



RESEARCH
PROGRAM ON
Forests, Trees and
Agroforestry

Annual Report 2018

CGIAR Research Program on Forests,
Trees and Agroforestry (FTA)

Annual Report 2018

CGIAR Research Program on Forests, Trees and Agroforestry (FTA)

The ISC cleared version after SMO quality assurance review.

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).

Contents

Executive summary	iv
Part A: Narrative section	1
1. Key results	1
1.1 Progress towards SDGs and SLOs (Sphere of interest, with research results frequently predating the CRP)	1
1.2 CRP progress towards outputs and outcomes (Spheres of control and influence)	1
1.2.1 Overall CRP progress	1
1.2.2 Progress by flagship	4
1.2.2.1 Flagship 1 – Tree genetic resources to bridge production gaps and promote resilience	4
1.2.2.2 Flagship 2 – Livelihood systems	5
1.2.2.3 Flagship 3 – Sustainable value chains and investments	5
1.2.2.4 Flagship 4 – Landscape dynamics, productivity and resilience	6
1.2.2.5 Flagship 5 – Forests, trees and agroforestry for climate change adaptation and mitigation	6
1.2.3 Variance from planned program for this year	7
1.2.4 Altmetric and publication highlights	8
1.3 Cross-cutting dimensions (at CRP level)	9
1.3.1 Gender	9
1.3.2 Youth and other aspects of social inclusion/‘Leaving no-one behind’	10
1.3.3 Capacity development	11
1.3.4 Climate change	12
2. Effectiveness and efficiency	13
2.1 Management and governance	13
2.2 Partnerships	13
2.2.1 Highlights of external partnerships	13
2.2.2 Cross-CGIAR partnerships	14
2.3 Intellectual assets	15
2.4 Monitoring, evaluation, impact assessment and learning (MELIA)	16
2.5 Efficiency	17
2.6 Management of risks to your CRP	17
2.7 Use of W1/2 funding	18
3. Financial summary	18

Part B. Tables	20
Table 1: Evidence on progress towards SRF targets (Sphere of interest)	20
Table 2: Condensed list of policy contributions in this reporting year (Sphere of influence)	23
Table 3: List of outcome/impact case reports from this reporting year (Sphere of influence)	28
Table 4: Condensed list of innovations by stage for this reporting year	29
Table 5: Summary of status of planned outcomes and milestones (Sphere of influence-control)	32
Table 6: Numbers of peer-reviewed publications from current reporting period (Sphere of control)	43
Table 7: Key external partnerships	44
Table 8: Internal Cross-CGIAR collaborations	46
Table 9: Monitoring, evaluation, learning and impact assessment (MELIA)	48
Table 10: Update on actions taken in response to relevant evaluations	50
Table 11: Examples of W1/2 use in this reporting period (2018)	55
Table 12: CRP financial report	58
Annexes	59
Annex 1: Criteria for W1/2 prioritization and adjustments	59
Annex 2: Detailed description of flagship program progress	61

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 in 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 contributes directly to nine Sustainable Development Goals (SDGs), to all CGIAR Intermediate Development Outcomes (IDOs) and to 31 sub-IDOs with different levels of investment. FTA works across four main production systems (natural forests, plantations, pastures with trees and cropping systems with trees) with globally traded and/or locally important tree-crop commodities (e.g. timber, oil palm, rubber, coffee, cocoa, coconut, wood fuel and fruits), that form the basis of the livelihoods of hundreds of millions of smallholders.¹ It also represents an important share of land area, including 13 million km² of forests and 9.5 million km² of agricultural lands (45 percent of the total agricultural area with >10 percent tree cover).

2018 was the first year of implementation of FTA's new priority-setting. FTA has defined a set of 22 operational priorities that address, within the framework of the proposal, key development demands and knowledge gaps, oriented towards the implementation of the SDGs and the Paris Agreement on climate change, and aligned with the CGIAR Strategy and Results Framework.

2018 showed important results in all flagships. Some of them are highlighted below:

- On genetic resources, five orphan tree crop reference genomes were sequenced and published. Conservation strategies for tree genetic resources, based on conservation units, were expanded in the Asia-Pacific, Africa and Latin America.
- On nutrition, FTA is upscaling strategies in East Africa through fruit tree portfolios and the integration of new and orphan tree-based crops into food systems.
- On livelihoods and food security, based on large-scale data (1,000+ farmers) embedded in scaling-up land restoration projects across Africa, FTA demonstrated conditions under which food and energy security benefits can be obtained from innovative, carefully adapted tree-based strategies for land restoration. FTA demonstrated returns on investment in agroforestry options on [sloping land in Vietnam](#), [non-timber forest products in Indonesia](#), and trees on farms in Africa. This is now driving [national](#) and [international](#) policy reforms to promote integrated agroforestry options customized to local circumstances. FTA is also leading the writing of the [HLPE report](#) on agroecology and innovations for the UN Committee on World Food Security.
- On sustainable supply for big tree commodities, FTA developed an analytical framework to measure social and environmental outcomes of zero-deforestation commitments. FTA undertook a preliminary cost-benefit analysis of the implementation of environment, social and governance (ESG) standards in the palm oil sector in Indonesia. FTA also supported strategic land-based green growth planning in East Kalimantan in Indonesia, and completed a report on the European Union's Forest Law Enforcement, Governance and Trade (FLEGT) legality approaches for Cameroon.
- On responsible investments and access to finance, FTA developed a conceptual framework identifying the main barriers preventing access to finance for smallholders and small and medium-sized enterprises (SMEs), and devised innovative performance-based investments and financing

¹ An estimated 1.6 billion people depend in part or fully on resources from forests and trees outside forests for their livelihoods.

schemes to support sustainable community forest enterprises working with 29 community forests in Cameroon.

- On landscape restoration, FTA provided technical inputs to the Global Partnership on Forest Landscape Restoration (GPFLR). It restructured its work under three main areas: (i) practices, tools and methods; (ii) the economics of land restoration; and (iii) enabling environment, policies and governance. It initiated a partnership with the CGIAR Research Program on Water, Land and Ecosystems (WLE) and the CGIAR Research Program on Policies, Institutions and Markets (PIM), and a CG-wide stock take study, led by FTA, has been launched in 2018.
- On climate change mitigation, FTA published a landmark book “Transforming REDD+” on the future of the scheme, based on 10 years of lessons learned. It co-led the Governors’ Climate and Forests Task Force’s assessment on jurisdictional land-use sustainability in 39 provinces in 12 countries; this will ground standards for sustainability assessments at subnational levels.
- On climate change adaptation, FTA assessed the suitability of tree species under future climates, publishing an [atlas](#) for central America for key species. FTA’s novel [ecophysiological modeling of coffee’s response to climate change](#) has transformed predictions of the global extent and location of where coffee can grow in future.
- On bioenergy, FTA expanded its pilot work on biomass production in Indonesia on degraded lands, through public-private partnerships and in collaboration with Korea’s National Institute for Forestry Research (NIFOS), working *inter alia* on bamboo energy characteristics.
- On gender, FTA influenced the gender indicators for SDG13 on climate change. FTA was one of the CRPs leading GENNOVATE, a collaborative research initiative for enabling gender equality in agricultural and environmental innovation, leading several papers and building tools. FTA highlighted the importance of migration in Nepal for rural livelihoods and the diversity of women’s experiences.

FTA capacity development work is focused on key, strategic, place-based, longer term partnerships, devised to facilitate the uptake of FTA research by stakeholders (external capacity development) as well as to enable the feedback of stakeholders’ views into research design (internal capacity development). In 2018, FTA trained a total of 293 long-term trainees (48 percent women) and 10,141 short-term trainees (45 percent women).

In 2018, FTA monitoring, evaluation, learning and impact assessment (MELIA) continued to invest in a range of evaluation and impact assessment approaches, as part of a balanced strategy to investigate FTA’s influence on the need to reflect a diversity of outcome levels and types (project outcomes – both policy and practice – as well as longer term impacts).

Part A: Narrative section

1. Key results

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

FTA contributes to nine Sustainable Development Goals (SDGs), to all CGIAR Intermediate Development Outcomes (IDOs) and to 31 sub-IDOs with different levels of investment. With efforts targeted respectively at 29 percent, 33 percent and 38 percent across System Level Outcomes (SLOs) 1, 2 and 3, FTA balanced its work across four main production systems (natural forests, plantations, pastures with trees, and cropping systems with trees) dealing with a number of globally traded and/or locally important tree-crop commodities (e.g. timber, oil palm, rubber, coffee, cocoa, coconut, wood fuel, fruits), that form the basis of the livelihoods of hundreds of millions of smallholders.² These commodities also represent an important share of the land area, including 13 million km² of forests and 9.5 million km² of agricultural lands (45 percent of the total agricultural area with >10 percent tree cover).

Progress towards IDOs in 2018 resulted from FTA work on technical innovations and tools, as well as on value chains, and institutional and policy processes. These innovations were taken up and diffused by different actors and along value chains, and all were suited to their particular context. In 2018, the second year of FTA's six-year program, progress towards SLOs was aimed upstream, with some results, including from Phase 1, going into downstream engagement strategies.

1.2 CRP progress towards outputs and outcomes (Spheres of control and influence)

1.2.1 Overall CRP progress

In 2018, the following major contributions were made:

- **Contributing to IDO 1.1 – Increased resilience of the poor to climate change and other shocks**
FTA worked with the Food and Agriculture Organization of the United Nations (FAO) on a framework methodology for vulnerability assessments of forests and forest-dependent people impacted by climate change, as well as on guidelines to integrate forests and trees into national adaptation plans. Flagship Program (FP) 2 published advances in **ecophysiological modeling of coffee's response to climate change**, resulting in major updates to the projections of suitable areas for cultivation, and on how climate effects can be dealt with through management practices. This work is now informing policy and practice in East Africa, Latin America and South and Southeast Asia. FP5 is concluding a four-year study on the link between migration, financial remittances and land use, soon to provide valuable insight into how remittances affect resilience in villages where migrants come from, as requested by boundary partner, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

² An estimated 1.6 billion people depend in part or fully on resources from forests and trees outside forests for their livelihoods.

- Contributing to IDO 1.2 – Enhanced smallholder market access**

FP3, working with over 50 inclusive business proponents, identified business model design features that help enlarge smallholder access to markets, services and inputs. Market-based agroforestry options developed by FP2 for non-timber forest products (NTFPs) in Indonesia and sloping land in Vietnam, are improving market access for smallholders provincially. New global market analysis for exploiting avocado in Ethiopia, combined with capacity strengthening of propagation methods, has led to new opportunities to improve incomes from restored land in Tigray. FP2 contributed to the new national agroforestry strategy and action plan 2018-2027 to support value chain development in Rwanda. In Uganda, FP2 developed tree product value chain innovation platforms in two districts. Finally, FP3 developed a conceptual framework identifying the main barriers to accessing finance for smallholders and SMEs.
- Contributing to IDO 1.3 – Increased incomes and employment**

FP2 was involved in launching two major initiatives in India: one where the Government of Odisha is targeting 5,000 households from 140 villages in two districts of Bolangir and Nuapada, aiming to accelerate adoption of agroforestry that will generate employment and income for farmers and reduce in-country migration; the other in Andhra Pradesh where the state is investing in the promotion of zero budget natural farming to reduce indebtedness amongst farmers and increase farm incomes in environmentally sustainable ways (piloting with 500,000 households in the currently financed program, with an ambition to reach 6 million). FP5 is concluding a three-point assessment (2010, 2014 and 2018) which will provide evidence on one of the contentious issues of REDD+ – whether the scheme provides benefits to forest-dependent poor.
- Contributing to IDO 1.4 – Increased productivity**

FP1 produced decision-support tools, threat assessment maps and option value methods for the prioritization and domestication of tree genetic resources, including covering the assessment of key traits for production and positive agroecosystem interaction, documented in 19 publications and eight tool updates. This was promoted through the FAO-coordinated tree genetic resources networks in Africa, Asia, Europe and Latin America. FP1 developed methodologies, mainstreamed into a development program in Ethiopia, to guide implementation of a multi-species breeding program based on the principle of multiple population breeding; five orchards were established in 2018 and 14 are planned for 2019. FP1 also produced improved material for three priority tree species (Shea tree, Sodom apple and African baobab) for food and non-food, demonstrating value for growers in comparative trials in Kenya and China, while also genotyping the germplasm. FP2 demonstrated yield gains from soil and water conservation methods and other agroforestry options in trials involving over 6,000 farmers in Kenya, Ethiopia, Mali and Niger. Sustainable coffee agroforestry management practices combining local and scientific knowledge, developed by FP2, are being promoted across over 1 million ha worldwide.
- Contributing to IDO 2.1 – Improved diets for poor and vulnerable people**

In FP1, fruit tree portfolios targeting dietary diversity through agricultural biodiversity were upscaled in several sites in East Africa and published for further mainstreaming. The potential of mobilizing orphan crops for nutrition was highlighted with the publication of the strategy Supporting human nutrition in Africa through the integration of new and orphan crops into food systems.
- Contributing to IDO 3.1 – Natural capital enhanced and protected**

FP4 completed a study on solutions to address deforestation in the Kenya-Somalia border area. FP3 provided support for implementation of the Forest Law Enforcement, Governance and Trade (FLEGT) Voluntary Partnership Agreements (VPA) process, to the ISEAL Alliance on sustainability standards, on the social impact of timber certification, and to the Forest Stewardship Council (FSC) on ways to enhance audits. FP3 also contributed to strengthening the Indonesian Sustainable Palm Oil (ISPO) system, informing on options to improve sustainable supply. It did the same for

sustainable cocoa supply in Ghana. FP1 produced a [study of Brazil nut in Amazonia](#), revealing that the ecosystem services contribution of hyper-dominant species is more important than so far realized.

