; Completed policy	https://we.tl/t-DxxSPPZtnn https://www.cifor.org/knowledge/publication/7382/

sustainable, inclusive, equitable commodity supply in at least three countries.	Gender equitable control of productive assets and resources minimized and reversed	indicators and audit rules. Results were also disseminated at IUFRO Congress Curitiba Brazil within strong participation by FSC stakeholders. Joined the International Rubber Study Group and the Global Platform for Sustainable Natural Rubber. A change of behavior was observed in the Cameroon Ministry of Agriculture, which has adopted a mix public and private governance approaches and tools to promote legal and sustainable cocoa for European markets.	gaps to improving sustainability and social outcomes through changes in incentive structures, supply chain management, and business processes		brief regarding FSC standard implementation gaps in 7 countries and provided recommendations to solve them. Also completed engagement in three countries of the Amazon Biome on innovative solutions to upgrade their jurisdictional approach to zero deforestation	
Five business platforms and 20 businesses and service providers develop and implement business models that are more inclusive, economically viable and environmentally sustainable.	Reduce market barriers Gender equitable control of productive assets and resources	Community engagement and results feedback workshops with companies across Tanzania, Ghana and Peru that are leading inclusive business initiatives on their business model performance. At least five companies voiced commitment to exploring options for addressing performance issues and further collaborate with FTA in 2020/21 to	Completed knowledge products and engagements on overcoming institutional and operational barriers and obstacles faced by businesses in integrating smallholders into their operations and respective value chains in at	Complete	Close collaboration established with 12 businesses and 10 service providers. Workshops were held to help identify opportunities for deepening impacts and externalities. This helped create a foundation for exploring opportunities for BM innovation and scaling that can be internalized by business platforms and initiatives. Four knowledge products were finalized covering 3 countries and 4 sectors.	https://cgia-my.sharepoint.com/:f/g/personal/g_sc_honeveld_cgjar_org/EpGSxcByHYZHt67zgYAOwmQBJpv8Ndp13CyGGPmvgVoMkA?e=LZMrxa https://cgia-my.sharepoint.com/:f/g/personal/g_sc_honeveld_cgjar_org/EpGSxcByHYZHt67zgYAOwmQBJpv8Ndp13CyGGPmvgVoMkA?e=LZMrxa https://cgia-my.sharepoint.com/:f/g/personal/g_sc_honeveld_cgjar_org/EpGSxcByHYZHt67zgYAOwmQBJpv8Ndp13CyGGPmvgVoMkA?e=LZMrxa

		examine and pilot business model innovation and scaling opportunities. Also, 1410 households across the three countries were surveyed on the livelihood and broader environmental and social impacts of inclusive business model participation. This helped identify novel impact pathways not previously evaluated in impact assessments; demonstrating how more meaningful participation helps alleviate poverty much more holistically than popularly assumed. Findings do highlight environmental externalities that can be more proactively managed by both businesses and other actors in the value network.	least four high-value tree crops			67zgYAOwmQBJpv8Ndp13CyGGPmvgVoMkA?e=LZMrxa
At least 30% of financial service providers lending to timber, tree and agricultural crops adopt ESG criteria, and increase in	Reduce market barriers Gender equitable control of productive	In 2019, a GLF presentation and GLF digital summits received widespread international attention, while pilot implementation of the Landscape Financial Flow Analysis Tool initiated discussions on the	Completed analysis of the potential to more explicitly integrate ESG finance to smallholders and SMEs finance with cases and recommendations	Complete	An innovative consultative process was used for the analysis, involving different forms of collaborative thinking (electronic dialogue, electronic panel discussions, interviews and face-to-face panel discussions, landscape wide focal group discussions) which	https://www.globallandscapesforum.org/video/plenary-landscape-finance-glf-bonn-2019/ (from minute 31): https://invidiou.sh/watch?v=T2J6HDTsPtc

25% the lending to models that integrate smallholders and SMEs.	assets and resources	impacts of financial flows on their landscapes. Common barriers to inclusive finance have been identified. This was done through a consultative process that included a literature study, a series of internationally well received interviews, as well as an electronic dialogue and subsequent digital and face-to-face expert panel discussions which received attention from international NGOs, CSOs and investors. A dialogue on steps forward has been initiated. Two of the steps forward that have been initiated include a draft strategy to address financial literacy and a draft framework to assess smallholder farmer risks and their influence on investments. The drafts have been produced for further discussion and follow-up action. These will help create the enabling environment for reaching the end of program outcomes of the Flagship and helps establish the role of the FTA in a field where it	for moving forward in at least three countries with emphasis in timber and tree-crop sectors		extended the process beyond what we planned for, but is reaching good buy-in by international NGOs and investors.	https://events.globallandscapesforum.org/inclusive-finance-paying-the-way-for-sustainable-landscapes/ https://events.globallandscapesforum.org/agenda/luxembourg-2019/day-1-2/innovating-finance-to-overcome-current-barriers-towards-sustainable-landscapes/ https://events.globallandscapesforum.org/wp-content/uploads/sites/2/2019/11/White-paper-8-Innovating-finance-to-overcome-current-barriers-towards-sustainable-landscapes_web.pdf http://www.foreststreesagroforestry.org/news-article/scaling-up-innovative-finance-for-sustainable-landscapes/ https://events.globallandscapesforum.org/barriers-to-inclusive-sustainable-finance-in-a-landscape-context/ https://www.tropenbos.org/file.php/2322/facs_tropenbos_study_rev_final_20200228.pdf https://www.tropenbos.org/file.php/2326/smallholder_risk_management_strategies_-_draft_clean.pdf
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			previously had not been active.				
F P 4	(Sub)national governance systems in at least 10 countries use contextualized theories of change to guide transitions to integral achievement of sustainable development goals through restoration, conservation and management of landscape multi-functionality, using similarity domains based on patterns and intensities of forest and tree cover change in space and time in sentinel landscapes understood on the basis of 'drivers' that operate at larger scales.	Land, water and forest degradation minimized and reversed Conducive agricultural policy environment	In 2019, the focus has been on finalizing the stocktake reports for three sentinel landscapes- Nicaragua-Honduras, Cameroon (CAFHUT) and Borneo, Indonesia. Synthesis of the three reports is ongoing as well as the development of a portfolio approach to sentinel landscapes.	Framework for portfolio approach to sentinel landscapes developed and validated. This is based on Phase I work on sentinel landscapes	Extended	Extended due to quality of data for analysis in SL databases. Databases are currently being updated through actors in the landscapes in a process that is taking longer than expected.	https://doi.org/10.17528/cifor/007537

(Sub)national governance systems in landscapes covering 100 M ha and inhabited by 70 M people use quantified and valued functions of FT&A for biodiversity, full hydrological cycle and ecosystem services analyzed across knowledge domains and available for policy-level synthesis and planning.	Land, water and forest degradation minimized and reversed	Work on landscape mosaics, biodiversity and ecosystems services focused on synthesizing 40 years of research in agroforestry in a book titled Agroforestry in its fifth decade". The book summarizes research across multiple disciplines- including tree science, trees and livelihoods, agroforestry systems, agroforestry and agroecosystems, ecosystem services, economics, policies and more. A special feature was finalized in Ecology and Society journal reviewing Twenty Years of Community Forestry in Cameroon.	Valuation studies that relate human and social capital benefits across scales to changes in forest and tree cover as indicators of ecosystem services in local context, as contributions to national and international debate (incl. IPBES)	Complete	Several studies have been completed in at least 10 landscapes so far on various ecosystem services valuations in Indonesia, Gambia, Ethiopia, Ghana, Cameroon, Uganda and Tanzania	http://apps.worldagroforestry.org/downloads/Publications/PDFS/B19029.pdf https://www.ecologyandsociety.org/issues/view.php?sf=123 https://www.sciencedirect.com/science/article/pii/B9780128164365000123 http://dx.doi.org/10.5716/WP19032.PDF https://ehaconnect.org/resource/world-agroforestry-restoring-natural-capital-through-tree-based-interventions-to-deduce-social-tensions-in-humanitarian-settings/ https://doi.org/10.1007/s11104-018-03921-x https://doi.org/10.1016/j.scitotenv.2018.08.291 https://doi.org/10.1017/S0376892919000237 https://doi.org/10.1016/j.biocon.2019.03.028 https://doi.org/10.2989/20702620.2018.1555947 https://doi.org/10.3390/f10030251 https://doi.org/10.1016/j.foreco.2018.11.033 https://lirias.kuleuven.be/handle/123456789/633797
Diverse diets from tree cover in mosaic landscapes recognized and enhanced as contributions to balanced diets	Increased availability of diverse nutrient-rich foods	Progress in addressing this outcome in 2019 included work on the state of biodiversity and the sustainable intensification of food production as part of a thematic study with the	In at least 5 landscapes: Increased on-farm production of a diversity of fruits, nuts, vegetables and legumes, and increased amount	Complete	<p>Evidence has been produced in landscapes in Indonesia, Nigeria, Uganda, Kenya and Cameroon</p> <p>Thematic Study with the Food and Agricultural Organization on the state of biodiversity and the</p>	https://pure.sruc.ac.uk/files/16898894/16898835.pdf https://doi.org/10.1007/978-3-319-92798-5_10 https://doi.org/10.1016/j.gfs.2019.07.002 http://www.worldagroforestry.org/dow

through Increase of availability, and access to, nutrient-rich wild and cultivated food products from these landscapes (10 sentinel landscapes 10 M people).	Increased access to diverse nutrient- rich foods Gender equitable control of productive assets and resources	Food and Agricultural Organization, but also more broadly between intensification, dietary diversity and markets. More specific linkages were addressed in studies between consumption patterns of forest foods, fresh water fish and the state of forests in Nigeria, Cameroon and Indonesia. Some more specific gender disaggregated analysis in Uganda and Kenya regarding knowledge on food trees for food security and nutrition.	of collected wild resources including wild fruits, vegetables, bush meat, mushrooms, insects and fish from forests		sustainable intensification of food production.	nloads/Publications/PDFS/B17977.pdf https://doi.org/10.1016/j.tree.2019.01.003 https://doi.org/10.1017/S0014479718000042 https://doi.org/10.1007/s12571-019-00970-7 https://doi.org/10.1016/B978-0-08-100596-5.21534-5 https://doi.org/10.1016/j.gfs.2018.11.002 http://www.cifor.org/publications/pdf_files/infobrief/7360-infobrief.pdf https://doi.org/10.1016/j.gfs.2019 https://www.anh-academy.org/sites/default/files/5A_Mulia%20Nurhasan%20%20ANH20192_revised.pdf https://doi:10.1371/journal.pone.0218038 https://doi:10.1371/journal.pone.0215281 https://doi.org/10.1016/j.oneear.2019.10.017 http://doi:10.34725/DVN/QPAJ8I https://doi:10.34725/DVN/BKSOXC http://oar.icrisat.org/11207/ https://doi.org/10.34725/DVN/7GVYFB https://worldveg.tind.io/record/73345/ https://agritrop.cirad.fr/592794/1/ID592794 http://old.worldagroforestry.org/downloads/Publications/PDFS/BC19010.pdf
Adaptive landscape institutions	Gender equitable control of	Emphasis has been on policy support, subnational level	Compilation of lessons learned at landscape scale	Complete	Many synthesis papers compiled drawing lessons across many landscapes on climate change	https://www.ecologyandsociety.org/vol24/iss1/art1/