- **Contributing to IDO 3.2 – Enhanced benefits from ecosystem goods and services**

The FTA public-private partnership with Natura in Brazil developed options for oil palm diversification (including setting up field trials to test them) and published a key article on agroforestry options for [land restoration](#) across contexts in the country. In Peru, FP2 developed options for [soil fertility enhancement in cocoa](#) and [climate change adaptation in coffee](#). FP4 devised and applied in three countries (Indonesia, the Philippines and Vietnam) a specific approach to implement a refined scheme for payments for environmental services (PES) called co-investment in landscape stewardship (CIS), whereby all actors contribute and co-invest in their provision. FTA's work on bioenergy crops grown on marginal lands in Indonesia provided up-scaling insights into efficient management of degraded land, and its restoration into productive agroforestry.

- **Contributing to IDO 3.3 – More sustainably managed agroecosystems**

The Tropical Agricultural Research and Higher Education Centre (CATIE) released the [ShadeMotion 4.0 software](#) which can calculate the amount of shade cast by trees on a plot or farm, and is used as a tool for the optimal design of treed landscapes or agroecosystems. FP2 published a [novel methodology for statistical analysis of farmer knowledge about tree attributes](#) and specific studies on its application to improve smallholder coffee production systems in Rwanda and [Uganda](#), and cocoa production systems across an agroecological gradient in [Ghana](#). A [training course in knowledge acquisition](#) was held in Kenya with participants from the Democratic Republic of the Congo (DRC) and Comoros. Local knowledge was used to [structure stakeholder engagement](#) in an innovative way, to develop more diverse and inclusive agroforestry options that change knowledge, attitudes and behaviors of non-governmental organization (NGO) actors and farmers in DRC. FP2 also innovated by applying agroecological methods to an effort to control the [fall army worm epidemic in Africa, funded by Norway](#) and focused on Zambia and Malawi. It also developed [pasture rehabilitation and community-based rangeland management](#) options, promoted across Kenya and Ethiopia, reaching 83,000 people in target pastoral communities, alongside the [development of strategies for sub-national implementation of Land Degradation Neutrality](#). These were adopted by the United Nations Convention to Combat Desertification (UNCCD) and are already [influencing policy development globally](#) as they fill a key policy implementation gap by addressing fine-scale variation in local contexts. The International Network for Bamboo and Rattan (INBAR) conducted trainings on the sustainable management of bamboo.

- **Contributing to IDO A.1 – Climate change adaptation and mitigation achieved**

FP1 developed [theory and methods tools](#), and a field application on the suitability of species to current and future climate, including [an atlas for 54 species](#) in Central America in late 2017, providing a tool for species selection. FP2 demonstrated the utility of local knowledge in addressing [fine-scale variation in climate adaptation needs](#) in Africa and discriminating among agroforestry diversification options in Morocco, and other [soil management interventions](#) for different contexts across degradation gradients in Rwanda. FP5 produced the collaborative [CarboScen simulation tool](#) for stakeholders to jointly assess the carbon implications of different land-use scenarios. It published a landmark book, [Transforming REDD+](#), which focused on the future of the REDD+ scheme based on 10 years of lessons learned. It also published an [assessment on jurisdictional land-use sustainability](#) in 39 provinces in 12 countries that will ground standards for sustainability assessments at jurisdictional levels.

- **Contributing to IDO B.1 – Equity and Inclusion achieved**

FTA informed national and international processes in several domains. At the international level, a set of FTA [infobriefs](#) and an [event on gender-responsive restoration at the Global Landscapes](#)

Forum resulted in the establishment of an FTA-led Gender Constituency made up of key international stakeholders in gender and forest landscape restoration (FLR). On the Rio conventions, FTA contributed to gender mainstreaming through: (i) a submission on gender and climate change to UNFCCC’s Subsidiary Body for Implementation (SBI); (ii) an invited presentation at an **in-session workshop** on gender mainstreaming at the 48th session of the UNFCCC SBI; (iii) a **background paper** on gender mainstreaming in the Convention on Biological Diversity (CBD); (iv) and an invited presentation at the “Gender mainstreaming in the implementation of the CBD” workshop for CBD delegates. These contributions lay the groundwork for development of a more equitable and inclusive post-2020 CBD framework and implementation of UNFCCC and UNCBD. FTA recommendations on gender indicators for SDG13 on climate change were incorporated in the “Equal Measures 2030” global report, to inform gender-responsive monitoring of SDG13. FTA research was also prominently cited in the review of the New York Declaration of Forests Report on Goal 10, “Improving Governance to Protect Forests: Empowering People and Communities, Strengthening Laws and Institutions”.

At the national level, FTA informed Kenya’s national FLR strategy on gendered opportunities and challenges. FP2 demonstrated gender differences in the assessment of land degradation and restoration options in Ethiopia, and incorporated them in strategies for sub-national implementation of land degradation neutrality (LDN) as well as revealing how promising **land restoration options in Kenya increased women’s autonomy** while requiring additional time and labor for implementation. **Piloting of gender transformative actions** around tree planting and retention in northern Ghana indicated changes in attitudes amongst men and women, resulting from confronting data on division of labor and role playing exercises. This has now been incorporated in a major **EU-funded re-greening initiative**, operating in eight African countries.

- **Contributing to IDO C.1 – Enabling environment improved**

FP4 devised innovative performance-based finance and investments schemes to support sustainable community forest enterprises (**29 community forests in Cameroon**). This holds great potential for bringing insights regarding strengthening the enabling environment and incentives for SMEs, as a pathway for achieving multiple IDOs. FTA also supported strategic land-based green growth planning in East Kalimantan, Indonesia. This constitutes a pilot approach to bridging objectives of sustainable commodity value chains development, poverty reduction and climate change objectives. Finally, FP4 carried out extensive analysis of existing evidence on the contributions of tree commodities to the SDGs, in a set of ten manuscripts bringing together evidence on multiple IDOs. This will be promoted to influence policy-making at national and international levels.

1.2.2 Progress by flagship

A detailed description of each flagship’s progress is available in Annex 2.

1.2.2.1 Flagship 1 – Tree genetic resources to bridge production gaps and promote resilience

The following are FP1 highlights for 2018:

Contributing to the operational priority on agrobiodiversity and genetic resources

Five orphan crop reference genomes were published by FTA in 2018. This major achievement was featured in *The Economist*. Conservation strategies based on genetic conservation units were expanded in the Asia-Pacific region, Africa and Latin America, (seven articles screening diversity were published in 2018). The essential contribution of ecosystem services by hyper-dominant species, like

the Brazil nut in Amazonia, has been highlighted in [Nature Scientific Reports](#)). FP1 published a [Nature Scientific Report](#) for *Calotropis*, an African dryland species, providing novel insight for genetic improvement strategies on this species with significant economic potential for use both in the textile and medicine industry. A successful [discussion forum](#) was held at the Global Landscapes Forum (GLF) on the critical role of quality planting material for restoration.

Contributing to the operational priority on nutrition and food systems

FP1 developed a strategy for [supporting human nutrition in Africa through the integration of new and orphan crops into food systems](#). [Fruit tree portfolios](#), including orphan species for diet diversity, were upscaled in East Africa.

Contributing to the operational priority on restoration

FP1 developed [suitability modeling of tree species with climate change consideration](#) and a [54 species atlas for Central America](#). FP1 delivery system approaches were highlighted in Nature ([How to plant a trillion trees](#)) and mainstreamed into Ethiopia's restoration program.

1.2.2.2 Flagship 2 – Livelihood systems

Novel [ecophysiological modeling of coffee's response to climate change](#) has transformed predictions of the global extent and location of where coffee can grow in future. Trees buffering temperature, coupled with effects of CO₂ enrichment, result in far lower reductions in suitable coffee area than previously predicted. Research on [companion tree interactions with cocoa](#) highlight the importance of species choice and management to control competition for water. [Modeling livelihood trajectories](#), based on crowdsourcing data from thousands of farmers involved in planned comparisons embedded in scaling land restoration across Africa, show food and energy security can increase only if more trees and larger areas of soil and water conservation practices are realized than are currently being promoted. In addition, they need to be better matched to [variation in soils](#) and [socio-economic circumstances of farmers](#), as well as embrace [gender transformative approaches](#). High returns on investment in agroforestry options on [sloping land in Vietnam](#), [non-timber forest products in Indonesia](#), and trees on farms in Africa are driving [national](#) and [international](#) policy reforms to promote integrated agroforestry options customized to local circumstances. The FP is leading the writing of the [HLPE agroecology report](#); this has attracted unprecedented feedback from open consultation, identifying tensions between social movements and science that are being addressed in new research.

1.2.2.3 Flagship 3 – Sustainable value chains and investments

On **public and private commitments to zero deforestation**, FP3 developed an analytical framework for analyzing the social and environmental outputs, outcomes and impacts associated with jurisdictional zero-deforestation and landscape restoration commitments. FP3 worked with FP5 on subnational jurisdictional approaches, including a jurisdictional survey of private sector information and analysis which resulted in two publications.

On **plantations and tree-crop commodities**, FP3 started reviews for timber, rubber and oil palm plantations, to assess the temporal and spatial dynamics of plantations' expansion (including for restoration and bioenergy development), with identification of 'hotspots', their drivers and impacts, and associated sustainability challenges.

On **effectiveness of approaches to sustainable supply**, FP3 completed a report on the European Union's FLEGT legality approaches available for Cameroon. A literature review of environment, social and governance (ESG) standards and preliminary cost-benefit analysis of oil palm in Indonesia was also completed. Research results were presented at two Innovation Forum events.

On **inclusive finance and business models**, FP3 conducted structured consultations with over 50 inclusive business proponents and held four multi-stakeholder seminars. These consultations contributed to the development of a conceptual and methodological framework to identify the determinants and causal processes that shape the sustainability outcomes of inclusive business and finance initiatives. They also contributed to the development of business model design features that help increase smallholder access to markets, services and inputs.

On **innovating finance for sustainable landscapes**, FP3 developed a conceptual framework identifying the main barriers to accessing finance for smallholders and SMEs. A compendium of successful blended finance initiatives and their approaches towards inclusive landscape financing is under development. This will contribute to putting in place the key building blocks to develop future FP3 work on innovative finance, in strong interaction with pre-existing platforms and initiatives for financing sustainable landscapes.

1.2.2.4 Flagship 4 – Landscape dynamics, productivity and resilience

Contributing to the priority on **landscape governance, especially multifunctional landscapes with trees**, FP4 published a review of [Twenty years of community forestry in Cameroon: Opportunities and challenges for sustainable development](#). FP4 also helped deliver advances on agroforestry policies for the Association of Southeast Asian Nations (ASEAN), and a national policy in Nepal. FP4 published innovative work on behavioral science and alternative framings of environmental problems, with two publications in 2018: [Deforestation and forest degradation as an environmental behavior: Unpacking realities shaping community actions](#); and [Rethinking environmentalism: Linking justice, sustainability, and diversity](#).

Contributing to the priority on **innovating finance for sustainable landscapes**, it conducted impact-oriented work on innovative performance-based finance of community forest enterprises in Cameroon, and ecosystems-based adaptation through community forestry in the Gambia. The DFID-financed [Dryad](#) project in Cameroon supported 34 community forest enterprises, with an investment portfolio of approximately USD 1 million in 29 community forests, covering around 100,000 ha of forests. In the Gambia, 25 community forests were directly supported with a view to reaching 125 in three years. Several landscape business cases and green growth plans were also developed in Indonesia and Vietnam.

FP4 led an International Union of Forest Research Organizations (IUFRO) global assessment report titled, [Forest and water on a changing planet: Vulnerability, adaptation and governance opportunities](#).