empowered and supported on 6 M ha inhabited by 4 M people to manage changing landscape mosaics towards more balanced and adaptive multifunctionality and successful 'forest landscape restoration' through 'action research' and inclusive, participatory learning. This is aligned with efforts in PIM.5.2 -oe6 million hectares of shared landscapes under more productive and equitable management.	productive assets and resources Improved capacity of women and young people to participate in decision-making Increased resilience of agro-ecosystems and communities, especially those including smallholders	landscape governance mechanisms, and performance-based finance mechanisms for restoration. With regards to policy, the Agroforestry Policy for Nepal was launched in mid-2019 technical support work continued for the development of an agroforestry policy for the Association of South-East Asian Nations. Sub-national level land governance work included green growth planning work in Indonesia and Vietnam, Innovative work on the migration-environment nexus in East Africa and ecosystems-based adaptation project in the Gambia which supported 49 community forests in the development of viable and sustainable enterprises and invested significantly in the restoration and protection of 1400 ha of degraded protected. Analysis of performance and lessons from performance-based finance experiments in 34 community forest enterprises in Cameroon,	across the learning landscape networks for reporting on Aichi targets to Convention on Biodiversity, United Nations Convention on Climate Change etc.		and biodiversity and its management and ecosystem services across landscapes	https://www.ecologyandsociety.org/vol24/iss1/art9/ https://www.ecologyandsociety.org/vol24/iss1/art14/ https://doi.org/10.5751/ES-10672-240106 https://www.alphavisa.com/agroforestry/2019/documents/Agroforestry2019-Book-of-Abstract-v1.pdf http://dx.doi.org/10.1017/S0014479716000788 https://doi.org/10.1007/978-3-319-92798-5_23 https://doi.org/10.1007/s10708-019-10011-7 https://doi.org/10.1016/j.biocon.2019.03.028 https://doi.org/10.1017/S0014479718000388 https://doi.org/10.1371/journal.pone.0211221 http://dx.doi.org/10.1017/S0014479717000138 https://doi.org/10.1108/IJCCSM-04-2017-0084
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			benefiting about 36000 people in these communities, creating about 500 Jobs so far following direct investments of about 1 Million USD in the enterprise portfolio.				
F P 5	Efficient, effective and equitable climate national and international mitigation policies and funding, aligned with development objectives (3E+ goals).	Reduced net GHG emissions from agriculture, forests and other forms of land use	Analysis of international and national REDD+ policies, and natl. stakeholder workshops in Ethiopia, Myanmar and joint research in Vietnam, resulting assignment under GCF to design their forests and land use sectoral guidance Concluded assessment of jurisdictional sustainability across the tropics sector. Continued work on Forest Reference Emission Level (FREL) setting, drivers of forest carbon change and improved information on Agriculture, Forestry and Other Land Use (AFOLU). A major outcome in Peru was the initiation of a national process for regulating peatlands. CIFOR supported the establishment of the International Tropical Peatland Center (ITPC) at our Headquarters in	Research on avoided emissions from deforestation/degradation, forest restoration and enhanced forest carbon sink capacity, and their development implications, available and used (e.g. in the Bonn Challenge; NDCs, REDD+)	Complete	Continued curation of the Data base on REDD+ projects Village REDD+ dataset, Household REDD+ dataset and Women's REDD+ dataset produced 44 scientific papers, 14 book chapters, and 15 work papers /occasional papers published	http://www.reddprojectsdatabase.org/ https://doi.org/10.17528/CIFOR/DATA.00199 https://doi.org/10.17528/CIFOR/DATA.00198 https://doi.org/10.17528/CIFOR/DATA.0019

			Indonesia. Based on our long-term work in Vietnam through GCS REDD+, CIFOR is the only international organization that was invited by Ministry of Agriculture and Rural Development (MARD) to provide technical support for the upcoming Vietnam Forestry Development Strategy 2021–2030.				
				Analysis of and roadmap for reduced forest fire practice and policies (Indonesia) made available and used by authorities	Extended	Raw data (global map) will be available in October 2020 but no analysis and roadmap because partners could not deliver in time.	
Risk-assessed ecosystem-based adaptation (EbA) policy and practice in place including joint mitigation and adaptation approaches.	Enhanced capacity to deal with climate extremes	Progress included the production of analytical and practical work on adaptation in the context of ecosystem-based adaptation and linking adaptation to mitigation. Highlights this year were on bamboo and advances in developing detailed, regionalized practical guides on ecosystem-based adaptation in The Gambia.	2019 - Ecosystem-based adaptation (EbA) options that raise adaptive capacity of social groups identified and applied in case studies	Extended	A workshop on bamboo as an important instrument for soil and water conservation was organized at the Sixth International Bamboo and Guadua Symposium and workshop proceedings with the abstracts of the 47 presentations were compiled. Sixteen CIFOR papers on adaptation were cited 89 times in the IPCC special report on “Climate Change and Land”. In the Gambia, 24 ecosystem-based adaptation protocols were developed and a comprehensive diagnostic study including the baseline status of	https://www.ipcc.ch/report/srccl/ August 2019 https://www.sibguadua.org/organizaci-on-2/6th-sibguadua/ https://www.inbar.int/event/sixth-international-bamboo-and-guadua-symposium-sibguadua-consolidating-regions-from-the-middle-of-the-world/ https://drive.google.com/drive/folders/1Mnexsgcye3PqKL2YgArSOMr1DBY9II9N http://www.worldagroforestry.org/blog/2020/03/03/gambia-controlling-wild-fire-offers-nature-based-solution-diminishing-wild-food-and	

					adaptation practices was developed for over 100 communities.	
Food and bioenergy production policy and practice integrated more visibly in the intervention areas.	Reduced net GHG emissions from agriculture, forests and other forms of land use	A significant body of knowledge is being developed on ensuring sustainability in the bioenergy sector in Africa to start a national and continental discourse on including sustainable supply options rather than trying to eliminate the use of biomass for energy generation. While in Indonesia, a wide variety of bioenergy crops on degraded and underutilized land are being evaluated as an alternative solution to meet the requirement for energy security, food security, and landscape restoration goals.	Analysis of options for bioenergy production to understand land allocation to bioenergy production concluded and used in national policies	Complete	Progress has been achieved towards scaling up research and demonstration trials with engagement of private sector actors. Findings on research considering the business case of land restoration for bioenergy development and rural livelihoods, and opportunities and challenges posed by bioenergy and landscape restoration integration in the tropics were presented at the Global Landscape Forum in Luxembourg in 2019.	https://onlinelibrary.wiley.com/doi/full/10.1002/fes3.165 https://www.cifor.org/library/7129/ https://events.globallandscapesforum.org/agenda/luxembourg-2019/day-1-2/interactive-session-7/
			Spatially explicit assessments of potential of bioenergy production on degraded land available and used in climate-smart land allocation to biofuel production	Complete	Progress was made towards scaling up our research and demonstration trials with engagement of private sector actors. In Indonesia, we are evaluating a wide variety of bioenergy crops on degraded and underutilized land as alternative solution to meet the requirement for energy security, food security, and landscape restoration goals (1). We have assessed landowner's perception and the requirement	1. https://onlinelibrary.wiley.com/doi/full/10.1002/fes3.165 2. https://www.cifor.org/library/7129/ 3. https://events.globallandscapesforum.org/agenda/luxembourg-2019/day-1-2/interactive-session-7/

						for utilization of degraded land for biofuel production (2). Our findings are disseminated in national and international forums such as the Global Landscapes Forum (3).	
Performance assessment of mitigation and adaptation policy and practice widely implemented following good evaluation practice.	Reduced net GHG emissions from agriculture , forests and other forms of land use	The FTA method papers on performance assessment of REDD+ (developed in the Global Comparative Study on REDD+) are widely recognized. This work led to further work on supporting Vietnam in developing their PFES policies (they are already regional leader in the field) and also follow-up work on Transparent Monitoring internationally and specifically in 4 countries (Côte d'Ivoire, Indonesia, Peru, and PNG) starting in 2020. The also ensuing collaboration with the GCF's Independent Evaluation Unit on methods and approaches will lead to more widely implemented performance assessment in GCF-funded projects.	Innovative methods available to measure non-carbon benefits and identify causal change and used by countries	Complete	Innovative methods to measure non-carbon benefits and identify causal change have been made available.	https://www.sciencedirect.com/science/article/pii/S030324341831198X https://events.globallandscapesforum.org/wp-content/uploads/sites/2/2017/11/ClimateMitigation-EC-flyer_en_digital2.pdf https://www.youtube.com/watch?v=oN6ArLAEUZE	

Table 6: Numbers of peer-reviewed publications from current reporting period (Sphere of control)

	Number	Percent
Peer-Reviewed publications	318	100%
Open Access	189	59%
ISI	283	89%

Table 7: Participants in CapDev Activities

Overall FTA number of trainees	Female	Male
In short-term programs	7842	6361
In long-term programs	45	39
PhDs	24	23

Table 8: Key external partnerships

Lead FP	Brief description of partnership aims (30 words)	List of key partners in partnership. Do not use acronyms.	Main area of partnership (may choose multiple), dropdown: Research/Delivery/Policy/Capacity Development/Other, please specify _____
FP1	<p>Discovery and scaling within the framework of AOCC (African Orphan Crops Consortium)</p> <ul style="list-style-type: none"> • Yam genomics: sequencing of water yam, <i>Dioscorea alata</i> • Shea genomics: We have an NSF-BREAD, USA grant for developing genomics resources for shea tree (<i>Vitellaria paradoxa</i>).. • African eggplant project: genomic-based trait mapping of <i>Solanum aethiopicum</i>, African eggplant. 	<p>University of California Davis, Mars IITA, Univ of California, Berkley.</p> <p>Univ of New Hampshire, USA; CRIG, Ghana</p> <p>National Institute of Agricultural Botany (NIAB), UK; Uganda Christian Univ, Uganda; AVRDC, Tanzania</p>	Research, Capacity Development
FP1	Discovery/piloting and scaling within the framework of Provision of Adequate Tree Seed Portfolios (PATSPo) in support of landscape restoration in Ethiopia	<p>University of Copenhagen (UCPH)</p> <p>Scotland's Rural College (SRUC)</p> <p>Ethiopian Environment and Forest Research Institute (EEFRI); Ethiopian Environment Forest and Climate Change Commission (EFCCC)</p>	Research, Capacity Development