Contributing to the operational priority on **nutrition and food systems**, FP4 worked on assessing links between landscape change and dietary change in Indonesia, Cameroon and the DRC.

1.2.2.5 Flagship 5 – Forests, trees and agroforestry for climate change adaptation and mitigation

FP5 is underpinning operational priorities 5 (**Nationally Determined Contributions**), 6 (**Bioenergy**), 7 (**Blue carbon/peatlands**), and 8 (**Adaptation**). A key achievement of 2018 was the launch of the book [Transforming REDD+](#). FP5 concluded the assessment of REDD+ projects at eight sites in Brazil, Indonesia and Peru, completing previous assessments in 2010 and 2014. FP5 released, with the Earth Innovation Institute (EII) and the Climate, Community and Biodiversity Alliance (CCBA), the [State of jurisdictional sustainability report](#), reporting on land-use sustainability in 39 provinces in 12 countries. On bioenergy and land restoration, FP5 expanded work on biomass production on degraded lands in Indonesia, through public-private partnerships and in collaboration with Korea's National Institute for Forestry Research (NIFOS), working *inter alia* on bamboo energy characteristics.

FP5 is engaging heavily at the international level, especially at the United Nations Climate Change Conferences, and is supporting the establishment of the International Tropical Peatland Center in Indonesia. FTA recommendations on gender indicators for SDG13 on climate change were incorporated in the “Equal Measures 2030” global report, influencing the work of the High-level Political Forum on Sustainable Development (HLPF), including an indicator on “women’s inclusion in national decision making on climate policies” (p. 94), which FTA recommended.

1.2.3 Variance from planned program for this year

(a) Have any promising research areas been significantly expanded? If so, for each example, please explain clearly where the demand came from (promising research results, demand from partners etc.). Where has the money for expansion come from?

The 22 operational priorities orient all CGIAR W1/2 funded work. Bilateral projects (that form 85 percent of FTA research) must also relate to one of the operational priorities in order to be integrated in FTA. Compared to 2017, there has been a significant shift and re-focus in the 2018 FTA Plan of Work and Budget (POWB), as a result of a priority setting process, with the following areas being expanded: **agroecology, nutrition, plantations, restoration, jurisdictional approaches to sustainable supply, and gender**. There was no significant variance from the 2018 W1/2 planned activities, except for the emphasis given on sentinel landscapes and on foresight (see below). Within-year variance inside the POWB is mostly due to new bilateral grants being agreed, followed by some time lag in the change of program-level orientation, catalyzed by W1/2 funds. For instance, FP2 work on agroecology has expanded with funding from Norway for control of fall army worm in Africa, a collaboration with Reading University and funding from Azim Premji Philanthropic Initiatives (APPI) to provide scientific underpinning to widespread scaling up of agroecological farming approaches in Andhra Pradesh, India.

FTA expanded its engagement with gender transformative approaches to foster greater gender equality and unlock innovation in agriculture and natural resource management. For example, the International Fund For Agricultural Development (IFAD) funded **West Africa Forest-Farm Interface** (WAFFI) project team developed an innovative approach that brings together elements of the Gender Action Learning Systems and the Forestry Poverty Toolkit with systems thinking. Promising results and learning from this work will feed, in real time, into FTA restoration work and into a multi-million-dollar European Commission (EC)-funded project implemented collaboratively by the United Nations Rome-based agencies (RBAs) on gender transformative approaches in agriculture.

Work on nutrition is being increasingly integrated across conservation, domestication and delivery within FP1, based on higher priority given to food trees at both national and international levels. Development of community interest in jurisdictional approaches to zero-deforestation supply of commodities has emerged in recent years. FP3 secured a European Commission Directorate-General for International Cooperation and Development (EC-DEVCO) grant to pilot test jurisdictional approaches in Ghana (cocoa, oil palm, rubber) and Uganda (sugarcane, tobacco, tea), to enable sustainable intensification for smallholders, while curbing agro-commodity-driven expansion into forestland.

During 2018, as a result of a workshop held under the auspices of the Independent Steering Committee (ISC), further emphasis has been given to work on sentinel landscapes, with three stock take studies launched in three of the seven sentinel landscapes: Nicaragua-Honduras, Cameroon and Borneo (Indonesia). Interim reports of these studies have been produced and full final reports will be available in 2019. Funding for this was made available via Program Management Unit (PMU) funds (integrative initiatives). Foresight work has also been expanded following an ISC request, translating into FTA participation in CGIAR workshops and initiatives, as well as preparation of a strategy and action plan. This has been funded in-kind by mobilizing PMU staff time.

(b) Have any research lines been dropped or significantly cut back? If so, please give specific examples and brief reasons. If funding was reallocated to other work, where did the money go?

At the beginning of each year, as per the contingency planning process in FTA, all W1/2 activities are split into three tiers of decreasing probability of funding. Given the information available in September 2018 on the likelihood of a shortfall of W1/2 funding compared to the CGIAR financial plan, it was decided to cut all FTA Tier 3 from the 2018 work plan. Some of these activities will be reinserted into the 2019 POWB, if funding is available and as per the 2019 work planning process.

A full list of activities cut back due to this process is available on request. FPs tried not to jeopardize underlying research, but instead to lower the number of case studies or applications, as well as follow-up publications. Main cuts concerned: in FP1, the assessment of tree planting material delivery systems, and work on tree habitat suitability maps; in FP2, less model applications of the livelihoods trajectories modeling tool, downsizing the activities in the operational priority on the farm-forest interface and on silvopastoral systems, and the cancelation of papers on research and development priorities for coffee, cocoa and rubber diversification. In FP3, a study on the needs, possibilities, experiences and policies for long-term finance products for sustainable forest management and landscape restoration was postponed, as well as an analysis of monitoring frameworks for enhancing sustainability of plantations (public, private and multi-stakeholder). In FP4, synthesis work aggregating individual case studies on the role of trees in nutrition could not be funded (priority was given to fund the case studies first). In FP5, some climate change and bamboo related work was downscaled, and stakeholder workshops were cancelled on science-policy linkages on climate-change adaptation. In Gender, the work on a gender and forestry online module for policy makers, practitioners and researchers had to be cut back.

(c) Have any Flagships or specific research areas changed direction? If so, please describe how, and the reason.

There were no major changes relating to the planned 2018 POWB. The 2019 POWB will consider 2018 delivery and reprioritize accordingly.

1.2.4 Altmetric and publication highlights

During 2018, FTA produced 473 publications – peer reviewed and non-peer reviewed – with 75 percent of them open access. These were referenced 7,818 times. Two hundred titles are scientific peer-reviewed articles, with 87 percent of them published in Institute of Scientific Information (ISI) journals. The **altmetric scores** show that during 2018, these outputs have been picked up by 398 news outlets, blogged by 391 blog sites, cited by 51 policy documents, tweeted by 3,754, liked by 79 Facebook users, and cited by 23 Wikipedia pages. Major news outlets citing FTA outputs include The Huffington Post, The Economist, The Independent, Voice of America, Carbon Brief and Phys.org.

Two FTA-led publications stand out in terms of altmetric views: **Trees, forests and water: Cool insights for a hot world** (published in 2017) with a very high score of 455, and the new book on **Transforming REDD+: Lessons and new directions** (published in 2018) with a score of 105.

A full list of publications is available [here](#). As of May 2019, FTA has now also developed a state-of-the-art, fully searchable database of publications (gathering all outputs produced since 2011, a total of over 8,000), a unique feature that will be launched officially 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.*
- An empirical study on gendered opportunities and challenges in FLR in Kenya was conducted and shared with the Kenyan government to inform its national FLR strategy. Findings were synthesized into a [brief](#). CIFOR participated in Kenya’s national technical working group on FLR to contribute a gender perspective.
 - FTA recommendations on gender indicators for SDG13 on climate change were incorporated in the “Equal Measures 2030” global report, influencing the work of the HLPF. This included an indicator on “women’s inclusion in national decision making on climate policies” (p. 94), which FTA recommended.
 - Research findings on migration, with a focus on equity, were shared in a [panel on migration and sustainable development](#) at the GLF, and showcased in the [Saturday special issue of the Kathmandu Post](#).
 - A series of [four videos and associated articles](#) highlighted key issues related to migration in Nepal, including the importance of migration for rural livelihoods and the diversity of women’s experiences.
 - An [infobrief](#) on UN Women’s 2018 flagship report on gender and sustainable development outlined the role for the CGIAR gender research community to contribute to monitoring the SDGs; the International Institute for Sustainable Development (IISD)’s SDG Knowledge Hub picked up the brief in a [blog](#).
 - Based on an FTA submission on gender and climate change to the United Nations Framework Convention on Climate Change (UNFCCC)’s Subsidiary Body for Implementation (SBI), the Intergovernmental Panel on Climate Change (IPCCC) Gender task force invited FTA to present at an [in-session workshop](#) on gender mainstreaming at the 48th session of the UNFCCC SBI.
 - FTA contributed to a [background paper](#) on gender mainstreaming in the Convention on Biological Diversity (CBD), and presented FTA gender research findings at the “Gender mainstreaming in the implementation of the CBD”, workshop for CBD delegates on 1 July 2018 in Montreal.
 - An FTA set of [infobriefs](#) on gender and restoration was widely disseminated, and followed by an [event on gender-responsive restoration at the Global Landscapes Forum](#) with several contributing partners – the World Bank, Women Organizing for Change in Agriculture and Natural Resource Management (WOCAN), FAO, Bioversity International, World Agroforestry (ICRAF), Koza, Association of Uganda Professional Women in Agriculture and Environment (AUPWAE), the International Union for Conservation of Nature (IUCN) Global Gender Office and the International Center for Tropical Agriculture (CIAT).
 - FTA led a capacity development workshop for national partners in Ghana on social and gender dynamics to inform research in the [West Africa Forest-Farm Interface](#) (WAFFI) project and the [Regreening Africa with Trees](#) program.

- FTA was one of the CRPs leading a **special issue** on “GENNOVATE: Enabling gender equality in agricultural and environmental innovation”, and contributed to several papers in the issue, as well as leading and contributing to several GENNOVATE **tools**.
- In a **review** of guides for gender-equitable value chain development, FTA offered guidance to practitioners seeking gender equality and poverty reduction outcomes through markets.
- An FTA guideline offered field-tested strategies and good practices on how to pursue the multiple goals of gender equality and social inclusion, environmental integrity, and livelihood improvement, through the **sustainable use and management of NTFPs**.

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

The tailored support that the gender coordination team provides to research teams and projects encourages them to explore innovative approaches for gender integration that can foster transformational change in gender relations and unlock greater food security and resilience. For example, close interaction with the IFAD-funded **West Africa Forest-Farm Interface (WAFFI) project team** enabled the team to **develop an innovative approach** that brings together elements of the Gender Action Learning Systems and the Forestry Poverty Toolkit with system thinking. Using these approaches, researchers gathered evidence about how gender gaps in control over resources and decision-making were limiting local land restoration efforts, as well as income-generating opportunities from trees. They brought this information back to communities through structured community dialogues, in which participants reflected on how local gender norms constrained and limited their collective opportunities to increase resilience in landscapes and livelihoods. The experience has been welcomed internally and externally, and the FP2 team will continue testing this approach and adopting it in its efforts to support restoration and increased resilience in order to generate greater gender equality. In 2019, this will be an important direction for FP2, and for FTA as a whole.

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

As part of the priority-setting process put in place in FTA, emphasis has been put on mainstreaming gender into FP research. This has increased the workload of the FTA gender integration team, opening several lines of conversation with FP leaders to revisit their research with a gender lens. These additional interactions, however, translate into deeper integration of gender-related issues in FP research from the inception of research conception and design, as well as in terms of prioritization. Lessons learned from this process have been taken on board for subsequent POWBs.

1.3.2 Youth and other aspects of social inclusion/‘Leaving no-one behind’³

a) List any important CRP research findings, methods or tools, capacity development, policy changes or outcomes in the reporting year related to inclusion issues.

- FTA published a **manual on intersectionality** to support scientists in pursuing a deeper and more meaningful analysis of how power relations operate to maintain the marginalization of certain groups of women and men; and of the role research can play in promoting gender and social justice.

³ Leaving no-one behind is a **key facet** of the SDGs.