FP1	Scaling of climate appropriate portfolios of germplasm for landscape restoration based on climate analyses in Sri Lanka, Rwanda, and West Africa	International Union for Conservation of Nature (IUCN), Food and Agriculture Organisation of the United Nations (FAO)	Delivery and Policy
FP1	Scaling of climate appropriate portfolios of Shea Nut (<i>Vitellaria paradoxa</i>) in Burkina Faso	AAK (The co-development company) and Centre National des Semences Forestieres (CNSF)	Capacity development and Delivery
FP1	Piloting and Scaling Within the framework of Food Trees Project: Delivery of improved planting material (on-station, on-farm trials)	Kenya Agriculture and Livestock Research Organisations (KALRO)	Research, delivery and capacity development
FP1	Discovery within the framework of the Food Trees Project: Food science, novel food product development	Jomo Kenyatta University of Agriculture and Technology (JKUAT)	Research and capacity development
FP1	Piloting within the framework of Food Trees Project: Food Tree Portfolios establishment	World Vegetable Centre, Kenya	Research and Delivery in Food Tree Project of project interventions related to portfolios
FP1	Piloting within the framework of Food Trees Project: interventions related to portfolios, planting material, data activities and capacities	Feed the Children, Kenya	Research/ Delivery/ Capacity development
FP1	Piloting and Scaling within the framework of Food Trees Project: generating data, introduction and testing of improved fruit tree planting material, training of farmers and extension actors in tree planting and management, and nursery establishment and management.	Sustainable Land Management Programme – Somaliland GIZ	Research/ Delivery / Capacity
FP2	Development of a transformative partnership platform on agroecological transitions to build climate resilient agriculture	FAO, UNEP, Biovision, CIRAD, INRA, IRD	Integrated research, delivery, capacity development and policy

FP3	Plantations and tree crop commodities: focus on sustainability and growth of rubber plantations	International Rubber Study Group (IRSG)	Research
FP3	Plantations and tree crop commodities; focus on improving smallholder supply chains in rubber plantations	Global Platform for Sustainable Natural Rubber (GPSNR)	Delivery
FP3	Public and private commitments to zero deforestation: focus on sustainability certification systems	Forest Stewardship Council (FSC)	Policy
FP3	WInnovating finance for sustainable landscapes: impacts of financial flows on their landscapes	Global Landscapes Forum (GLF)	Capacity Development
FP3	Public and private commitments to zero deforestation: focus on sustainability research of tree commodities	International Union of Forest Research Organizations (IUFRO)	Research
FP3	Plantations and tree crop commodities: Focus on sustainability and growth of timber plantations	Sustainable Wood for a Sustainable World (SW4SW) of the UN Food and Agriculture Organization (FAO) and CPF;	Policy/Capacity Development
FP4	Developing multi-functional landscapes at scale. The aim is to develop functional relationships linking Public, Private and Local civil society partners to develop multi-functional landscapes at scale.	Governments: Gambia, Cameroon, Indonesia, Vietnam, Nepal, Peru, Kenya and Sri Lanka Regional Bodies: Association of South East Asian Nations, African Group of Negotiators Expert Support International Bodies: International Union of Forestry Research Organizations, Green Climate Fund, Collaborative Partnership on Forests	Research, Delivery, and policy
FP4	The Economics of Ecosystem Restoration (TEER): Database of costs and benefits of restoration to be used as a reference point for decision-makers and restoration practitioners, for the ex-ante estimation	FAO, Global Partnership on Forest and Landscape Restoration (GPFLR), Secretariat of the Convention	Research, delivery

	of costs and benefits of future restoration projects in all major biomes and across a wide range of contexts worldwide, based on information from comparable projects on which data has been collected through a standardized framework.	on Biological Diversity (SCBD)/ Forest Ecosystem, IUCN, WRI and other GPFLR partners.	
FP5	FTA research findings are employed in Son La province in designing Vietnam's Payment for Environmental Services (PES) system. CIFOR's PES work was awarded with a prize by Ministry of Agriculture and Rural Development.	Ministry of Agriculture and Rural Development of Vietnam Vietnam's Forestry Administration and Vietnam Forest Protection and Development Fund (VNFF) VTV2 (the state National television and media program) for dissemination	Policy design and Delivery
FP5	Honduras terra-l	United States Agency for International Development (USAID), in particular through the activity "Gobernanza en Ecosistemas, Medios de Vida y Agua (GEMA)" Instituto Nacional de Conservación y Desarrollo Forestal, Áreas Protegidas y Vida Silvestre (Honduras)	Delivery of MRV system
Gender	The partnership aims at sharing FTA knowledge across a wide community of practice working on gender and landscape restoration, as well as to jointly advocate for a more gender-responsive restoration agenda	Global Landscapes Forum gender constituency – 26 local, regional and international organizations and agencies	Capacity Development/Outreach and Engagement

Gender	The aim of our partnership with UN Women is to provide evidence-based recommendations into gender-related policy processes coordinated by UN Women, particularly in the context of the Rio Conventions. In 2019, we worked closely with UNWomen and the CBD to integrate gender considerations in the post-2020 Global Biodiversity Framework	UN Women and Convention on Biological Diversity (CBD) Secretariat	Policy
Gender	The aim of our partnership with the UNFCCC is to ensure Parties are informed by FTA research on gender and climate change, and to support the secretariat in delivering capacity building to Parties and constitutive bodies as mandated by the Gender Action Plan	United Nations Framework Convention on Climate Change (UNFCCC)	Capacity Development/Policy/Outreach and Engagement
Gender	The aim of the partnership with Fairtrade is to review Fairtrade's Gender Strategy 2016-2020 and analyze the transformative potential for member organizations across three Producer Networks: Fairtrade Africa (FTA), Latin American and Caribbean Network of Fairtrade Small Producers and Workers (CLAC), and the Network of Asian Pacific Producers (NAPP).	Fairtrade	Research/Policy/Outreach and Engagement
Gender	The aim of our partnership with Resource Equity is to expand the analysis of research findings from the Global Comparative Study and produce data sets that allow focusing on gender and social differentiations. Based on findings different outreach activities have been promoted to disseminate policy and practice relevant findings.	Resource Equity	Research/Delivery/Outreach and Engagement

Table 9: Internal Cross-CGIAR Collaborations

Brief description of the collaboration	Name(s) of collaborating CRP(s), Platform(s) or Center(s)	Optional: Value added, in a few words e.g. scientific or efficiency benefits
The Excellence in Breeding Platform works on upscaling of diagnostic markers historically discovered by the centres, which have gone beyond proof of concept to the scale of implementation of marker/genomics assisted selection based breeding programs. AOCC is not there yet but benefit from this experience.	Excellence in Breeding Platform	Scientific and efficiency benefits
Collaboration on availing germplasm to research projects; facilitating acquisition from other sources, working together on the development of characterization data, and sharing existing data. Joint work in the Global Healt Unit (GHU) to address priority tree health issues.	Genebank Platform	Scientific and efficiency benefits
Within the African Orphan Crops Consortium, collaboration with yam genomics (value added is shared: IITA is the expert for yam and bringing this knowledge and germplasm collection into the objectives of AOCC).	RTB Several CG Centers	Scientific and efficiency benefits

Research on seed system policies for vegetatively propagated crops. The FTA study was initiated in 2018 to be finalised in 2020.	RTB, PIM	PIM leads studies on policy and regulatory issues; RTB leads studies on successful models for seed systems; FTA leads a study on the potential for improving input supply for fodder trees in milk value chains in Kenya
FTA collaborated with PIM and WLE on a stock take of the work conducted on restoration in the various CRPs and centers. Session on social inclusion in restoration at Society for Ecological Restoration 8 th World Conference; pre-session writeshop in preparation for joint CRP Special Issue on social inclusion in restoration to be submitted to journal <i>Restoration Ecology</i> in 2020.	WLE, PIM	Scientific benefits
Research on Feminization of Agriculture focused on gender and restoration	WLE (and funding from CGIAR Collaborative Platform on Gender Research)	Leveraging resources benefits
Research on Gendered aspirations in the drylands of south-eastern Kenya	GLDC	Leveraging resources and scientific benefits
Global Landscapes Forum Gender Constituency	WLE is part of the FTA-led constituency	Scientific benefits and expanding networks
ENGAGE Proposal for new CGIAR Gender Platform	PIM, WLE, FISH, A4NH	Scientific benefits and alliance-building
New collaboration with A4NH in the framework of FTA's priority 3 "Enhanced nutrition and food security	A4NH	Scientific benefits and expanding networks

Research Collaborations. Contribution of two case studies on Multi-stakeholder platforms to a global synthesis being organized by PIM. Subsequently jointly organized a session on restoration at the GLF in Accra.	PIM	Joint synthesis of place-based case studies on multi-stakeholder platforms increased pool and diversity of case studies
FTA is collaborating with CCAFS and other partners on developing a new large proposal, the Two-Degree Initiative for Food and Agriculture (2DI) . In this initiative, FTA leads the development of one of eight so-called Grand Challenges, the one on “Facilitating a climate-resilient circular economy for five major peri-urban food systems” (GC7).	CCAFS, other CG centers and non-CG partners such as Cirad, U Kyoto, etc.	2DI would help millions of small-scale farmers across the globe to become more climate change resilient and thrive in a new bio-based global economy. GC7 provides transformations in industrial ecology that improve the cycling and recycling of bio-based natural materials and by-products, use of renewable energy, and reductions in food loss and waste, strengthening links between on-farm and off-farm parts of the economy. New circular economy markets and products provide income growth and diversification, coupled with resource efficiency gains and low emissions, in at least five peri-urban areas of major cities. 5 countries capacitated to implement their city-related actions in NAPs and NDCs. Expected 40 million beneficiaries.
Addressing evidence gaps constraining agroecological transitions	WLE, GLDC	Brings together crop, tree and water expertise to address a key scientific and developmental challenge that couldn't be adequately tackled by any of the CRPs alone

Table 10: Monitoring, Evaluation, Learning and Impact Assessment (MELIA)

Studies/learning exercises planned for this year (from POWB)	Status	Type of study or activity	Description of activity / study	Links to MELIA publications
A global comparative study for achieving effective, efficient and equitable REDD+ results (2016-2020): Midterm Review 2018	Completed	Program/project evaluation/review	The review examined whether the project's strategies for influencing REDD+ actors and processes in eight target countries were contributing to intended outcomes. The review concluded that the GCS REDD+ Project is on track and that teams have delivered according to plans as evidenced by a long list of relevant outputs. The Review also found that the project has hit its intermediate outcome targets and makes a series of suggestions for improvement.	https://www.cifor.org/gcs/wp-content/uploads/sites/14/2020/02/CIFOR-GCS-REDD-project_Mid-Term-Review_2019.pdf
CIFOR-USAID Fellowship. A Formative Assessment.	Completed	Other MELIA activity	CIFOR-USAID Fellowship is a capacity development program which aims to train Indonesian students by enrolling them into selected graduate programs in the United States. The purpose of this internal formative evaluation was to inform the capacity development strategies of CIFOR and FTA, to develop and trial appropriate methods to routinely evaluate CIFOR supported Ph.D. and master's students, and to provide USAID with an assessment of the relative benefits of the applied fellowship model.	www.foreststreesagroforestry.org/docs/FTA-Annual-Report-2019-CIFOR-USAIDfellowshipEvaluation_Report.pdf
Assessing the downstream socioeconomic impacts of agroforestry in Kenya	Completed	Program/project adoption or impact assessment	Using a quasi-experimental impact evaluation design informed by a theory based and mixed methods framework, this study investigates selected intermediate and final outcomes of a nine-year effort led by Vi Agroforestry, a Swedish NGO, to promote agroforestry in Bungoma and Kakamega counties in western Kenya. Despite evidence of variable program exposure and agroforestry uptake, we found modest, yet statistically significant, effects of Vi Agroforestry's program on intermediate outcomes, such as agroforestry product income, fuelwood access, and milk yields among dairy farmers. We also found	https://www.sciencedirect.com/science/article/pii/S0305750X1930484X