- An **FTA webinar on intersectionality** hosted by the Gender Platform in 2018 was recorded and is available as a companion to the manual. The webinar, hosted by the Gender Platform, had the highest number of listeners among Gender Platform-hosted webinars in 2018.
- A **paper** on results of a cross-country comparative analysis of young rural men's and women's aspirations was published in a special issue on the global comparative study GENNOVATE. The paper was presented at the CGIAR Gender Platform conference.
- A large body of FTA-PIM research (in Uganda, **Peru** and Indonesia) highlighted the need to **address social differentiation** in **reforms recognizing collective rights** in forestlands, and the relevance of **disaggregating results** to analyze how **formalization processes** influence **changes in rights** for **vulnerable groups**.
- FTA contributed to the Assessment of the New York Declaration of Forests around Goal 10, which specifically addresses governance. As one of the assessment partners, CIFOR mainstreamed FTA research results related to gender, indigenous peoples' rights to land and forests, and governance in the assessment **report**.
- FTA showcased empirical evidence of the importance of forest foods to AmaXhosa women's subsistence and cultural survival, and to young women's rites of passage into adulthood, in a **photobook**. The book reveals the setbacks of policies excluding residents from harvesting forest foods in South Africa's Dwesa-Cwebe Nature Reserve.
- An FTA **report** highlighted how gender norms shape the management of forests and trees in the Kyrgyz Republic and Indonesia. It revealed the constraints young men and women face in accessing forest leases in Kyrgyzstan, which result in high poverty rates among young couples.

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

The participatory research approach used to engage national governments, reform implementers, and practitioners since the beginning of the cross-country project on tenure reform, demonstrated the value of the approach for creating spaces of dialogue among diverse stakeholders. It raised awareness across all scales (international, national, subnational and local) on issues related to land tenure, particularly with a focus on women's and indigenous peoples' rights. A similar approach will be replicated in subsequent FTA projects, as part of their Theory of Change, to enhance dialogue and collaboration among stakeholders and the uptake of FTA research results.

c) Have any problems arisen in relation to youth and inclusion issues or integrating these issues into the CRP's research?

FTA started the revision of its Gender strategy towards a Gender Equality and Social Inclusion strategy, to enable a more explicit focus on youth and social inclusion issues.

1.3.3 Capacity development

FTA capacity development work is focused on key, strategic, place-based, longer term partnerships, devised to facilitate the uptake of FTA research by stakeholders (external capacity development) as well as to enable the feedback of stakeholders' views into research design (internal capacity development). Research results from the Nicaragua-Honduras Sentinel Landscape were presented to

45 organizations representing government, academic and production sectors as well as NGOs; this led to improved coordination among participating organizations. The third cohort of 35 African Plant Breeders graduated from the African Plant Breeding Academy in December 2018. FTA cooperation through the ICRAF-DAAD PhD fellowship program continued in 2018, with five additional PhD fellowships in East African countries. Likewise, CIFOR's collaboration with the University of Kisangani, DRC, continued with the establishment of an interdisciplinary MSc in Forestry Law. A new academic partnership was established in 2018 between Bioversity and the University of Colombia, Bogota. CIFOR established an MoU with the Regional Center for People and Forests (RECOFTC), a major training center in the Asia-Pacific.

In 2018, FTA trained a total of 293 long-term trainees (of which 140, or 48 percent, were women) and 10,141 short-term trainees (of which 4,514, or 45 percent, were women). Long-term trainees included doctoral, master and undergraduate students from partner academic universities and research institutions. Short-term trainings were targeted at farmers, staff of CBOs and NGOs, policy makers/implementers, breeders, and staff and students of partner research and education institutions. Highlights include the Trees for Food Security project that trained 965 people (308 women), including trainers, on various aspects of agroforestry, and a curriculum review of 11 agroforestry degree and diploma programs at seven universities in East Africa.

The FTA [Gender Research Fellowship Program](#) continued in 2018, with results presented at the [Tropentag conference](#). FTA co-led the GENNOVATE Community of Practice within the CGIAR Collaborative Platform for Gender Research, and co-organized a capacity development session on GENNOVATE, focused on methodologies for understanding gender norms in agriculture, at the annual scientific conference of the CGIAR Collaborative Platform for Gender Research. An [FTA webinar on intersectionality](#) hosted by the Gender Platform in 2018, and an associated manual to support scientists, had the highest number of listeners among Gender Platform-hosted webinars in 2018.

1.3.4 Climate change

Sequencing for tree breeding

The African Orphan Crops Consortium (AOCC) in FP1 has [sequenced](#) the [genome](#) of six crop species, including three climate resilient, temperature- and drought-tolerant trees (*Faidherbia albida*, *Sclerocarya birrea*, *Moringa oleifera*).

Bioenergy

FTA and partner institutions have studied degraded land rehabilitation and low greenhouse gas emission energy production in Indonesia using bioenergy crops. After a spatial assessment of degraded land coupled with tree species suitability modeling, trial plantations were established (14 ha, 10 species, 4 locations). Studies of farmers' perceptions and expectations were added. Engagement has grown to include a wide range of stakeholders including private sector investors. Capacity building targets young researchers from local universities.

Adaptation

A climate change [atlas](#) for Africa is being developed by FP1, featuring 150+ tree species. FP4 published a [report](#) on innovative work on ecosystem-based adaptation, delivered through 125 community forests in the Gambia. FTA scientists also led the IUFRO global assessment [report](#) on forest and water vulnerability, adaptation and governance. FP2 made and published advances in [ecophysiological modeling of coffee's response to climate change](#), resulting in major changes to predictions of the future extent and location of suitable areas for smallholder cultivation and how climate effects can be ameliorated by management practices. FP2 also demonstrated the utility of local knowledge in addressing [fine-scale variation in climate adaptation needs](#) in Africa.

Mitigation

FP5 finished a major analysis of REDD+, based on evidence from FTA's [Global Comparative Study on REDD+](#) and other research into REDD+. FP4 published a [paper](#) on REDD+ potential in [community forests](#) and innovative work is developing on [behavioral science of deforestation](#). FTA and partners developed a jurisdictional-level impact assessment of land-use sustainability policies and applied it to 39 subnational jurisdictions in 12 countries, containing 28 percent of the world's tropical forests. Despite scarce finance, most of these jurisdictions made measurable progress towards policies and practice reducing deforestation and supporting local peoples' rights; about half are working with companies on the sustainable production of agricultural commodities. However, policy and legal reforms and actions are not well advanced, showing the importance of this global assessment framework to underpin further progress.

2. Effectiveness and efficiency

2.1 Management and governance

The [Independent Steering Committee](#) (ISC), together with the Board of Trustees (BoT) of CIFOR are the two key components of FTA governance. Following a performance assessment of the ISC conducted in 2017, the [ISC Terms of Reference](#) (ToRs) were revised, including bringing the number of independent members to five.

Out of the nine ISC members, five rotated in 2018. FTA launched an open call to appoint three new independent ISC members, to replace Yemi Katerere (Zambia) and Joyeeta Gupta (India), and to add one independent member. Three new members, Linda Colette (Canada), Susan Braatz (USA) and Richard Muyungi (Tanzania), were appointed by CIFOR's BoT following an ISC recommendation, based on shortlisting according to the selection criteria agreed by the BoT. The representative of non-CGIAR program participants also rotated; this is now Rene Boot (Tropenbos); likewise did the representative of CGIAR program participants; this is now Stephan Weise (Bioversity International).

From a management perspective, the terms of reference of FTA FP leaders have been revised to strengthen accountability, clarify their responsibilities and those of their employers. Peter Minang (ICRAF) was appointed FP4 Leader in June 2018, following a call and according to the new open selection procedure. With Pablo Pacheco (FP3 leader) leaving CIFOR for the World Wildlife Fund (WWF), a call for an FP3 Leader was launched in November 2018, open to candidates proposed by all program participants.

In 2018, FTA shifted to the Managing Agricultural Research for Learning and Outcomes (MARLO) online platform for program planning and reporting of research projects. FTA research quality is managed by MELIA, under the direct oversight of the Management Support Unit (MSU). To streamline internal organization and avoid overlaps, responsibilities previously under the data-for-impact cluster (FTA internal knowledge management tools, external data portal, open data support, and methods for the generation of International Public Goods [IPGs]) were reallocated to FTA Communications, MSU and MELIA.

2.2 Partnerships

2.2.1 Highlights of external partnerships

Working with partners along the Research for Development continuum, often with research embedded in development projects, as well as policy engagement (at international, national, subnational and local levels), is at the heart of FTA. Partnerships with international organizations are

being sought due to the very important leverage effect they produce. Below we highlight such partnerships, taking as examples the areas of climate change, agroecology and gender.

On climate change, to inform global policy processes, FTA teamed-up with FAO on the realization of two joint reports to inform both FAO and UNFCCC processes on climate change adaptation. ICRAF worked with the governments of the Gambia and Sri Lanka to develop Green Climate Fund (GCF) initiatives on landscape approaches to climate change and ecosystem-based adaptation respectively. FP5 worked with FAO, UN Environment (UNEP), and the governments of Indonesia, Peru, the DRC and the Republic of the Congo, to establish the International Tropical Peatland Center (ITPC). FP5 worked with 28 sub-national jurisdictions across the world, gathered under the Governors' Climate and Forests Task Force, on the issue of assessing land-use sustainability.

On agroecology, FTA worked with ASEAN on a new guide for the delivery of agroforestry policies and development at national and regional levels. FTA forged new partnerships in India involving UNEP, the Government of Andhra Pradesh, Azim Premji Philanthropic Initiatives, a range of national scientific partners and Reading University to strengthen the scientific underpinning of, and financing for, scaling up agroecological farming in the state. A major element of this is bridging between social movements and science, which requires new perspectives and modes of interaction.

On gender, FTA teamed up with UN Women with a joint background paper and expert workshop on addressing gender under the UN Convention on Biological Diversity. FTA was the only research representative to partner in the "For All Coalition" aiming to inform gender integration under UN conventions. FTA coordinated an initiative with 15 partner organizations from the private sector, multilateral agencies and civil society to produce a joint set of infobriefs on gender and restoration, and to host a joint outreach event on gender and restoration at GLF Nairobi. In Kenya, FTA partnered with the government, IUCN and the World Resources Institute to inform gender mainstreaming in the national FLR strategy.

2.2.2 Cross-CGIAR partnerships

FTA continued expanding its collaborations with other CRPs, particularly WLE, PIM, Climate Change, Agriculture and Food Security (CAAFS), Roots, Tubers and Bananas (RTB), the Genebank Platform and the Gender Platform, with some significant achievements.

A highlight of cross-CRP collaboration was the FTA, PIM and WLE initiative to join forces in the area of land restoration. Following discussions initiated by FTA, a joint workshop was held in Nairobi on 31 August and 1 September 2018. This led to an ongoing stock take on CGIAR land restoration work, for which data is being collected across all three CRPs. The final report is expected at the end of 2019. Joint work has started on the development of a compendium of methods and tools applied to land restoration, and on a special issue on gender and restoration. The three CRPs are also exploring teaming up with the Indian NGO Foundation for Ecological Security's initiative, "Promise of the Commons". FTA-WLE jointly funded a comparative study on gender and restoration, for which the first phase (data collection) was completed in 2018. FTA-WLE jointly put together a successful proposal on gender and restoration in response to the Gender Platform call for proposals on the Feminization of Agriculture. The FTA-PIM collaboration continued with a three-country project on tenure reform.

FTA continued its strong partnership with the Gender Platform. FTA was awarded a second grant from the Feminization call, collaborating with grantees from other CRPs. FTA was a member of the Gender Platform's Advisory Committee, and actively contributed to Gender Platform newsletters and campaigns. FTA also organized a webinar on intersectionality, which was hosted by the Gender Platform.

With the Genbank Platform, FTA continued availing germplasm to research projects facilitating acquisition from other sources, working together on the development of characterization data, and sharing existing data.

Under RTB, within the African Orphan Crops Consortium, collaboration continued with the International Institute of Tropical Agriculture (IITA) on yam genomics. Collaboration with PIM on seed delivery systems for fodder trees in Kenya continued from 2017 for reporting in 2019.

FP2 continued to collaborate with CCAFS and RTB on diversification of smallholder coffee and cocoa production systems and with RICE on the development of agroforestry in rice production landscapes, including a joint session on **Rice agroforestry: Prospects for impact and research needs** at the 5th International Rice Congress in Singapore in October 2018.

With CCFAS, FTA worked on multilocational trials of *Croton megalocarpus*, the drought resistant tree that plays an important role in local ecosystems for shade, wind protection and soil conservation. CCAFS-FTA also worked on assessing the options for forests to be used as offsets for dairy sector emissions in Kenya and Tanzania. The two CRPs also worked together to instigate a special initiative on climate change, where FTA led on impact area number 6.

FP3 worked with PIM to assess how oil palm management practices, technological innovations and improved seedlings can mitigate pressure on land due to the increase in palm oil demand.

2.3 Intellectual assets

(a) Have any intellectual assets been strategically managed by the CRP (together with the relevant Center) this year? E.g. taking out intellectual property rights, licensing, new innovative practices. (Strategic management implies involvement of PMU, flagship or cluster leaders in decision making, in furtherance of the CRP Theory of Change.)

FTA intellectual assets management refers to three main categories: (i) genome data; (ii) germplasm collections and accessions management; and (iii) all other FTA data and publications.

1. Genome data

All FTA genome data, including that generated under the African Orphan Crops Consortium (AOCC)⁴ is public and open access, with genome sequences deposited into easily accessible formats as digital sequence data. Genome sequences have been made publicly available for five species (*Faidherbia albida*, *Vigna subterranea*, *Lablab purpureus*, *Sclerocarya birrea*, *Moringa oleifera*) through the GigaScience database. These will also be hosted by the ORCAE server from Ghent University, Belgium. As for genome sequencing, AOCC has published **five species genomes in the last year**; it continues to do so for 26 other species. RNA sequencing continues for 21 species and a re-sequencing pipeline has been established with HiSeq4000 (a next generation genome sequencer).

2. Germplasm collection and selection of re-sequencing lines

FTA activities relating to germplasm collection under FP1 are as follows:

Baobab (*Adansonia digitata*) (n= ~160 families and ~320 individual accessions) and *Uapaca kirkiana* (n= ~310) from the ICRAF tree genebank were assessed for genetic diversity using DArT-SNP technology to prioritize 100 diverse lines for re-sequencing. Similar collections were also made for *Moringa oleifera* (n= ~300), *Irvingia gabonensis* (n= ~300), *Annona senegalensis* (n= ~200) and

⁴ AOCC, a consortium based at ICRAF HQ in Nairobi, comprises the African Union's New Partnership for Africa's Development (AU-NEPAD Agency); Mars, Incorporated; World Agroforestry (ICRAF); BGI; Thermo Fisher Scientific (formerly Life Technologies); WWF; the 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.

Zizyphus spp. (n= ~100), which are at the stage of DNA extraction. Collections for Shea (*Vitellaria paradoxa*), an important oilseed fruit tree from Western Africa, were also made and assembled at the Cocoa Research Institute of Ghana (CRIG) (n=~125) to establish a population for an advanced genomics-driven breeding program.

3. Building an FTA data portal

FTA is currently developing a data portal, a platform where all FTA databases/datasets are pooled from existing repositories/dataverses that are currently managed individually by FTA CGIAR centers and partners. It is targeted to be ready by the end of 2019, and will feature, in an organized and searchable way, over 8,000 publications produced by the program since 2011. The data portal will also display all genome sequencing information generated under FTA, currently being stored in journal databases namely, the [Gigascience database](#). The data portal will also contain a geospatial component. The portal will comply with the privacy protection and confidentiality obligations of datasets.

(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. No PVP or patent has been filed for any AOCC technology until now as the consortium intends to keep its products open access. Although there have been innovations for some processes in the laboratory, the results will still be published as open access methods and processes such as the DNA extraction.

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

In terms of data management, handling sensitive data can sometimes be a challenge, especially concerning data which is likely to have significant negative impact if released or disclosed. Data/datasets have undergone systematic review by the data manager and team for anonymization of sensitive data concerning personal identifiable or confidential data encountered.

2.4 Monitoring, evaluation, impact assessment and learning (MELIA)

In 2018, FTA MELIA continued to invest in a range of evaluation and impact assessment approaches, as part of a balanced strategy to investigate FTA's influence and need to reflect diverse outcome levels and types (e.g. project outcomes – both policy and practice – as well as longer term impacts).

As part of a strategy to integrate rigorous experimental designs into our Research in Development portfolio, FTA continued to invest in long-term prospective impact studies. FTA's largest project – the five African country Drylands Development Program (DryDev) – will be coming to an end in 2019; this will mean the undertaking of an endline survey to inform its overall impact assessment. In 2018, adoption surveys were carried out in the five countries to assess the extent to which targeted farmers are taking up the technologies and practices that are being promoted. Interactive workshops then took place to reflect on the results and inform a detailed implementation plan for the program's final year. Significant MELIA efforts were also undertaken under another large scaling project – Reversing Land Degradation by Scaling Up Evergreen Agriculture (Regreening Africa). Baseline surveys were carried out in seven out of the eight participating African countries, with the Outcome Mapping approach used to develop stakeholder engagement and outcome tracking plans. Similar stakeholder engagement tracking was also carried out as part of the monitoring and evaluation strategy of the FP2 Sustainable Agricultural Intensification and Learning Alliance (SAIRLA) project in Ethiopia, Tanzania and Zambia. Finally, the implementation of a pilot project under the FP2 Value Chain Innovation Platforms for Food Security (VIP4FS) to promote the uptake of leguminous, high protein shrub fodder

among smallholder dairy farmers in Uganda through behavioral science-informed extension approaches, was completed in late 2018. Endline data collection will take place in early 2019, with results being disseminated and published thereafter.

Two new FP2 projects, to evaluate the impact of promoting agroecological farming in the state of Andhra Pradesh, India, and take an 'options by context' approach to implementation of new agroforestry concession policies in Peru (funded by Germany's Federal Ministry of Economic Cooperation and Development, BMZ) were designed and funding was approved.

To further our understanding of how scientific knowledge is translated into policy or practice, FTA completed four theory-based project outcome evaluations investigating the use of place-based and global comparative studies in agroforestry concessions in Peru, national and global REDD+ processes, and the implementation of land tenure reforms in Peru and Uganda.

In addition, FTA experimented with new evaluation methods in 2018, including applying realist methods to: i) understand how and why gender has been effectively incorporated into different research streams and inform future gender integration strategies; and ii) synthesize findings across GCS Tenure project countries, to surface lessons about how and why knowledge is influencing policy and practice in different contexts. This method complements our investment in theory-based evaluation and contribution analysis, by specifically seeking evidence in relation to causal mechanisms. That is, going beyond establishing that the project contributed to intended outcomes in a results chain to a more rigorous investigation of the project's assumptions about how and why change occurred in a specific context.

We also invested in evaluating innovative initiatives. An evaluation was completed of one initiative aimed at encouraging excellence and diversity in high value crop products; another examined an initiative aiming to enhance long-term national research capacity.

2.5 Efficiency

2018 was the first year of implementing FTA's new priorities. This promotes focus, alignment and coherence of workplans, fostering work across flagship projects and reducing transaction costs, while enabling more in-depth collaborative, transparent and inclusive work on defining work plans and on the best use of W1/2 and bilateral resources under budget constraints. FTA has defined 22 operational priorities that address, within the framework of the proposal, key development demands and knowledge gaps, oriented towards implementation of the SDGs and the Paris Agreement on climate change, and aligned with the CGIAR Strategy and Results Framework. They build on the comparative advantages of FTA and its partners in order to maximize value for money, effectiveness and impact.

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 the sourcing of 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, particularly to non-CGIAR partners that are not able to pre-finance work, so cannot start working if resources are not cashed-in. This risk has been addressed by the set-

up of a contingency planning mechanism for W1/2 funds, by which the 2018 POWB was split into three tiers of decreased probability of funding. Each activity and corresponding output of the 2018 POWB was associated with one of the three tiers, reflecting their relative priority in the POWB. This mechanism created some additional complexity (as the W1/2 POWB is de facto split in three) but proved extremely useful, both for giving clearer guidance to partners on funding risk and related work planning, and for managing disbursements during the year.

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 management team (MT). This enables program management to follow delivery very closely, and in case of delays to put corrective measures in place. In case a foreseen activity is canceled by a partner (this is less than 2 percent), 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; this aligns use of W1/2 and bilateral funding 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 fall under the remit of FTA partners.

2.7 Use of W1/2 funding

W1/2 allocations and workplans result from: (i) principles and criteria for prioritization agreed upon by the MT and the ISC (see Annex 1 for criteria); (ii) strategic orientations considering end-of-program objectives; (iii) analysis of all draft work plans submitted by flagships to the MT; and (iv) consideration of past delivery performance by the scientific teams.

With this, W1/2 funding prioritizes work that: i) leads to the generation of international public goods, including those that can influence policy generation and policy implementation (e.g. the [REDD+ book](#)); ii) promotes uptake and impact potential on the ground (e.g. our work on tree seed and planting material delivery systems); and iii) challenges established theories, exploring early leads on potential new ideas (e.g. the work on rainfall recycling).

FTA is one of the few CRPs to have implemented 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, which is available on request.

3. Financial summary

In 2018, FTA is 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. In 2018, FTA reintegrated FP2, based on its review as 'strong' by the Independent Science and Partnership Council (ISPC), therefore applying W1/2 funding to FP2.

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). 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).

In September 2018, to suppress any uncertainty, it was decided to remove (de-program) Tier 3 activities from the 2018 POWB, and carry forward to 2019 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 2018 allocations were notified by the SMO or CGIAR System Management Board (SMB) by 13 December 2018, this led to a carrying forward of USD 1,035,295 at program level. These funds will be disbursed by CIFOR, the lead center, and used by partners in 2019.

Overall, 2018 disbursements by the lead center CIFOR to program participants (including itself) amounted to USD 8,620,000. This is equal to the sum of USD 8,871,000 (2018 final allocations by the SMO against an original FINPLAN of USD 9,876,000), plus USD 784,295 of program-level carry-over from 2017 (as per the contingency planning mechanism of 2017), minus USD 1,035,295 carried-over by the lead center into 2019 (as per the contingency planning mechanism of 2018).

Some 2018 Tier 1/2 resources (USD 683,000), disbursed to partners by the lead center, will be spent by the partners in 2019 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)

SLO Target (2022)	Brief summary of new evidence of CGIAR contribution	Expected additional contribution before end of 2022
1.1. 100 million more farm households have adopted improved varieties, breeds, trees and/or management practices	No new evidence	FTA anticipates the action of state and national agroforestry scaling strategies and policies with which it is engaged (notably in India, Ethiopia, Uganda, Rwanda, Kenya, Cote d'Ivoire, Ghana, Nigeria, Vietnam, Indonesia, China, Peru and Brazil), as well as NGO initiatives and farmer-to-farmer diffusion to grow this number substantially over the next three years. A series of impact evaluations to measure adoption and diffusion across the portfolio have been initiated to enable a more precise estimation of adoption by 2022.
1.2. 30 million people, of which 50% are women, assisted to exit poverty	About 300 jobs directly created in 29 community forests in Cameroon, through investments in 34 enterprises totaling about USD 350,000 in 2018.	Investment portfolio expected to grow to USD 1 million in the next 32 years. Detailed evaluation of the economic performance of different agroforestry options are embedded in current projects and will enable more extensive estimations of poverty impacts over the next three years.
2.1. Improve the rate of yield increase for major food staples from current <1% to 1.2-1.5% per year	No new evidence	While the target was aimed at assessing gains largely through increasing genetic yield potential, FTA focuses on closing yield gaps.

SLO Target (2022)	Brief summary of new evidence of CGIAR contribution	Expected additional contribution before end of 2022
<p>2.2. 30 million more people, of which 50% are women, meeting minimum dietary energy requirements</p>	<p>Dryland restoration research involving over 6,000 farmers in Ethiopia, Kenya, Mali and Niger targets households with food energy deficits in some months that livelihood trajectory models show can be alleviated with the soil and water conservation innovations being developed, promoted and locally adapted. link to evidence</p>	<p>The livelihood trajectory modeling is a new initiative that FTA anticipates will yield more substantive estimates of food security impacts (directly and indirectly) as accurate modeling of impacts of trees on food, water and energy emerge for the range of tree and crop species involved.</p>
<p>2.3. 150 million more people, of which 50% are women, without deficiencies in one or more essential micronutrients</p>	<p>No new evidence</p>	<p>Applying these relationships to data on tree cover change will enable quantitative estimation of nutritional gains.</p>
<p>3.1. 5% increase in water and nutrient efficiency in agroecosystems</p>	<p>Assessments of the accumulation of soil carbon using the Land Degradation Surveillance Framework, and associated measurement and modeling of water use efficiency in land restored through agroforestry, are underway in six countries across Africa and Southeast Asia.</p> <p>Method and data for Kenya published here</p> <p>Progress with surveys in other countries: click on the land health tab on the following dashboards:</p> <p>Zambia http://landscapeportal.org/SairlaZambia/</p> <p>Ethiopia http://landscapeportal.org/SairlaEthiopia/</p> <p>Tanzania http://landscapeportal.org/SairlaTanzania/</p> <p>Progress on LDSF survey programmes ongoing in other countries:</p> <p>Vietnam https://www.dropbox.com/s/qob31mwqfii3ksw/P_7_MPhuong_EN.pptx?dl=0</p> <p>India https://www.dropbox.com/s/0whi57leqcv678s/Report_LDSF_Training_Dec2018_sm.docx?dl=0</p>	<p>Combinations of the assessment of changes in soil carbon and tree cover (fractional vegetation index) using satellite image analysis, with globally calibrated crop models like APSIM, will allow FTA to make reasonable predictions on how agroforestry has affected water and nutrient use efficiency across agricultural landscapes.</p>