			that this program modestly increased asset holdings, particularly among households represented by female program participants.	
Linking transdisciplinary research characteristics and quality to effectiveness: A comparative analysis of five research-for-development projects.	Completed	Synthesis (secondary) study	Although many research approaches have adopted more transdisciplinary characteristics, empirical evidence of the extent to which and how transdisciplinary research design and implementation contribute to (more) effective scientific and social outcomes remains limited. This paper reports a comparative analysis of five research-for-development projects implemented in Peru and Indonesia to: characterize the extent to which projects employed transdisciplinary principles; assess the extent to which and how intended project outcomes were achieved; analyze the relationship between transdisciplinary research approaches and outcomes; and provide lessons from the experience of using a theory-based approach to evaluate a set of case studies.	https://www.sciencedirect.com/science/article/pii/S1462901119304022
Stakeholder perceptions of scientific knowledge in policy processes: a Peruvian case-study of forestry policy development	Completed	Qualitative Outcome Study: (mainly to substantiate contribution to policy or similar)	This study applies knowledge-policy models to analyse a forestry research project that succeeded in influencing national policymaking. The study investigates how decisions were made, what factors affected and shaped the policy process, and how scientific knowledge was used. The results highlight the complexity of policy processes and the related challenges in crossing the science-policy interface. Perceptions of scientific knowledge differed greatly among stakeholders, and those perceptions strongly influenced how scientific knowledge was valued and used. The findings suggest a need for researchers to better understand the problem context to help design and implement research that will more effectively inform decision-making.	https://academic.oup.com/sp/article/46/4/504/5306126
Evaluation of CIFOR's contribution to sustainable oilpalm governance in Indonesia	On Going	Qualitative Outcome Study: (mainly to substantiate contribution to policy or similar)	This evaluation investigates the extent to which and how CIFOR's oil palm research portfolio has contributed to changes in the sector. This study will provide insight into FTA's contribution to addressing key global challenges of protection of forests and reduction of deforestation, and the reduction of rural poverty and livelihoods. In particular, the case study will illustrate pathways to improving environmental and economic conditions for people through improved	Preliminary findings were presented to stakeholders in April 2020 and the final report is expected to be ready in June 2020.

			knowledge and research about oil palm to guide collective action, policy, and practice.	
Evaluation of Gender Integration in FTA	On Going	Program/project evaluation/review	The evaluation was commissioned to examine whether, how and in what circumstances gender is integrated into FTA research; and whether, how and in what circumstances gender integration contributes to changes within FTA Centres, in communities, or in policy and other contexts. The evaluation used three strategies to answer the key evaluation questions: a rapid literature review of FTA research and project documents; semi-structured interviews with FTA staff and a series of case studies of FTA research projects.	
Ex-Ante Impact Assessment of the project Provision of Adequate Tree Seed Portfolios in Ethiopia (PATSPo)	On Going	Ex-ante, baseline and/or foresight study	The project Provision of Adequate Tree Seed Portfolios in Ethiopia (PATSPo) supports the tree seed sector in Ethiopia to produce quality seeds, as a service to a range of follow-up projects that realize the national Climate-Resilient Green Economy Strategy, and the commitment to restore 20 million ha of degraded land. ICRAF commissioned an Ex-Ante Impact Assessment of PATSPo with the intent to project the impact of improving tree genetics in order to help demonstrating this value to relevant stakeholders. The methodology entailed generating and comparing scenarios for plantation of Business-As-Usual and High-Quality Tree Genetic resources by the mentioned follow-up projects.	The report is being finalized and will be published in 2020. https://www.dropbox.com/s/x_a9ak2cou5uggxi/PATSPo%20Ex-Ante%20Impact%20Assessment%20Report%202019%2012.zip?dl=0&file_subpath=%2FFTS+Ethiopia+PATSPo+Ex+Ante+Impact+Assessment+Final+Report+2019+12+01.pdf
A refined method for theory-based evaluation of the societal impacts of research	Completed	Qualitative Outcome Study: (mainly to substantiate contribution to policy or similar)	This study provides a detailed description of concepts and a method for assessing the relationship between research processes, outputs, and outcomes. The Outcome Evaluation Approach uses an actor-centred Theory of Change as the analytical framework, and accounts for complexity by recognizing the role of other actors, context, and external processes in change. The paper responds to the need for appropriate methods to demonstrate (for accountability) and analyze (for learning) whether and how research projects contribute to change processes, in an effort to make research more effective in addressing complex sustainability challenges.	https://doi.org/10.1016/j.mex.2020.100788

Assessing the downstream socioeconomic impacts of agroforestry in Kenya	Completed	1. EPIA: Ex-post Impact assessment (including 2. Ex-post adoption study)	Investigated selected intermediate and final outcomes of promoting agroforestry practices in western Kenya using a quasi-experimental impact evaluation design informed by a theory-based and mixed methods framework. Households belonging to 432 pre-existing farmer groups operating in 60 program villages were compared with 61 matched villages, complemented by semi-structured interviews with a sub-sample of 40 purposively selected program participants.	Hughes,K., Morgan,S., Baylis,K., Oduol,J., Smith-Dumont,E., Vågen,T., Kegode,H., 2020. Assessing the downstream socioeconomic impacts of agroforestry in Kenya. <i>World Development</i> . 128: 104835. https://doi.org/10.1016/j.worlddev.2019.104835
Assessing global evidence base of impact of interventions to promote agroforestry	Completed	7. Synthesis (secondary) study	Existing evidence on the impacts of interventions that promote agroforestry on agricultural productivity, ecosystem services, and human well-being in low and middle income countries was collated including 396 studies that compared farmers and farms where agroforestry was practiced to those without agroforestry.	Miller, D. C., Ordoñez, P. J., Brown, S. E., Forrest, S., Nava, N. J., Hughes, K., Baylis, & K. (2020). The impacts of agroforestry on agricultural productivity, ecosystem services, and human well-being in low-and middle-income countries: An evidence and gap map. <i>Campbell Systematic Reviews</i> , 16 (1):e1066. https://onlinelibrary.wiley.com/doi/10.1002/cl2.1066
Reach and early adoption of agroecological practices promoted by RySS across the state of Andhra Pradesh.	Completed	3. Program / project adoption or impact assessment	Household surveys were conducted to measure the 2018 status of outcome indicator targets for a programme promoting agroecological practices across the state of Andhra Pradesh. Data were collected from a representative panel of 3,634 Farming Families (FFs) residing in 366 village clusters targeted for promotion in 2016 and 2017.	Hughes, K. (2019). Performance Evaluation for the Climate Resilient Zero Budget Natural Farming (CRZBNF) Programme. First Round Data Collection Report .
Process-based analysis of change attributable to FTA regarding the implementation of	Completed	6. Program/project evaluation/ review	Project evaluation of the SUCCESS project on support to the development of agroforestry concessions in Peru. The extent to which the project generated new knowledge, attitudes, skills, and relationships among key actors that influenced decision-making, policy-making, implementation, and practice around agroforestry	Claus, R., Davel, R. and Belcher, B. (2019). Evaluation Report: support to the development of agroforestry concessions in

Agroforestry Concessions in Peru			concessions was assessed by evaluating progress in respect of the project theory of change and application of a transdisciplinary research quality assessment framework.	Peru. CGIAR Research Program on Forests, Trees and Agroforestry, Bogor. 80 pp. https://www.dropbox.com/s/hi4555jt3z0ogd8/Evaluation%20Report_June%2013.docx?dl=0 And referred to in: Belcher,B.M., Claus,R., Davel,R., Ramirez,L.F., 2019. Linking transdisciplinary research characteristics and quality to effectiveness: a comparative analysis of five research-for-development projects. Environmental Science and Policy 101, 192–203. https://doi.org/10.1016/j.envsci.2019.08.013
Soil erosion prevalence baseline for NW Vietnam	Completed – results presented at mid-term review of AFLi-2 project in April	8. Ex-ante, baseline and/or foresight study	A land degradation surveillance framework (LDSF) survey was conducted and combined with satellite image analysis to provide baseline soil erosion prevalence data for NW Vietnam against which impacts of market based agroforestry options can be tracked.	Phuong, N.M., Vagen, T and Winowiecki, L. (2019). Preliminary result of applying land degradation surveillance framework in Son La, Viet Nam. AFLi-2 midterm review. https://www.dropbox.com/s/qob31mwqfii3ksw/P_7_MPhuong_EN.pptx?dl=0#
Third party evaluation of EU/IFAD dryland restoration	Completed	6. Program/project evaluation/ review	Adansonia-Consulting was mandated as an independent third party to conduct this external and independent midterm evaluation, following the IFAD Evaluation Manual and the CGIAR standards for independent external evaluation and the respective Independent Evaluation Arrangement (IEA) evaluation guidance notes (G4 and G5). It is an	Bloesch, U. (2019). Mid-term Evaluation of EU-IFAD Grant Restoration of degraded land for food security and poverty

research in East and West Africa			objective-based approach, which analysed the impact pathway and measured achievements along the results chain for generating lessons and recommendations.	reduction in East Africa and the Sahel: taking successes in land restoration to scale. Adansonia-Consulting, 50pp. http://www.adansonia-consulting.ch/document/restoration_of_degraded_land.pdf
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Table 11: Update on Actions Taken in Response to Relevant Evaluations

Name of the evaluation	Re c N.	Recommendation	Status of response	Concrete actions taken	By whom	By when	Evidence
Evaluation of Capacity Development (CapDev) activities of CGIAR	2	Centers and CRPs should base their medium-term CapDev plans on clear CapDev strategies and incorporate CapDev more consistently into their theories of change.	Addressed	A CapDev Action plan based on systematic CapDev Needs Assessment has been finalized and will be published soon.	CapDev thematic lead		
	4	Centers and CRPs should build on successful partnership approaches, such as the facilitation of collaborative multi-stakeholder networks and multi-donor programs and platforms, to ensure that CapDev has the required long-term perspective and is relevant to and owned by the stakeholders and entities that strengthen their capacities	Ongoing	Being considered in the implementation of CapDev activities.	CapDev thematic lead	Sep 2020	
	6	CGIAR Centers should, in collaboration with CRP management and through facilitation by the CapDev CoP, integrate adequate CapDev support into their management systems and approaches for ensuring that their CapDev activities are planned, implemented and followed-up in accordance with good CapDev practices and in alignment with CGIAR's Capacity Development Framework	Addressed	Considered in the CapDev action plan.	FTA partners		