SLO Target (2022)	Brief summary of new evidence of CGIAR contribution	Expected additional contribution before end of 2022
	<p>Senegal http://blog.worldagroforestry.org/index.php/2019/03/13/land-degradation-surveillance-framework-deployed-in-senegal/</p> <p>Rwanda http://blog.worldagroforestry.org/index.php/2019/04/02/using-the-land-degradation-surveillance-framework-to-assess-land-health-in-rwanda/</p>	
<p>3.2. Reduction in 'agriculturally'-related greenhouse gas emissions by 5%</p>	<p>An estimated 6.8Gt CO2 of avoided carbon emissions resulted from reduced deforestation attributable to both subnational and national policy interventions and private-sector actions.</p> <p>FTA worked to make tools (e.g. Jurisdictional Sustainability Assessment Tool) available, 39 jurisdictions in 12 countries (corresponding to 28% of tropical forest area) have been included in the evaluation process. Nearly all (38 of 39) jurisdictions have signed formal, international scale commitments to slow deforestation and/or accelerate reforestation or forest recovery. Deforestation has declined in half (19 of 39) of the jurisdictions, below official projected subnational forest reference levels.</p> <p>FTA work completed 25 Community Adaptation and Mitigation protocols in the Gambia, aimed at restoration of degraded lands.</p>	<p>Up to 5.04 million tons of avoided emissions (based on the assumption that fires of a similar scale to 2015 fires in Riau will be avoided during the annual dry season over the next four years).</p> <p>Another 40 protocols to be completed in 2019 with the aim of restoring 10,000 ha of degraded lands.</p>
<p>3.3. 55 M ha degraded land area restored</p>	<p>No new evidence</p>	<p>FTA anticipates a steep rise through national agroforestry scaling strategies (see above) striving to meet restoration targets that many governments have set.</p>
<p>3.4. 2.5 M ha forest saved from deforestation</p>	<p>No new evidence</p>	

Table 2: Condensed list of policy contributions in this reporting year (Sphere of influence)

Name and description of policy, legal instrument, investment or curriculum to which CGIAR contributed	Level of Maturity	Link to sub-DOs (max. 2)	CGIAR cross-cutting marker score				Link to OICR
			Gender	Youth	CapDev	Climate Change	
Draft agroforestry policy and manual for the Association of Southeast Asian Nations (ASEAN). At approval level with the ASEAN Ministerial Council.	Level 1	3.3.1 Increased resilience of agro-ecosystems and communities, especially those including smallholders and 2.1.1 Increased availability of diverse nutrient-rich foods	1	1	1	1	Policy and manual
Draft agroforestry policy for Nepal at final stages of approval in government.	Level 1	3.3.1 Increased resilience of agro-ecosystems and communities, especially those including smallholders and 2.1.1 Increased availability of diverse nutrient-rich foods	1	1	1	1	

Name and description of policy, legal instrument, investment or curriculum to which CGIAR contributed	Level of Maturity	Link to sub-IDs (max. 2)	CGIAR cross-cutting marker score				Link to OICR
			Gender	Youth	CapDev	Climate Change	
Strategy: Supporting human nutrition in Africa through the integration of new and orphan crops into food systems: placing the work of the African Orphan Crops Consortium in context.	Level 1	1.4.3 Enhanced adaptive capacity to climate risks (More sustainably managed agro-ecosystems) 3.3.2 Adoption of CGIAR materials with enhanced genetic gains	1	1	1	1	
Strategy: Bridging molecular genetics and participatory research: how access and benefit sharing stimulate interdisciplinary research for tropical biology and conservation.	Level 1	1.4.4 Increased conservation and use of genetic resources. 3.1.2 Enhanced conservation of habitats and resources	1	1	1	1	
Strategy informing the FAO Global Plan of Action for the conservation, sustainable use and development of forest genetic resources within the framework of the Commission on Plant Genetic Resources for Food and Agriculture. Strategy title: "Indicators of the Genetic Diversity of Trees – State, Pressure, Benefit and Response. State of the World's Forest Genetic Resources"	Level 1	1.4.4 More efficient use of inputs 1.3.4 Increased conservation and use of genetic resources	1	1	1	1	

Name and description of policy, legal instrument, investment or curriculum to which CGIAR contributed	Level of Maturity	Link to sub-DOs (max. 2)	CGIAR cross-cutting marker score				Link to OICR
			Gender	Youth	CapDev	Climate Change	
Strategy: Fit for purpose seed supply systems for the implementation of landscape restoration under Initiative 20x20: An analysis of national seed systems in Mexico, Guatemala, Costa Rica, Colombia, Peru, Chile and Argentina.	Level 1	1.4.4 More efficient use of inputs	1	1	1	1	
Curriculum: The African Plant Breeding 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. With NEPAD, AOCC, AGRA and UC Davis.	Level 1	D.1.1 Enhanced institutional capacity of partner research organizations	1	1	2	1	
Strategy on the role of coffee and cocoa in deforestation and tree cover change	Level 1	Agricultural systems diversified and intensified in ways that protect soils and water. 3.1.2 Enhanced conservation of habitats and resources	n/a	n/a	1	1	
Sustainable Landscapes Rating Tool (SLRT) enables a rapid assessment of the key conditions for jurisdictional policies and governance that enable sustainable landscapes. The tool provides a snapshot of a jurisdiction's capacity to establish and ensure effective functioning of policies, plans, strategies, regulations, monitoring systems and multi-stakeholder platforms, which, collectively, have been found to be important in supporting sustainable landscapes.	Level 2	A.1. Climate change adaptation and mitigation achieved	1	1	2	2	SLRT was implemented by CIFOR in 4 states/provinces in Brazil, 5 in Peru, 4 in Mexico, 1 in Ecuador, 2 in Cote d'Ivoire, and 3 in Indonesia. The SLRTs are currently being prepared for publishing on the GCF Impact Platform .

Name and description of policy, legal instrument, investment or curriculum to which CGIAR contributed	Level of Maturity	Link to sub-DOs (max. 2)	CGIAR cross-cutting marker score				Link to OICR
			Gender	Youth	CapDev	Climate Change	
Inclusion of trees on farms in UN Convention on Biodiversity (CBD) post-2020 planning process and targets.	Level 1	9.2 and C3	1	1	1	1	Trees on farms explicitly included in National Biodiversity Strategy and Action Plans of three countries (including Uganda and Peru).
National agroforestry policy in Rwanda.	Level 2	10.1 and C3	2	2	1	1	Rwanda national agroforestry strategy and action plan 2018-2027 produced and now being implemented.
National agroforestry scaling strategy in Ethiopia.	Level 1	8.1 and C3	1	2	1	1	Draft strategy and delivery unit within Ministry of Agriculture developed and FTA scientist embedded in ministry.
National agroforestry policy in Uganda.	Level 1	10.1 and C3	1	1	1	1	Parliamentary process initiated and process to draft a national strategy invoked.
Agroforestry concessions to promote agroforestry through provision of land title in Peru.	Level 3	8.1 and C3	1	1	1	1	National policy approved , regional legislation passed and implementation initiated, with FTA involved in running planned comparisons of alternative implementation approaches

Name and description of policy, legal instrument, investment or curriculum to which CGIAR contributed	Level of Maturity	Link to sub-IDOs (max. 2)	CGIAR cross-cutting marker score				Link to OICR
			Gender	Youth	CapDev	Climate Change	
							relevant to 180,000 beneficiary households.
Integrated regional policy on greening in northern Ghana.	Level 1	8.1 and C3	2	2	1	1	Tamale declaration requests the Northern Development Authority (NDA), MMDAs (Metro, Municipal and District Assemblies), traditional authorities, and the Ministries of Land and Natural Resources (MLR), of Environment, Science, Technology and Innovation (MESTI), and of Food and Agriculture (MOFA), to develop and implement a comprehensive Regreening Plan.

Table 3: List of outcome/impact case reports from this reporting year (Sphere of influence)

Title of Outcome/ Impact Case Report (OICR) with link (e.g. to CLARISA dashboard, MARLO).	Maturity level Drop down for: 1, 2 or 3	Indicate if this is: (drop down) - new outcome - updated case - same level of maturity - updated case - new level of maturity
Creating an enabling environment for improved land tenure reform in Uganda	1	New outcome case
Cocoa of Excellence Programme provided visibility and improved processing techniques and final quality	1	New outcome case

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

Title of innovation with link (e.g. to CLARISA dashboard, MARLO)	Innovation Type	Stage of innovation	Geographic scope (with location)
Why Institutional Environments for Agroforestry Seed Systems Matter.	Productions systems and Management/ Social science	PC	Global
Ensemble species distribution modelling with transformed suitability values.	Research Tools	AV	Global
Three BiodiversityR packages for Community Ecology and Suitability Analysis	Research Tools	AV – number of installations can be provided	Global
Five vegan Community Ecology Packages	Research Tools	AV – number of installations can be provided	Global
A new version of the Africa Tree Finder , updated on 7 August 2018.	Communication tool	AV	East Africa
Performance-based financing tool for local-level sustainable enterprise finance in community forestry developed and tested - see technical brief .	Financing Mechanism/ Approach	PC	Cameroon
Protocol for local ecosystems-based adaptation in community forestry developed.	Planning Tools	PC	Gambia
Web platform for linking community forestry information in the Gambia. Integrates quantitative and qualitative information for monitoring and planning.	Monitoring and planning tool	PC	Gambia
Sustainable landscapes rating tool (SLRT).	Assessment Tool	USE	<p>SLRT implemented in 4 states/provinces in Brazil, 5 in Peru, 4 in Mexico, 1 in Ecuador, 2 in Cote d'Ivoire, and 3 in Indonesia.</p> <p>Two-page summary profiles were created for 18 sub-national jurisdictions (provinces/states): Madre de Dios, Peru; Amazonas, Peru; Huanuco, Peru; Loreto, Peru; Ucayali, Peru; Campeche, Mexico; Quintana Roo, Mexico; Tabasco, Mexico; Yucatan, Mexico; Cavally, Ivory Coast; Belier, Ivory Coast; Cross River, Nigeria;</p>

Title of innovation with link (e.g. to CLARISA dashboard, MARLO)	Innovation Type	Stage of innovation	Geographic scope (with location)
			<p>Aceh, Indonesia; North Kalimantan, Indonesia; East Kalimantan, Indonesia; Sabah, Malaysia; Zambézia, Mozambique; and Maï Ndombe, Democratic Republic of Congo. All published two-page profiles are available here.</p> <p>Seven additional two-page profiles are being finalized for publication on: Pastaza, Ecuador; Oromia, Ethiopia; West Kalimantan, Indonesia; Amapa, Brazil; Amazonas, Brazil; Maranhao, Brazil; Tocantins, Brazil.</p>
<p>Elaboration of a multi-scale monitoring framework for jurisdictional initiatives:</p> <ul style="list-style-type: none"> - The governance arrangements of sustainable oil palm initiatives in Indonesia: Multilevel interactions between public and private actors - Implementing sustainability commitments for palm oil in Indonesia: Governance arrangements of sustainability initiatives involving public and private actors - Komitmen nol deforestasi di Indonesia tantangan tata kelola 	Monitoring and assessment tool	PC	Indonesia, Columbia, Ghana and other locations
Ecophysiological model of coffee's response to climate change	Biophysical research	USE	Global
Tree pruning technology for Faidherbia albida and maize intercropping	Production systems and management practices	PC	Ethiopia
Strategy for sub-national implementation of Land Degradation Neutrality	Social science	PC	Proof of concept in Ethiopia, but with global relevance
Knowledge based systems tools for using local knowledge to design smallholder tree-based climate adaptation	Research and communication methodologies and tools	PC	Proof of concept in Morocco, but with global relevance
Knowledge based systems tools for using local knowledge to match soil health options to farmer context	Research and communication methodologies and tools	PC	Proof of concept in Rwanda, but with global relevance

Title of innovation with link (e.g. to CLARISA dashboard, MARLO)	Innovation Type	Stage of innovation	Geographic scope (with location)
Locally adapted planting basin technology to ameliorate impact of drought (low and variable rainfall) on crop yield and tree survival	Production systems and management practices	AV	Implemented using planned comparisons with performance measurement across >3,500 farmers in three counties in Kenya, four woredas (districts) in Ethiopia, and in Mali
Locally adapted farmer managed natural regeneration technology with microdosing and manure application	Production systems and management practices	USE	The Sahel (implemented using planned comparisons with performance measurement across 1,789 farmers in 5 regions of Niger in conjunction with Grain Legumes and Dryland Cereals (GLDC)
Techniques for assessing land restoration potential	Research and communication methodologies and tools	AV	Global, with proof of concept in Kenya
Sustainable agriculture intensification dashboards to facilitate use of evidence in decision making for Zambia, Tanzania and Ethiopia	Research and communication methodologies and tools	AV	Zambia, Tanzania and Ethiopia
Tool for selecting locally relevant shade trees based on their ecosystem service provision for smallholder coffee systems	Research and communication methodologies and tools	AV	Method globally relevant, but locally applied around Mt Elgon in Uganda for proof of concept
Attribute ranking method for acquiring local knowledge about tree attributes	Research and communication methodologies and tools	USE	Globally relevant method so far applied in Rwanda, Kenya, Uganda and Burkina Faso
Designing optimal shade canopies in perennial tree crops	Research and communication methodologies and tools	AV	Global