Evaluation of Partnerships in CGIAR		All CRPs should have a distinct partnership strategy and accompanying operational plan	Addressed	FTA's revised partnership strategy was approved by the ISC in November 2019.	ISC, MT, PMU		https://www.foreststreesagroforestry.org/wp-content/uploads/2019/11/FTA-ISC12-Doc4c-Partnership-Strategy.pdf
	6	Emerging and developing country NARS with strong capacity should be more closely involved in research management in CRPs.	Addressed	FTA already works with NARS. Strengthening relations with NARS is part of the operational plan of the revised partnership strategy.	MT		https://www.foreststreesagroforestry.org/wp-content/uploads/2019/11/FTA-ISC12-Doc4c-Partnership-Strategy.pdf
Evaluation of Gender in Research and in CGIAR workplace	5	CRPs should refresh and refocus their gender strategies and/or future work plans (as relevant) to maximize effectiveness and ensure alignment with priorities in the Gender in CGIAR Research Policy (see recommendation 2) taking account of the different comparative advantages of groups of CRPs.	Addressed	A new Gender Equality and Social Inclusion Action Plan has been finalized and published. Moreover, FTA has adopted in 2018 a new	MT, gender lead		https://doi.org/10.17528/cifor/007604

				gender priority and will operationalize plans for 2019–2021.			
	10	CRPs should individually and jointly invest in improving and institutionalizing systems for monitoring outputs, as well as effectiveness and outcomes of gender research.	ongoing	FTA has commissioned an evaluation of its gender research which is currently being finalized. This recommendation is being addressed in that context.	MT, MELIA, gender lead	Sept 2020	
Evaluation of Results-Based Management	3	– Invest in CRP driven, system-relevant Management Information Systems	Addressed	<p>Joined the MARLO community and have fully migrated to this system.</p> <p>Ensure sustainability of FTA data management systems and interoperability with CGIAR systems.</p>	FTA Director		
	5	<ul style="list-style-type: none"> Develop and implement annual RBM capacity building work plans Identifying champions at CRP and Center level 	Addressed	FTA engages actively in forums that are shaping CGIAR thinking in	FTA Director, MSU and MELIA		

		<ul style="list-style-type: none"> • CGIAR monitoring, evaluation and learning community of practice • should continue to be supported, and be facilitated by the SMO. 		<p>relation to operationalizing RBM across the CGIAR.</p> <p>FTA participated to the Pilot Assessment of the CGIAR Program Performance Management Standards. FTA fulfilled the criteria for 5 out of 6 standards assessed. For a standard to be improved remedial actions have been taken.</p>			
	3	The Evaluation Team recommends that all FTA Participant Institutions safeguard their principal comparative advantage of being neutral, world class research institutions, and resist pressures to work outside their areas of comparative advantage. CIFOR and ICRAF must further intensify their already close collaboration to maximize synergies and minimize unnecessary competition.	Addressed	As part of the prioritization process, comparative advantage and implication of non-CGIAR partners has been intensified. Also, the prioritization process has reinforced cross-cutting work across the program, between Flagships, especially led by	FTA Director, MT, ISC		

				ICRAF and CIFOR, leading to de-siloing important parts of the work.			
	4	The Evaluation Team recommends that FTA further develops its results framework and impact pathways into a comprehensive theory of change, and a framework for results-based management that explicitly acknowledges windows for opportunistic and blue-sky research. Based on this framework, FTA must then initiate active management of its entire research portfolio, including increased selectivity with regard to mapping bilaterally funded projects to the program.	Ongoing	FTA is currently revisiting its impact pathways and end of program outcomes. A workshop on impact assessment was organized with the ISC reviewing impact pathways and end of program outcomes. The results of the workshop have been taken into account in the preparation of the POWB.	FTA Director, MT	Sept 2020	
	5	As part of the preparations for FTA's second phase proposal, the Evaluation Team recommends that the FTA Steering Committee re-assesses the relevance and the financial sustainability of the current set of Sentinel Landscapes, and adapt the entire approach to Sentinel Landscapes in the FTA Phase II Proposal accordingly.	Ongoing	Science workshop on Sentinel Landscapes was held in Dec 2017. In 2018 a special workshop was held to decide the way forward for	MT	Dec 2021	

				<p>Sentinel Landscapes.</p> <p>Three stocktake studies have been finalized. Their results are being integrated in the adaptation of the Sentinel Landscapes towards collocation of research.</p>			
	6	<p>The Evaluation Team recommends updating the FTA Gender strategy to better cover social diversity, scalability of findings, and earlier lessons learned. The FTA Steering Committee must monitor the degree to which gender-sensitive research is mainstreamed in FTA and take corrective action if Gender mainstreaming remains stagnant by year-end 2015.</p>	Addressed	<p>New gender and social inclusion plan of action (including Youth) finalized.</p>	FTA Director and FTA GIT	December 2019	https://doi.org/10.17528/cifor/007604
	7	<p>The Evaluation Team recommends that FTA increases and makes more systematic its efforts to reach out to and involve partners on all levels: program donors, relevant actors of strategic importance for FTA, and boundary partners. FTA must further increase its efforts to include boundary partners into research priority setting, design, and implementation, develop their capacity, and ensure that FTA results targets respond to concrete needs of development partners.</p>	Ongoing	<p>FTA has strengthened institutional relations with key policy partners such as FAO, key international NGOs such as WWF, as well as with upstream research organizations such as IUFRO.</p>	<p>FTA Director</p> <p>FP Leaders, ISC</p>	Dec 2021	

				<p>This takes the form of joint scientific work and also joint engagement work. Examples include joint organization of events, co-publications, etc.</p> <p>FTA will seek to engage strategic national partners and consult them on options for post 2021</p>			
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Table 12: Examples of W1/2 Use in this reporting period (2019)

Please give specific examples, one per row (including through set aside strategic research funds or partner funds)	Select broad area of use of W1/2 from the categories below– - (drop down) Select only one category.
W1/W2 funding allowed follow-up research on performance of REDD+ projects. In the Global Comparative REDD+ Study a baseline and two consecutive points in time had been sampled, but a re-evaluation needed due to global delays in REDD+ implementation could be completed in 2019.	Research /MELIA
W1/W2 funding allowed collecting specific data on bamboo suitability as biofuel in Ghana, Ethiopia and Brazil.	Research
W1/W2 funding allowed setting up a country website for Honduras on terra-l, the forest monitoring tool developed by FTA and already in use for monitoring in Peru and Vietnam.	Capacity development / partnership
W1/W2 funding allowed intensifying research on biofuel crop production systems in Indonesia as a way to re-integrate degraded land into more productive use and provide livelihoods to local people. There is large interest in small communities as well as in private energy companies in the country.	Research / partnership / delivery
FTA hosted workshop with CBD delegates and gender experts to inform gender mainstreaming in CBD post-2020 framework	Policy
Establishing Gender Constituency at GLF	Partnerships
Providing training to country teams for FAO-IUCN's large-scale Global Environment Facility (GEF)-funded 'The Restoration Initiative' (TRI) project on gender-responsive restoration.	Capacity development
FTA makes expert contribution at the inception workshop of the Rome-Based Agencies' joint project on Gender Transformative Approaches FTA presents as panelist at Committee on World Food Security (CFS)-46 side-event on 'Understanding gender-transformative approaches: A research perspective'	Other cross-cutting issues: gender

Two regional workshops on prioritization, conservation and use of Forest Genetic Resources in Sub-Saharan Africa and Asia: for strengthening tree seed systems.	Policy
Species distribution modelling with climate suitability and species selection, a collaboration between FTA FP1 and CCAFS on the future of Coffee and Cocoa in agroforestry in Mesoamerica in Nature Scientific reports. https://doi.org/10.1038/s41598-019-45491-7 .	Research
Four publications providing reference genomes of six species were put in public domain in the GigaScience Database by FP1, https://doi.org/10.1007/s00425-019-03156-9 . The sequence data will enable development of SNP platforms to facilitate breeding of nutritious orphan crop species.	Research
To further support breeding of nutritious orphan crop species, an additional 36 senior breeders acquired capacity through the African Plant Breeding Academy to use genomic information in their national breeding plans.	Capacity development
A new public-private partnership with AAK and FP1 working directly with Shea communities in the Sahel has been set up with an ambition to ensure sustainability for the Shea value chains. Besides management of the natural resource, infrastructure for ensuing breeding of improved Shea varieties has been put in place.	Partnerships
To ensure that agriculture is nutrition sensitive, a Priority Food Tree and Crop Food Composition Database https://doi.org/10.34725/DVN/FIPP7F and a user-Guide http://old.worldagroforestry.org/downloads/Publications/PDFS/B17984.pdf has been developed by FP1 and FP4 to support the portfolio approach - methodology for providing year-round micronutrients to smallholder farmers by mainstreaming African orphan crops into food systems for nutrition https://doi.org/10.1007/s12571-019-00970-7	Research
A new version of the one-stop Agroforestry Species Switchboard, with most current information from different databases has been availed by FP1, http://www.worldagroforestry.org/output/agroforestry-species-switchboard-20-synthesis-information-sources-support-tree-research-and .	Delivery
The expansion and re-development of Diversity4Restoration tool to support supply of high-quality site-appropriate tree-planting material to growers is now in the public domain for stakeholders wanting to undertake restoration work.	Delivery
Nepal Agroforestry Policy that was launched in June 2019. FTA with the use of W1/2 funds contributed to its development in the last 3 years. Implementation planning work is envisaged.	Policy
The Book Agroforestry in its Fifth Decade is a brilliant example of W1/W2 work across FP1,FP2 and FP4. It summarizes research on agroforestry in the last forty years.	Research

Contribution to the preparation of overall synthesis reports for global science-policy processes (HLPE report on agroecological and other innovative approaches, background paper for the Commission on Adaptation)	Policy
PhD scholarship support for gender transformative research associated with development of restoration options	Research
FP2 consultant and partnership funding to interface APSIM (globally calibrated crop models) and Similie (intuitive livelihood trajectory modelling environment)	Research and Partnerships
Work on innovating finance for sustainable landscapes, including the preparation of a study on “Scaling of innovative finance for sustainable landscapes”, an eDialogue and an event in the GLF in Luxembourg.	Research
Partnering with the International Rubber Study Group (IRSG) and the Global Platform for Sustainable Natural Rubber (GPSNR) on sustainable development of natural rubber.	Partnerships
Windows 1 and 2 allowed specific work across FTA on methods and approaches to assess the impact of Natural Resources Management and Policy oriented research, including the organization in November 2019 of a dedicated workshop.	MELIA

Table 13: CRP Financial Report

	Planned budget 2019 FINAL ALLOCATIONS				Actual expenditure 2019*				Difference			
	W1/2	W3/B	Center Fund	Total	W1/2	W3/B	Center Fund	Total	W1/2	W3/bilateral	Center Fund	Total
FP1	1.011.250	8.725.283	-	9.736.533	1.065.543	14.451.138	1.030.501	16.547.182	(54.293)	(5.725.854)	(1.030.501)	(6.810.648)
FP2	1.186.000	13.948.400	-	15.134.400	1.048.150	12.864.998	16.573	13.929.721	137.850	1.083.402	(16.573)	1.204.679
FP3	1.217.750	9.198.569	-	10.416.319	1.342.384	10.650.428	340.074	12.332.887	(124.634)	(1.451.859)	(340.074)	(1.916.568)
FP4	1.059.000	12.467.642	-	13.526.642	872.027	11.138.186	138.824	12.149.037	186.973	1.329.455	(138.824)	1.377.605
FP5	982.500	12.628.573	-	13.611.073	918.075	10.702.389	555.972	12.176.437	64.425	1.926.184	(555.972)	1.434.636
FTA Management & Support Cost**	3.278.795	2.832.275	-	6.111.070	3.244.108	(23)	131.738	3.375.823	34.687	2.832.298	(131.738)	2.735.247
FTA Total	8.735.295	59.800.742	-	68.536.037	8.490.288	59.807.116	2.213.682	70.511.086	245.007	(6.374)	(2.213.682)	(1.975.049)

* Source: Audited lead Center financial report

** CRP management and support include FTA management, communication, data, MELIA and integrative activities (e.g. cross-FP, cross CRP)

Annex 1: Criteria for W1+2 prioritization and adjustments

Compulsory criteria (Quality of research for development), critical for integration of bilateral projects and for W1+2 funds:

1. **Relevance:** The proposed work is aligned to the priorities of the CRP as defined in the priority setting process. It addresses one/several key research gaps as identified in the priority setting process. The proposed work targets one or several specific development demand(s) or goal(s) fulfilling stakeholder's needs
2. **Scientific credibility:** The proposed work clearly explains the scientific rationale, research question(s) and methods, giving confidence that research findings will be novel, robust and scientifically trustworthy.
3. **Legitimacy:** The proposed work clearly explains how the work will take account of and reflect stakeholders' perspectives and values. Research is done in contact with beneficiaries and stakeholders are involved from the framing of questions to the design of research and solutions.
4. **Comparative advantage:** The partner has a comparative advantage in undertaking the work proposal, with available internal competencies. Data is available and the proposed work appropriately leverages and builds upon on previous work etc.

Prioritization criteria specific to W1-2 funded research

5. **Past delivery performance:** Delayed delivery of W1+2 funded outputs in 2019 is considered negatively in the priorities' adjustments. This is based on a check of the FTA "traffic light report" and end-of-year delivery estimates by priorities.
6. **Gender:** A specific attention to gender is warranted and the overall gender CCT budget is ring fenced in 2019 at a minimum of the 2018 level USD 700,000. This envelope includes a range of gender activities integrated in the operational priorities, as well as the operational priority on gender priority.
7. **Promising areas of work:** The importance of W1+2 funding was considered to support some promising areas of work.
8. **Effectiveness and contribution to impact:** The proposed work contributes to FTA ToC in a catalytic way. The work is deliberately and convincingly positioned to contribute to significant outcomes, with high potential to contribute to development objectives and impact.
9. **Contribution to IPGs:** The proposed work has high potential to develop methods and/or new knowledge that will have international public goods value.
10. **Strategic value:** The proposed work has high potential to add value at the FTA Program-level and contributes to strategically orient research, including bilaterally funded work, to help realize the FTA ToC.
11. **Program growth:** The proposed work has high potential to contribute to the growth of FTA through developing and strengthening partnerships, generating additional program development opportunities.
12. **Vertical, horizontal and/or temporal Integration.** The proposed work (i) feeds or has potential to feed into other flagships and research areas and for bringing coherence in methodological approaches, such as enabling the creation of extrapolation domains; and/or (ii) promotes continuity of action along the research to development continuum in FTA's impact pathways; and/or (iii) *contains* programmatic learning, extends projects' scientific and development relevance beyond their completion.

Annex 2: Detailed description of FPs progress.

FP1 Tree genetic resources (TGR) to bridge production gaps and promote resilience

FP1 produced over 100 outputs thereby progressing significantly towards the program outcomes. The outputs produced contribute to one or more of FP1 priorities (Restoration, Biodiversity and Safe-guarding Diversity, Orphan crops, Nutrition, and Seed Delivery).

With respect to outcome on adoption of methods, tools and practices to mitigate threats to valuable TGR while implementing suitable safeguarding strategies in line with international initiatives and distribution maps of 65 native Asian species were finalised. 20 studies on screening of diversity with recommendations and measures for maintenance i.e. safeguarding/conservation and evaluation have been undertaken and published. Some key highlights contributing to this outcome are: 1. Two regional workshops on prioritization, conservation and use of Forest Genetic Resources in Sub-Saharan Africa and Asia for strengthening tree seed systems; 2. Guideline for genetic conservation units were completed through [6 studies](#) 3. Species distribution modelling with climate suitability and species selection, a collaboration between FTA and CCAFS on the future of Coffee and Cocoa in agroforestry in Mesoamerica in [Nature Scientific reports](#).

With respect to the outcome addressing cost-effective domestication approaches for priority tree species for agriculture and horticulture, deliverables from collaborations between AOCC and the Gene Bank Platform have contributed to knowledge that supports diversification of food systems through integrating nutrient rich orphan crops into current food systems. More than 20 studies/datasets on characterization of priority species; seven studies on cultivar development; three studies related to business model development were produced. Four publications providing reference genomes of six species are in the public domain in the GigaScience Database. The sequence data will enable the development of SNP⁴ platforms to facilitate breeding of nutritious orphan crop species. To further support this initiative, an additional 36 senior breeders acquired capacity through the African Plant Breeding Academy to use genomic information in their national breeding plans. To bring global awareness to the importance of orphan crops in food systems, a high-level article was published: [Delivering perennial new and orphan crops for resilient and nutritious farming systems, breeders views and the role of genetics](#) in the journal New Phytologist, 2019. A new public-private partnership with AAK working directly with shea communities in the Sahel has been set up with the ambition to ensure sustainability for the shea value chains. Besides management of the natural resource, infrastructure for ensuing breeding of improved shea varieties has been put in place. To ensure that agriculture is nutrition sensitive, a [Priority Food Tree and Crop Food Composition Database](#) and a [user-Guide](#) has been developed to support the portfolio approach - methodology for providing year-round micronutrients to smallholder farmers by mainstreaming African orphan crops into food systems for nutrition ([link](#)).

To support national governments, extension services and private partners adopt cost-effective and equitable tree-planting material delivery approaches, a National Tree Seed Network was established in Ethiopia. In addition, six studies on seed delivery and mass breeding; two studies on habitat suitability; 9 of 150 maps (for 2020); a design of a climate change atlas for Africa (documented in three presentations/posters); six research and communication software packages; three guidelines on good planting material (a general

⁴ SNP is genomic standard speak pronounced 'snip', rarely spelled out. But it is single nucleotide polymorphism, which is a substitution of a nucleotide on the genome, so an expression of genetic variation.

one for India and two species specific ones for Africa) were developed and put in public domain. Attention to appropriate international and national policies governing material transfer/use agreements was further supported through an ICRAF Tree Genetic Resources Policy that was published and shared with regions for use with partners. A new version of the one-stop Agroforestry Species Switchboard, with most current information from different databases has also been made available. Four studies related to indicator development; and contributions to the European process of indicator development -eventually with global relevance – were produced.

The expansion and re-development of Diversity4Restoration tool to support supply of high-quality site-appropriate tree-planting material to growers is now in the public domain for stakeholders wanting to undertake restoration work. In Ethiopia, 14 Breeding Seed Orchards of 7 species have been established, with a further 13 of 8 species under development in 2019/20. In addition, 80 seed sources have been described and registered; the Breeding Seed Orchards and these seed sources are direct support to the national government of Ethiopia for its conservation and restoration needs. To further support national governments in their adaptation and mitigation objectives including tree planting, climate change analysis and analysis focusing on monthly moisture index and potential evapotranspiration changes were made or initiated for several countries, including Sri Lanka which contributed significantly in mobilizing a USD 50 m GCF grant for Sri Lanka in collaboration with IUCN and the Government of Sri Lanka. Similar analysis has been undertaken for Rwanda where a GCF grant is envisaged with the government and IUCN.

FP2 Livelihood systems

Priority 14 Agroecology

FP2 led the project team on ‘agroecological and other innovative approaches for sustainable agriculture and food systems that enhance food security and nutrition’ for the High Level Panel of Experts (HLPE) of the UN Committee on World Food Security (CFS). The report and its recommendations were well received by delegates when launched at the 46th CFS in October in Rome and they have been accepted as the basis of the ensuing international policy convergence process. FP2 was also commissioned to develop a background paper for the Global Commission on Adaptation (GCA) on the contribution of agroecological approaches to realizing climate-resilient agriculture. This was successful in getting agroecology incorporated within the overall GCA flagship report launched in September 2019 that sets out a program for governments and businesses to take urgent action to advance climate adaptation solutions in the light of new research findings. Commitments include expanding access for at least 60 million small-scale producers to agroecological practices. These reports emphasize the importance of the options by context (OxC) approach for matching solutions to farmer circumstances, pioneered by FP2, widely adopted by other organizations, and now recognized in a journal article headlining a special issue of *Experimental Agriculture* on OxC, as a paradigm shift in agronomy. Presentations featuring successes in using OxC to accelerate major scaling-up initiatives in agroforestry were made by FP2 at the 2019 Global Soil Week in Nairobi in May, a side event at the United Nations Convention to Combat Desertification COP14 in Delhi on 3rd September and at the Global Landscapes Forum on 29th September in New York as part of the UN Climate Week on resetting the restoration agenda.

PR 2 Plantations and tree crop commodities

FP2 published key results showing that selected companion trees grown with coffee can rapidly (within four years) contribute to preserving and/or restoring soil quality (10% higher soil organic matter and 64% more abundant beneficial soil microorganisms), without reducing coffee yield. This has direct relevance to over 120 thousand ha of intensively grown coffee in China subject to soil degradation where the research was conducted. *Bischofia javanica* and *Jacaranda mimosifolia* improved soil quality without reduction in coffee yield while *Cinnamomum camphora*, economically important itself, was associated with lower coffee yields consistent with below ground competition for nutrients and water. Barry Callebaut one of the world's largest cocoa buyers has adopted FP2's options by context approach as the foundation of its new position on cocoa agroforestry following a keynote presentation invited by GIZ at a conference on how agroforestry can address opportunities and limitations in the cocoa sector at the Chocolate Museum in Cologne on 26th June. FP2 published results showing that oil palm farmers in Brazil had great interest in diversification because of greater resilience to market risks and fluctuations; greater ability to adapt to climate change; optimization of the use of scarce labour and land (particularly when oil palm is in the juvenile, unproductive phase); enhanced food security through integration of food crops; and soil improvement.

PR 13 Farm-forest policy interface

In a new FP2 initiative, an FTA scientist embedded in the agriculture ministry in Ethiopia facilitated drafting of a national agroforestry development strategy based on FTA research findings and its regional implementation through constituting a National Watershed and Agroforestry Multistakeholder Platform (terms of reference following a stakeholder workshop have been tabled for ministerial approval). A policy brief on analysis of policy gaps and opportunities for scaling agroforestry across eight countries in sub-Saharan Africa was released and a national agroforestry policy, that ICRAF was involved in developing, was launched in Nepal. FP2 initiated a planned comparison of the impact of using an options by context approach to regionally implement a national agroforestry concession policy in the Peruvian Amazon.

PR 12 Market-based agroforestry -forestry

Technical manuals on the establishment and performance of seven market-based agroforestry options for sloping land in North-West Vietnam were released based on trial results over the past five years and a land degradation surveillance framework (LDSF) survey completed to enable tracking of impact on erosion prevalence at provincial level from satellite image analysis. This is coupled with six exemplar landscapes across three provinces that are acting as conduits for policy formulation as well as centres from which agroforestry options are spreading through farmer co-operatives. Fact sheets on four options for improving market-based agroforestry and forestry through developing non-timber forest products were released in Indonesia. FP2 published key results on overcoming challenges to involving young people in food value chain development initiatives in Uganda.

PR 15 Livelihood trajectory modelling and assessment

The capability to combine globally calibrated APSIM crop models with livelihood trajectory models in the Simile participatory modelling environment was developed and used to look at impacts of increasing tree cover on farms in Ethiopia on incomes, soil and crop productivity and carbon storage.