Table 5: Summary of status of planned outcomes and milestones (Sphere of influence-control)

FP	FP outcomes 2022	Summary narrative on progress against each FP outcome this year	Milestone	2018 milestones status complete, extended, cancelled or changed)	Provide evidence for completed milestones (refer back to means of verification, and link to evidence wherever possible) or explanation for extended, cancelled or changed
FP1	Managers and policy-makers adopt effective monitoring methods, tools and practices to mitigate threats to valuable tree genetic resources (TGR), 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.	In 2017 and 2018, 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.	Valuing tree genetic resources and feasibility of conservation, for more productive and resilient tropical agroforest landscapes, and their importance for delivering SDGs.	1	Distribution maps of 72 species in process, 7 journal articles on the screening of diversity and measures for maintenance (safeguarding and conservation), and 1 journal article on processes that shape ecosystem service provisioning of Brazil nuts in the Amazon.
FP1	Agricultural and horticultural research and development partners adopt cost-effective domestication approaches for priority tree species, based on impacts and maximizing efficiency, and considering trade-offs involved in intensification, while paying	In 2017 and 2018, 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	Integrating new and orphan food trees into evolving African food systems using enhanced domestication approaches.	1	A strategy developed for supporting human nutrition in Africa through the integration of new and orphan crops, using exemplar crop analysis to guide the building of business models and breeding. 5 genomes, 9 articles on characterization, 3 articles on cultivar

FP	FP outcomes 2022	Summary narrative on progress against each FP outcome this year	Milestone	2018 milestones status complete, extended, cancelled or changed)	Provide evidence for completed milestones (refer back to means of verification, and link to evidence wherever possible) or explanation for extended, cancelled or changed
	attention to smallholder breeders' rights.	returns in their breeding strategy; the annual target of 3-5 institutions in three regions has been achieved.			development, and 1 article on suitability modeling published.
FP1	National governments, extension services and private partners adopt cost-effective and equitable tree-planting material delivery approaches, with attention to appropriate international and national policies governing material transfer/use agreements, and using the most appropriate decision support tools, to supply high-quality site-appropriate tree-planting material to smallholders and other growers.	In 2017 and 2018, 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.	Policy measures, regulatory frameworks, decision support tools, and mass breeding of reproductive material in support of application of appropriate tree genetic resource portfolios in production systems, for landscape restoration and biodiversity conservation.	1	A general policy review is in process; a regulatory strategy informing national tree seed systems has been developed for Latin America and is underway in Asia. A global indicator framework for monitoring diversity has been prepared; and mass breeding is being applied at scale in East Africa. Suitability modeling of tree species to current and future climates has developed further, in the form of theory (articles), tools (web and mobile based), and field application.
FP 2	Improved food security and livelihood opportunities for 100 million people in smallholder households and more productive and equitable management of natural resources over an area of at least 50 million ha. This	Progress towards the outcome and evidencing has accelerated through: IFAD loan programs in Niger, Mali, Ethiopia and Kenya; an impact pathway in 12 African countries through the GEF program on resilient food security in sub-Saharan Africa; embedded	Livelihood system models and predictions of impact from better use of tree resources for at least five countries in Africa, Asia and Latin America.	1	Livelihood trajectory models for Kenya and Ethiopia; ecophysiological and local knowledge models for coffee applied in Rwanda, Uganda and China; and oil palm agroforestry fostering socially

FP	FP outcomes 2022	Summary narrative on progress against each FP outcome this year	Milestone	2018 milestones status complete, extended, cancelled or changed)	Provide evidence for completed milestones (refer back to means of verification, and link to evidence wherever possible) or explanation for extended, cancelled or changed
	outcome integrates some outputs from other research clusters through their scaling.	staff in the Ethiopian ministry to assist national agroforestry scaling strategy delivery; agroforestry policies in Rwanda, Uganda and Nepal; agroecological initiatives in two Indian states; and control of fall army worm in Africa. Livelihood system models not only demonstrate food security outcomes associated with trees over time but also inform option design capable of producing transformative outcomes.			inclusive and sustainable production in Brazil.
FP2	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.	A key feature of the FP2 theory of change relates to perverse effects of forest policy and agricultural incentives as barriers to adoption of market-based agroforestry practices, the reform of which often requires innovative cross-sector and inter-ministerial action to unlock livelihood opportunities for smallholder farmers.	Impacts of forest policy on socially and economically differentiated groups of actors collated across at least six countries and three regions.	1	National: agroforestry and strategy plan in Rwanda, parliamentary policy process in Uganda, scaling strategy in Ethiopia, policy in Nepal, regional greening policy in northern Ghana and implementation of agroforestry concessions in Peru.

FP	FP outcomes 2022	Summary narrative on progress against each FP outcome this year	Milestone	2018 milestones status complete, extended, cancelled or changed)	Provide evidence for completed milestones (refer back to means of verification, and link to evidence wherever possible) or explanation for extended, cancelled or changed
FP2	Diversified tree-crop production systems covering 5 million ha and improving diets and livelihood opportunities for 20 million people in smallholder producer households.	The majority of tree-crop commodity production is by smallholder farmers, but they accrue a low proportion of the industry value of products they produce, and are subject to price fluctuations. Diversification of rubber production systems in China is a key sustainable intensification strategy - already reported in previous years and augmented here with progress in coffee diversification.	Options for managing intensive rubber production systems in environmentally sustainable ways in China.	1	Performance measures for climate change mitigation of rubber agroforestry from previously reported green rubber options in South West China are augmented by progress in promoting sustainable coffee agroforestry.
FP2	Increased access to diverse, nutrient rich food for 20 million people, through closing yield gaps by trees in agricultural systems improving and maintaining soil health, as well as intensifying system interactions (fodder and firewood) and directly contributing to production, reducing and reversing land degradation and increasing the resilience of smallholder livelihoods.	A key constraint to farmer managed regeneration of trees is free grazing of livestock; measures to integrate livestock and trees are therefore critical for realizing the benefits of trees on farm land and across agricultural landscapes in sub-Saharan Africa.	Governance models required to reconcile free grazing of animals with tree regeneration across sub-Saharan Africa evaluated.	1	Integrating crop and livestock in smallholder production systems for food security and poverty reduction in sub-Saharan Africa.

FP	FP outcomes 2022	Summary narrative on progress against each FP outcome this year	Milestone	2018 milestones status complete, extended, cancelled or changed)	Provide evidence for completed milestones (refer back to means of verification, and link to evidence wherever possible) or explanation for extended, cancelled or changed
FP2	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.	Ruminant livestock are a major contributor of greenhouse gas emissions but integrating livestock with trees and crops in silvopastoral systems can reduce emissions at the same time as improving productivity and sustainability of production systems, particularly through avoiding or reversing land degradation.	Strategy for development of climate smart silvopastoral systems developed.	1	<p>Multi-scale measurements show limited soil greenhouse gas emissions in Kenyan smallholder coffee-dairy systems.</p> <p>Comparative analysis of climate change impact on livestock in relation to biomass base feed availability using standardized precipitation index in south-western Ethiopia.</p>
FP3	Public and private actors adopt effective governance arrangements, mechanisms and tools for ensuring sustainable and inclusive commodity supply in at least 3 major producer countries.	<p>Performed analysis of implementation gaps behind:</p> <ul style="list-style-type: none"> - FSC certification in 7 countries; - livestock zero-deforestation commitments in Brazil; - oil palm sustainable commitments in Indonesia; - livestock and cacao zero-deforestation commitments in Colombia; - Cocoa and Forest initiative in Ghana; - engagement with stakeholders in 7 landscapes. 	Completed assessment of the implementation gaps, challenges and opportunities in sustainable value chain governance with analysis into social, economic and environmental impacts (based on key select indicators) in at least five landscapes.	Complete, but changed slightly	<p>Implementing sustainability commitments for palm oil in Indonesia: Governance arrangements of sustainability initiatives involving public and private actors.</p> <p>Shaping the implementation of the FSC standard: The case of auditors in Brazil.</p> <p>Making international standards more credible: The case of the FSC forest</p>

FP	FP outcomes 2022	Summary narrative on progress against each FP outcome this year	Milestone	2018 milestones status complete, extended, cancelled or changed)	Provide evidence for completed milestones (refer back to means of verification, and link to evidence wherever possible) or explanation for extended, cancelled or changed
					<p>management label.</p> <p>Technical reports for Ghana and Colombia and Brazil, and analytical framework of P18 available upon request.</p>
FP3	5 business platforms and 20 businesses and service providers develop and implement business models that are more inclusive, economically viable and environmentally sustainable.	FP3 conducted structured consultations with over 50 inclusive business proponents, including 4 multi-stakeholder seminars. This helped establish new partnerships to develop collaborative and need-driven research in 2019. This will form the foundation for supporting a change in business (model) practices in 2019. Interactive map (of Papua) under development. Blogs planned for October. Session at ICBE conference in Papua in October.	Platforms that involve private sector actors from three sectors relevant to our research are informed about the socio-environmental performance of value chain and business models.	1	Workshop reports available upon request.
FP3	At least 30% of financial service providers lending to timber, tree and agricultural crops adopt ESG criteria, and increase by 25% the lending to models that integrate smallholders and SMEs.	FP3 developed a conceptual framework identifying the main barriers to accessing finance for smallholders and SMEs, and are working on a compendium of successful blended finance initiatives and their approaches	Develop a conceptual framework for inclusive financing of landscapes and value chains, taking stock of current development of financing landscape initiatives, approaches and modes of	2	Due to changes in personnel, development of the conceptual framework was delayed. The framework document is still an open document and can be available upon request.

FP	FP outcomes 2022	Summary narrative on progress against each FP outcome this year	Milestone	2018 milestones status complete, extended, cancelled or changed)	Provide evidence for completed milestones (refer back to means of verification, and link to evidence wherever possible) or explanation for extended, cancelled or changed
		towards inclusive landscape financing.	operation for inclusive landscape financing.		
FP4	(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.	Synthesis of information from three sentinel landscapes (Cameroon, Nicaragua-Honduras and Indonesia) carried out in 2018, including a broader stock take on progress in the sentinel landscape agenda. A portfolio approach to be explored in 2019, building on the stock take targeting broader Theories of Change and theories of place development. Other work has been achieved outside sentinel landscapes in this regard.	Adjustments to portfolio of sentinel landscapes for Round 2 characterization, based on explicit account of representativeness for wider domains, track record of connecting results to local development planning (local governments and external supporting agencies) and interventions balancing livelihood opportunities and reversal of land degradation and deforestation. Decision support tools for prioritizing sites and defining objectives for restoration of forests, at the landscape and local scale, tested and adopted in three priority countries.	2	Nicaragua-Honduras information on this link: Sentinel Landscape stocktaking pilot study report ; Cameroon and Indonesia (Borneo) reports are being finalized.

FP	FP outcomes 2022	Summary narrative on progress against each FP outcome this year	Milestone	2018 milestones status complete, extended, cancelled or changed)	Provide evidence for completed milestones (refer back to means of verification, and link to evidence wherever possible) or explanation for extended, cancelled or changed
FP4	(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.	Important steps were taken towards achieving the outcome in 2018. A portfolio of 29 and 25 community forest enterprises established in Cameroon and the Gambia respectively, as well as significant degraded area put under governance mechanisms through several projects in Asia, Africa and Latin America.	Synthesis of options for achieving Aichi targets of biodiversity conservation through managed transition zones around protected areas, landscape connectivity and ecological corridors and development zoning utilizing full spectrum of FTA land use systems.	1	Evidence for completed milestone available here .
FP4	Diverse diets from tree cover in mosaic landscapes recognized and enhanced as contributions to balanced diets through increase of availability, and access to, nutrient-rich wild and cultivated food products from these landscapes (10 sentinel landscapes, 10 million people).	A systematic review on tropical forests and fisheries was completed. Other important studies and policy recommendations on diets and nutrition were completed in Indonesia, Ethiopia, Tanzania, Kenya and Gabon. New tree-portfolio based nutrition and diverse diet recommendations have also contributed to literature.	Evidence on the contribution of nutritious foods from forests, trees and mosaic landscapes to healthy diets produced and shared at national levels, in international fora, and to general audiences.	1	Evidence for completed milestone available here .
FP4	Adaptive landscape institutions empowered and supported on 6 M ha inhabited by 4 M people to manage changing landscape mosaics towards more balanced and adaptive	Progress has been recorded in supporting sustainable forests, tree and agroforestry governance across Africa, Asia and Latin America, notably in the areas of developing business cases and	Reflection on the multi-scale character of the ‘common but differentiated responsibility’ phrase that so far is primarily used at international negotiation tables but that may increase	1	Evidence for completed milestone available here .