PR 11 Silvopastoral Systems

The impact on cattle ranchers of dry season cattle grazing as a silvopastoral systems option was documented in Central America.

FP3 Sustainable value chains and investments

P16: Inclusive finance and business models (led by CIFOR)

Companies across Tanzania, Ghana and Peru that are leading inclusive business initiatives participated in community engagement and results feedback workshops on their business model performance. At least five companies voiced commitment to exploring options for addressing performance issues and further collaborate with FTA in 2020/21 to examine and pilot business model innovation and scaling opportunities. Also, 1410 households across the three countries were surveyed on the livelihood and broader environmental and social impacts of inclusive business model participation. This helped identify novel impact pathways not previously evaluated in impact assessments; demonstrating how more meaningful participation helps alleviate poverty much more holistically than popularly assumed. Findings do highlight environmental externalities that can be more proactively managed by both businesses and other actors in the value network. These findings will contribute to more widespread use of impact assessment methods and analytical tools that account for multi-dimensional wellbeing and externalities.

P17: Innovating finance for sustainable landscapes (led by Tropenbos)

Internationally, interviews, a GLF presentation and GLF digital summits have received widespread attention, while pilot implementation of the Landscape Financial Flow Analysis Tool initiated discussions on the impacts of financial flows on their landscapes. Common barriers to inclusive finance have been identified. This was done through a consultative process that included a literature study, a series of internationally well received interviews, as well as an electronic dialogue and subsequent digital and face-to-face expert panel discussions which received attention from international NGOs, CSOs and investors. A dialogue on steps forward has been initiated. Two of the steps forward that have been initiated include a draft strategy to address financial literacy and a draft framework to assess smallholder farmer risks and their influence on investments. The drafts have been produced for further discussion and follow-up action. These will help create the enabling environment for reaching the end of program outcomes of the Flagship and helps establish the role of the FTA in a field where it previously had not been active.

P18: Public and private commitments to zero deforestation (led by CIRAD)

[A policy brief](#) was published highlighting several weaknesses in FSC standard implementation and making recommendations regarding improvements to indicators and audit rules. CIRAD received a letter from the French Secretary of State of the Ministry of Ecological and Solidarity Transition, attesting to the relevance of the recommendations in the current SNDI process (National Strategy for the prevention of imported deforestation). The results were also disseminated at IUFRO Curitiba Brazil (Nov 2019) within a session with a strong participation by FSC stakeholders.

Several consultations and focus group discussions with local stakeholders of P18 case studies were performed to identify the remaining bottlenecks of current arrangements and

the different perspectives to upgrade, upscale and monitor arrangements and zero-deforestation commitments. Finally, the year 2019 was particularly productive regarding engagement of local stakeholders in two P18 case studies. Paragominas mayor (Brazil) has been invited in Madrid by the French Embassy, with P18 coordinator of this case study, to present its upgrading plan beyond zero deforestation commitments. Moreover, both Guaviare (Colombia) and Paragominas (Brazil) have been selected by AFD (French Agency for Development) as territories of the Amazonian biome that will receive financial support for the implementation of their territorial policies to combat deforestation and promote transition to a development model combining social development, low-carbon economic development and biodiversity conservation (2020-2024).

P02: Plantations and tree crop commodities (led by CIFOR)

In 2019 FTA FP3, through CIFOR, became a member of the International Rubber Study Group (IRSG) and the Global Platform for Sustainable Natural Rubber (GPSNR). As part of the work towards a first ever global comparative analysis of rubber smallholders, scientists participated in five workshops with rubber smallholders, traders, remillers and product manufacturers in Thailand, Indonesia, Vietnam, Cote d'Ivoire and Brazil. The results will be presented at the GPSNR General Assembly in 2020 and contribute towards an international sustainability standard for sustainable natural rubber.

P20: Effectiveness of approaches to sustainable supply (led by CIRAD)

A change of orientation was observed to occur in the Cameroon Ministry of Agriculture, which has adopted a mix of public and private governance approaches and tools to promote legal and sustainable cocoa for European markets. That was the main lesson of a workshop in Douala and the change of orientation was confirmed when the economic analysis of the cocoa value chain was presented in Yaoundé.

FP4 Landscape dynamics, productivity and resilience

FP4 continued to make progress towards attaining the vision of effective multifunctional landscapes with trees in 2019, focusing on a number of key research areas. Work on landscape **restoration (priority 1)** focused on synthesizing 40 years of research in agroforestry in a book titled [Agroforestry in its fifth decade](#)". The book summarizes research across multiple disciplines- including tree science, trees and livelihoods, agroforestry systems, agroforestry and agroecosystems, ecosystem services, economics, policies and more. The book was launched at the World Agroforestry Congress in Montpellier in May 2019 and received tremendous recognition. [FTA Scientists also contributed to chapter 2 \(drivers\) and the Asia Pacific regional assessment reports of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services published in 2019](#). A special feature was finalized in Ecology and Society journal reviewing [Twenty Years of Community Forestry in Cameroon](#).

The ecosystems-based adaptation project in the Gambia supported 49 community forests in the development of viable and sustainable enterprises ([see link](#)) and invested significantly in the restoration and protection of 1400 ha of degraded protected areas using assisted natural regeneration and different fire management techniques ([see link](#)). Initial results showed the interventions implemented in the landscapes prevented bush fire from damaging

forest in the park and surrounding land uses and covers, first time this is achieved in over a decade. This control of fire also helped the seedlings and saplings of the tree species in the forests to thrive and hence expected to enrich the vegetation conditions and habitat value of the forest for biodiversity. The project has also developed a comprehensive EbA monitoring platform ([See link](#)) that serves as a go to point for impact assessment of the project activities.

In terms of **tree commodities (priority 2)** work continued on landscapes and ecosystems services in FP4. Work began on synthesizing research on tree commodities in Africa into a book to be published in 2020. The book addresses agronomic, economic, environmental and social dimensions for a select group of major tree commodities on the continent, including cocoa, coffee, oil palm, timber, shea and cashew mainly. 20 Chapter outlines were developed during a workshop held in Kigali, Rwanda in September. Progress has been made on many of these chapters with a view to publication in 2020. Two manuscripts have also been completed on ecosystems services in cocoa and coffee systems respectively.

Within **the nutrition and food security priority (priority 3)**, work was done on the state of biodiversity and the sustainable intensification of food production as part of a thematic study with the Food and Agricultural Organization, but also more broadly between intensification, dietary diversity and markets. More specific linkages were addressed in studies between consumption patterns of forest foods, freshwater fish and the state of forests in Nigeria, Cameroon and Indonesia. Some more specific gender disaggregated analysis in Uganda and Kenya regarded knowledge on food trees for food security and nutrition.

In the area of **landscape governance (priority 9)** emphasis has been on policy support, subnational level landscape governance mechanisms, and performance-based finance mechanisms for restoration: With regards to *policy*, an [Agroforestry Policy for Nepal](#) was launched in mid-2019 following extensive support to the government by ICRAF and partners since 2015. At regional level, policy and technical support work continued for the development of an agroforestry guidelines for the Association of South-East Asian Nations-ASEAN. *Sub-national level land governance* work featured three dimensions: (i) Sub-national level green growth planning work continued in Indonesia and Vietnam. (ii) Innovative work has also been done on the migration-environment nexus with conceptual and practical work in the East Africa context ([see links](#)). And (iii) analysis started on results of four years of *performance-based finance* experiments in 34 community forest enterprises in Cameroon within the DFID financed [Dryad](#) ([see Joint Enterprise Concept](#)) focusing on performance and lessons. These enterprises are benefitting about 36000 people in these communities, creating about 500 Jobs so far following direct investments of about 1 Million USD in the enterprise portfolio. Papers are being developed around the de-risking dimensions of community enterprise, community capacity, intermediary support institutional capacity and potential for scaling-up the experiences of performance-based finance going forward.

For **Sentinel Landscapes work (priority 22)** the focus has been on finalizing the stock-take reports for three sentinel landscapes- Nicaragua-Honduras, Cameroon (CAFHUT) and Borneo, Indonesia. Synthesis of the three reports is ongoing as well as the development of a portfolio approach to sentinel landscapes.

Tremendous capacity building was undertaken in 2019. 869 individuals (557M / 312 F) were trained in more than 150 sessions of training in various disciplines, practices and subjects including: restoration, information platforms, Geographic information Systems, Ecosystem-Based Adaptation, sustainable management of natural resources and production techniques of some nature based enterprises, basic management and book keeping, conflict

management, value chain and market research. Several interns, MSc and PhD research students were also engaged.

FP5 Climate change mitigation and adaptation

FP5 progressed well in 2019, with on average 75% of all deliverables budgeted under T1/T2 completed (about 25% of the original deliverables under T3 were not funded). Publications, briefs, toolboxes and training and information events were made available to stakeholders and partners developing outcomes for forests and agroforestry and peatlands/mangroves in mitigation, adaptation, and bioenergy. The highlights are a number of products related to REDD+, mangrove protection and management, bamboo water management, bioenergy, ecosystem-based adaptation, and training and information sharing, notably at [COP25](#) in Madrid. Regions that saw a lot of activity in 2019 were Ethiopia (REDD+ workshop), Honduras (terra-I data set and specific web page; livestock NAMAs), Indonesia (bioenergy and REDD+), The Gambia (REDD+; adaptation), and Vietnam (FLR, mangroves, REDD+; with many products in Vietnamese, accessible to local users). There are no course corrections, as the missing deliverables are on track for delivery in 2020.

To summarize work by priorities, Priority 5 produced several key publications and advanced on providing policy advice and supporting national policy design in REDD+, PFES and NAMAs, and the inclusion of forests and forested landscapes in NDCs, in several countries and regions. Priority 6 continues making progress in both field experimentation and demonstration of innovative options to produce sustainable bioenergy and in providing policy support, above all in Africa and Indonesia. Priority 7 focuses on advancing peatland research as basis for policy making. Both Peatlands and the concept of Blue Carbon are getting more attention from policy makers thanks to FTA research and dissemination activities. The International Tropical Peatland Center (ITPC) continued to be supported by FTA. Priority 8 continued producing analytical and practical work on adaptation in the context of ecosystem-based adaptation and linking adaptation to mitigation. Highlights this year were on bamboo and advances in developing detailed, regionalized practical guides on ecosystem-based adaptation in The Gambia.

The 2019 highlights are detailed by priority in the following sections.

Priority 5: NDCs

Priority 5 produced several key publications and advanced on providing policy advice and supporting national policy design in REDD+, PFES and NAMAs, and the inclusion of forests and forested landscapes in NDCs, in several countries and regions.

Three documents analyzing NAMA's in the Nicaragua-Honduras sentinel landscape represent reviews of the governance, financing, and technical aspects schemes of advanced livestock NAMA initiatives in Latin America. These documents also discuss these NAMAs' integration into national strategies and propose a sustainable governance scheme and some key aspects to design a knowledge management mechanism that encourage the transfer of knowledge and communication between the actors involved in the NAMA. See the portal: <https://paisajecentinela.org/NicaraguaHonduras/>.

Priority 5 funding contributed to the preparation of a chapter on the impacts of SDG 13 on forests and people, presented at the IUFRO conference in Curitiba in September. [A book was later made available online.](#)

Under P5, we launched the book “[Transforming REDD+](#)” in its Spanish version at a press conference at COP25 in Madrid. It summarizes ten years of REDD+ research.

A “[Manual for Bamboo Forest Biomass and Carbon Assessment](#)” was published and disseminated to different audiences via regional [workshops, trainings and meetings](#).

In Vietnam, FTA funding for research on REDD+ policies produced 3 journal articles, 7 occasional papers, 1 working paper, 2 infobriefs, and 1 toolbox, responding to national needs and priorities to incorporate scientific evidence in forestry policies decision making. In particular, FTA funding provided technical support to the Ministry of Agriculture and Rural Development (MARD) to develop the Vietnam Forestry Development Strategy 2021- 2030.

Several of the background papers were produced upon direct request from MARD ([background paper on global forestry outlook](#), two on the analysis of opportunities and challenges for funding mangrove protection and development in Vietnam, available [here](#) and [here](#)). CIFOR implementing FP5 is the only international organization invited by MARD into the national task force. Vietnam is the first country in Asia to implement a national scheme on Payment for Forest Environmental Services (PFES), and FP5 has actively engaged in supporting MARD in designing, monitoring and refining its PFES policy implementation. Capacity building for 22 government staff in monitoring PFES impact has been conducted in 3 provinces (Dak Lak, Dong Nai and Thua Thien Hue). Previous FTA work on piloting M&E system for PFES in Son La Province was taken up by USAID to further refine and scale it out in other provinces (Lam Dong, Thanh Hoa and Son La). A policy learning tool on PFES was published to provide suggestions for policy makers and government officers who need to carry out M&E and report on the progress and [impact of Payment for Forest Environmental Services](#). Vietnam also aims to broaden the scope of PFES through exploring new environmental services such as carbon offset. Together with MARD experts, CIFOR and MARD have jointly produced a [critical analysis on opportunities and challenges to implement PFES scheme for this option](#).

In seven landscapes across three continents (Ghana, DRC, Vietnam, Indonesia, Suriname, Bolivia and Colombia) work has begun to develop landscape governance and management practices that will promote the use of trees and forests within the landscape to address implementation issues of existing NDCs and provide suggestions for increasing the role of trees and forests within the national NDCs. This five-year program will contribute to increased ambition within the 2025 NDCs on both mitigation and adaptation targets within the AFOLU sector.

Priority 5 has also contributed significantly to capacity development of researchers and NGO practitioners from the African, Caribbean and Pacific Groups of States. [Representatives of over 10 countries attended a special training session on how trees on farms can help fulfil countries’ commitments to the Paris Agreement](#). A training module developed for the event is currently being developed into a technical report that will soon be available for wider use. The training event was organized under FP5 by the World Agroforestry Centre with support of the CTA.

Priority 6: Bioenergy

FP5 Priority 6 continues making progress in both field experimentation and demonstration of innovative options to produce sustainable bioenergy and in providing policy support, above all in Africa and Indonesia.

[INBAR and FTA convened a regional workshop on “Using Bamboo for Sustainable Renewable Energy Production in West Africa” in Accra, Ghana \(November 2019\)](#) to provide

a platform for scientists, policy makers, entrepreneurs, policy experts, natural resource managers, and renewable energy experts from Cameroon, Ethiopia, Ghana, Madagascar, Nigeria, Senegal and Togo to deliberate on the potential of bamboo as a critical resource for producing clean energy to drive economic growth, rural livelihoods and environmental sustainability. A Proceedings Report on Bamboo Bioenergy in West Africa and two policy briefs - one on bamboo pellets and one on bamboo charcoal – were produced. In Kenya, two percent of the land - especially drylands - are occupied by the invasive tree *Prosopis juliflora* with about 37 million tonnes of biomass suitable for charcoal production. In 2019, ICRAF in partnership with Baringo County Government, Kenya Forestry Research Institute (KEFRI), Kenya Forest Services (KFS) and Adventist Development and Relief Agency (ADRA) conducted a co-learning training among 11 women and 21 men on sustainable charcoal production through management and utilization of *Prosopis*. In Cameroon, the ICRAF team organized an expert workshop to discuss and forge ways of making charcoal production more sustainable by improving production efficiencies.

Woodfuel is the main source of energy for cooking for over 60% of households in Sub-Saharan Africa, contributing to the food security and nutritional needs of millions of people. A farmer-to-farmer capacity development initiative trained a key group of farmers who will transfer the knowledge and skills to 150 fellow charcoal producers. Improved sourcing of wood and efficient carbonization of wood into charcoal using improved kilns will contribute to controlling bush encroachment, reduced cutting of native tree species hence maintaining carbon sinks, enhanced ecosystems services including biodiversity, resilient livelihoods and supply of sustainably produced charcoal. After the training, farmers used the improved kilns and data was collected to measure the charcoal yield and emissions that will be applied in assessing climate impacts and other benefits towards improving wellbeing. This work is being carried out under the Governing Multifunctional Landscapes (GML) funded by the European Union (EU) and implemented by CIFOR in partnership with FAO, ICRAF and ADRA in Kenya, as well as other partners in Cameroon, DRC and Zambia, see portal: <https://www.cifor.org/gml/sustainable-woodfuel/>.

A significant body of knowledge is being developed on ensuring sustainability in the bioenergy sector in Africa to start a national and continental discourse on including sustainable supply options rather than trying to eliminate the use of biomass for energy generation. The main bottleneck to-date is the lack of significant interdependence of the energy sector with other sectors. Analysis is under revision now to support sustainable planning in the energy sector. This will be of significant policy effect as most of the African population is still highly dependent on biomass resources both for cooking and heating. Another innovative study is an assessment of the potentials of biowaste as potential energy sources to reduce forest exploitation in Kenya; with a paper currently under internal review to be submitted for journal publication.

In Indonesia, we are [evaluating a wide variety of bioenergy crops on degraded and underutilized land](#) as an alternative solution to meet the requirements for energy security, food security, and landscape restoration goals. We have [assessed landowner's perception and the requirement for utilization of degraded land for biofuel production](#). Our findings are [disseminated in national and international forums such as the Global Landscapes Forum](#).

Priority 7: Blue carbon/peatlands

Priority 7 focuses on advancing peatland research as basis for policy making. Both Peatlands and the concept of Blue Carbon are getting more attention from policy makers thanks to FTA research and dissemination activities. The International Tropical Peatland Center (ITPC) continued to be supported by FTA.

The research team published a number of significant findings over the course of the year. We published a proof of concept paper linking soil respiration and water table depth in tropical peatlands with remotely sensed changes in water storage. The United States National Aeronautics and Space Program (NASA) Gravity Recovery and Climate Experiment (GRACE) provides spaceborne observations of monthly changes in the Earth's gravity field that can be related to fluctuations in water storage by terrestrial ecosystems and methane emission from wetlands. The use of GRACE Terrestrial Water Storage Anomaly (TWSA) data has never been tested for assessing changes in water storage in tropical peatlands. We assessed the potential for GRACE to provide a new tool for predicting spatio-temporal variations in water table depth and soil moisture and support the monitoring of variables contributing to peat CO₂ losses, in particular soil respiration. This would enable better targeting of actions and more effective mitigation of CO₂ emissions from tropical peat drainage and fires. The next step requires testing over larger regions to operationalize this exploratory approach.

Most research at the moment looks at deforestation as a driver of CO₂ emissions from peatlands and the climate drivers that exacerbate emissions are largely ignored. We published the results from our monthly measurements of total soil respiration in forest and smallholder oil palm plantations on peat in Central Kalimantan. The interesting new finding is in the stronger response of total soil respiration to extreme drought in the forest, which indicates the importance of the climate regime in determining future net carbon (C) emissions from these ecosystems. Future warming and increased intensity of seasonal drying may increase C emissions from Indonesian peatlands, regardless of land-use.

FTA scientists have been working on the effects of ecosystem degradation in peatlands outside Southeast Asia for several years and previous findings showed that as much as 70% of the *Mauritia flexuosa* palm forests on peat soils in the Pastaza Marañon region of Peru are degraded. In 2019, we published new findings that show how recurrent *M. flexuosa* harvesting result in a significant increase of in situ CO₂ fluxes and a simultaneous decrease in CH₄ emissions via the change in abundance of pneumatophores. These changes will alter long-term carbon and GHG balances of the peat and affect the role of these ecosystems in climate regulation and climate change mitigation, which shows the need for their protection and restoration.

Work on South American wetlands mapping is ongoing in Colombia. In 2019, field work in the flooded llanos was completed to support the development of a new expert system model to map soil carbon across Casanare Department. The data and the mapping exercise that will be complete in 2020 will allow us to improve the tropical peatlands map.

[A three-day regional and national workshop on Blue Carbon](#) brought policymakers, NGOs, and scientists from 14 Asia-Pacific countries to discuss opportunities and constraints to include Blue Carbon in national climate change policies was held in Hanoi (July 2019). [An infobrief produced](#) after this workshop is available in both English and Vietnamese. Furthermore, two national workshops on mangrove protection and development in Vietnam were also organized in Hanoi (September) and Ho Chi Minh City (December), bringing renowned scientists in Vietnam together to share their latest research findings and discuss new research methods to assess political, economic and social impacts of existing policies in Vietnam.

Priority 8: Climate Change Adaptation

Priority 8 continued producing analytical and practical work on adaptation in the context of ecosystem-based adaptation and linking adaptation to mitigation. Highlights this year were

on bamboo and advances in developing detailed, regionalized practical guides on ecosystem-based adaptation in The Gambia.

In 2019, the FP5 adaptation group published a series of more than 10 peer-reviewed publications in high impact journals (e.g. Nature Sustainability or Global Environmental Change) and 4 briefs on nature-based solutions (or ecosystem services and adaptation to climate change). Topics included ecosystem service assessment, equity and power in social relations around nature-based solutions, and issues of governance, rights and gender in nature-based solutions.

[A workshop on bamboo](#) as an important instrument for soil and water conservation was organized at the Sixth International Bamboo and Guadua Symposium ([6th SIBGUADUA](#)) held at the Central University of Ecuador Quito (October) and [workshop proceedings with the abstracts of the 47 presentations were compiled.](#)

In the Gambia, extensive work has been undertaken on ecosystem-based adaptation, involving mostly practical guides called ecosystem-based adaptation protocols that are specific to each community context. ICRAF has developed 24 such ecosystem-based adaptation protocols in partnership with the Ministry of Climate Change, Natural Resources of The Gambia. Besides, a comprehensive ecosystem-based adaptation monitoring platform has been fully developed and is now in testing phase. [A comprehensive diagnostic study including the baseline status of adaptation practices was developed for over 100 communities in The Gambia. A Working Paper was prepared.](#)

Cover photo: Forest in Yangambi - DRC. Photo by Axel Fassio/CIFOR. Back photo: Oil palm fruits. Jambi, Indonesia. Photo by Iddy Farmer/CIFOR



The CGIAR Research Program on Forests, Trees and Agroforestry (FTA) is the world's largest research for development program to enhance the role of forests, trees and agroforestry in sustainable development and food security and to address climate change. CIFOR leads FTA in partnership with Bioversity International, CATIE, CIRAD, ICRAF, INBAR and TBI.

FTA thanks all the donors who supported this research through their contribution to the CGIAR Trust Fund: cgiar.org/funders/



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