FP	FP outcomes 2022	Summary narrative on progress against each FP outcome this year	Milestone	2018 milestones status complete, extended, cancelled or changed)	Provide evidence for completed milestones (refer back to means of verification, and link to evidence wherever possible) or explanation for extended, cancelled or changed
	multifunctionality and successful 'forest landscape restoration' through 'action research' and inclusive, participatory learning. This is aligned with efforts in PIM.5.2 regarding 6 M ha of shared landscapes under more productive and equitable management.	implementing community forestry, ecosystem-based adaptation, co-investments in ecosystem services and restoration. Over 500 people trained.	space for local adaptive landscape management.		
FP5	Efficient, effective and equitable climate national and international mitigation policies and funding, aligned with development objectives (3E+ goals).	<p>CIFOR's Global Comparative Study on REDD+ published a book Transforming REDD+: Lessons and new directions.</p> <p>ICRAF published a special feature in Ecology and Society journal, on Twenty years of community forestry in Cameroon: Opportunities and challenges for sustainable development.</p> <p>FTA is supporting the establishment of the International Tropical Peatland Center in Indonesia.</p>	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+).	2	<p>The report is available here. All the published 2-pagers are available here. The remaining 2-page profiles will also be made available on this website once they have been finalized.</p> <p>The completed SLRTs will be posted online at the GCF Impact Platform. Due to the additional time required to complete the assessments, we are still in the process of obtaining consent to post online from all the jurisdictions. Much of the delays were due the elections</p>

FP	FP outcomes 2022	Summary narrative on progress against each FP outcome this year	Milestone	2018 milestones status complete, extended, cancelled or changed)	Provide evidence for completed milestones (refer back to means of verification, and link to evidence wherever possible) or explanation for extended, cancelled or changed
					occurring sub-nationally, in the case of Brazil- nationally.
FP5	Risk-assessed ecosystem-based adaptation (EbA) policy and practice in place including joint mitigation and adaptation approaches.	FP5 continued analyzing ecosystem-based adaptation (EbA) and joint mitigation and adaptation approaches in policies (e.g. through policy network analysis in Peru, Indonesia and Brazil) and practices (e.g. through systematic reviews and comparative case studies on the management of ecosystem services for climate change solutions). Terra-i shines a light on deforestation throughout the tropics to help government agencies, civil society and the private sector monitor forest change on a monthly timescale and at 250 m spatial resolution. Through the project website, Global Forest Watch and other platforms, Terra-i supports reductions in deforestation using 'sticks' such as government control functions, and 'carrots' such as the private sector touting zero-	Approaches and tools for risk and vulnerability assessment for both people and forests to climate change made available and used, e.g. in the 'loss and damage' debate.	1	Terra-i was improved to incorporate three levels of analysis (Level 1: Early alerts of changes; Level 2: Quantification of the loss of forest cover; Level 3: Identification of causes and drivers of deforestation) and use new radar.

FP	FP outcomes 2022	Summary narrative on progress against each FP outcome this year	Milestone	2018 milestones status complete, extended, cancelled or changed)	Provide evidence for completed milestones (refer back to means of verification, and link to evidence wherever possible) or explanation for extended, cancelled or changed
		deforestation supply chains. Reductions in deforestation lead to a corresponding reduction in greenhouse gas emissions.			
FP5	Food and bioenergy production policy and practice integrated more visibly in the intervention areas.	Report on calorific values of different bamboo species in different product forms based on life cycle analysis of bamboo performance in different energy forms- ongoing.	Analysis of options for bioenergy production to understand land allocation to bioenergy production concluded and used in national policies.	2	Still ongoing.
FP5	Performance assessment of mitigation and adaptation policy and practice widely implemented following good evaluation practice.	The global survey of subnational REDD+ initiatives has grown tremendously through a new partnership with Earth Innovation Institute (EII), the Governors' Forests and Climate (GCF) Task Force, and the Climate Community and Biodiversity Alliance (CCBA). FP5 now refers to this collaborative work as the assessment of jurisdictional sustainability across the tropics, which better reflects its broader scope.	Performance assessment of carbon and non-carbon outcomes of mitigation policies and practices carried out, and methods refined, e.g. for use in multi-stakeholder platforms.	1	Evidence available here .

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

	Number	Percent
Peer-reviewed publications	220	100%
Open Access	114	52%
ISI	191	87%

Table 7: Key external partnerships

Lead FP	Brief description of partnership aims	List of key partners in partnership	Main area of partnership (may choose multiple) Dropdown: Research/Delivery/Policy/Capacity Development/Other, please specify _____
FP1	Discovery and scaling (AOCC)	University of California, Davis and Mars	Research, Capacity Development
FP1	Discovery/piloting and scaling (PATSP0)	University of Copenhagen, Ethiopian Environment and Forest Research Institute	Research, Capacity Development
FP1	Scaling (landscape restoration)	International Union for Conservation of Nature, Food and Agriculture Organization	Delivery, Policy
FP1	Piloting and scaling Smallholder agroforestry systems for food security and livelihood enhancement; landscape restoration and Farmer Managed Natural Regeneration (FMNR)	World Vision Indonesia	Research, Delivery
FP1	Discovery and piloting Developing and promoting market-based agroforestry options and integrated landscape management for smallholder forestry	Forestry and Environment Research, Development and Innovation Agency (FOERDIA), Indonesia	Policy, Delivery, Capacity Development and Research
FP4	FP4 aims 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, Philippines, Ethiopia, Peru, Kenya and Sri Lanka Regional bodies: Association of Southeast Asian Nations International bodies: International Union of Forestry Research Organizations, Green Climate Fund, Collaborative Partnership on Forests Private: TMP Systems	Policy, Delivery, Capacity Development and Research

Lead FP	Brief description of partnership aims	List of key partners in partnership	Main area of partnership (may choose multiple) Dropdown: Research/Delivery/ Policy/Capacity Development/Other, please specify _____
FP5	The Sustainable Wetlands Adaptation and Mitigation Program (SWAMP) project aims to better understand the C-dynamics in wetland ecosystems, by employing robust scientific approaches and methodologies to generate knowledge that is relevant to policymakers and practitioners regarding the sustainable management of wetlands in the face of changing global climate and livelihoods of local community.	Ministry of Environment and Forestry, Government of Indonesia	Policy, Capacity Development
FP5	Updates on Projects to support GCF Jurisdictional Strategies and Investment Plans.	The Governors' Climate and Forests Task Force	Policy, Capacity Development
Gender CCT	Production of joint knowledge products, hosting joint workshops and participating in key forums to inform gender integration and enhance uptake of FTA research under UNFCCC and CBD.	UN Women, Convention on Biological Diversity and United Nations Framework Convention on Climate Change secretariat, For All Coalition, Feedback Worldwide	Research, Policy, Capacity Development
Gender CCT	FTA initiated a GLF gender constituency, organized event and published set of briefs to enhance uptake of FTA research among FLR practitioners and to enhance coordination among key stakeholders.	Global Landscapes Forum, 20 other organizations who have expressed interest or collaborated in other ways, including the Rights and Resources Initiative, World Bank Program on Forests (PROFOR)	Policy, Capacity Development
Gender CCT	Inform national restoration policy; conducted study on gender and restoration in Kenya (as commissioned by the Government of Kenya) and participated in development of national FLR strategy.	Government of Kenya, World Resources Institute, International Union for Conservation of Nature	Research, Policy
Gender CCT	Produce knowledge products to enhance the quality of FTA gender research, with emphasis on conceptual and methodological development on emerging topics (intersectionality, youth).	Universities, including Cornell University, University of Toronto and University of Singapore	Research, Capacity Development

Table 8: 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
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 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	Scientific and efficiency benefits
Joint planning and implementation on landscape restoration. Joint workshop was held in 2018 with several follow ups planned in first half of 2019.	WLE, PIM	Enabling scientific benefits through potential co-location of work and sharing of methods with potential for efficiency gains
Joint synthesis on cases studies in landscape governance.	PIM	Value added in terms of delivery of global public goods through global comparative analysis
Collaborative research and outreach on gender and restoration, e.g. cross-country comparative study on gender and restoration; special issue on gender and restoration; and Feminization of Agriculture grant by Gender Platform on gender and restoration.	WLE, PIM	Scientific and efficiency benefits
Collaborative research and outreach as part of cross-CRP study: 'GENNOVATE: Enabling gender norms and agency in agricultural and NRM innovation' through the study's executive committee; special issue based on GENNOVATE data.	CIMMYT/MAIZE and WHEAT	Scientific benefits

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
Construction of special initiative on climate change: FTA took the lead on impact area no. 6.	CCAFS	Scientific benefits, program building
Assessing the options of forests to be used as offsets for dairy sector emissions in Kenya and Tanzania.	CCAFS	Scientific benefits, program building
Collaboration to use IMPACT model on assessing effects of improved management practices and improved seedlings in the oil palm sector.	PIM	Scientific benefits
Research on seed system policies for vegetatively propagated crops.	PIM, RTB	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
Research on land use planning in Vietnam.	PIM	Scientific benefits
Collecting evidence at household, community and national levels of socioeconomic benefits from 12 community forest concessions in Maya Biosphere Reserve, Petén, Guatemala.	PIM	Systematic analysis of the socioeconomic performance of community enterprises in the Maya Biosphere Reserve

Table 9: Monitoring, evaluation, learning and impact assessment (MELIA)

Studies/learning exercises planned for this year (from POWB)	Status Complete, extended, cancelled, changed	Type of study or activity Dropdown: ePIA, Adoption survey. Effectiveness study, Quali Outcome study, Program evaluation, Synthesis, Other MELIA activity	Please include links to MELIA publications here
Evaluation of the Support to the Development of Agroforestry Concessions (AFCs) in Peru project (the SUCCESS project)	Completed	Quali Outcome study	<p>The SUCCESS project stimulated new coordinated activity and commitment among regional governments and NGOs on the implementation of AFCs in Peru. It succeeded in doing so by: i) framing AFCs alongside climate change issues that were high on the government’s agenda; and ii) building relationships with key government actors. By demonstrating AFC emissions reduction potential, showing where and how to implement AFCs, and highlighting what challenges remain to be addressed, the project gained ‘problem attention’. Effective relationships were supported by long-term involvement (since 1993), previous research, substantial outreach and engagement (through workshops, meetings and results presentations with government actors, NGOs and partner organizations), and international and national reputation for agroforestry research.</p> <p>The sustainability of project outcomes could have been enhanced by engaging technical specialists from key government agencies (e.g. SERFOR, ARA) to collaborate in project design. This would facilitate knowledge co-production to increase the likelihood that findings are integrated into operating plans and limit the effects of turnover.</p>
The Drylands Development project (DryDev)	Extended	Adoption survey	
Sustainable Agriculture Intensification project (SAIRLA)	Extended	Program evaluation	
Reversing Land Degradation in Africa by Scaling-up EverGreen Agriculture [1] (Regreening Africa)	Extended	ePIA/Adoption study	

Studies/learning exercises planned for this year (from POWB)	Status Complete, extended, cancelled, changed	Type of study or activity Dropdown: ePIA, Adoption survey. Effectiveness study, Quali Outcome study, Program evaluation, Synthesis, Other MELIA activity	Please include links to MELIA publications here
Evaluating the effectiveness of alternative approaches for scaling up improved shrub fodder feeding practices among smallholder farmers in Uganda	Extended	Effectiveness study	
Global Comparative Study (GCS) on Phase 2 of the Reducing Emissions from Deforestation and Forest Degradation (REDD+) programme: mid-term review	Extended	Mid-term program review	<p>The review examined whether the project’s strategies for influencing REDD+ actors and processes in eight target countries were contributing to intended outcomes. Insights gained in relation to key influence strategies included:</p> <p>1) Working in co-production partnerships</p> <ul style="list-style-type: none"> • Transdisciplinary partnerships have enhanced national partner knowledge of methods, tools and ability to utilize information in decision making. Research partnerships have enhanced partners access and exposure internationally and their ability to work sub-nationally. • There is scope to be more influential by more deliberately selecting partners at the local level for their multiple values as producers and connectors, developing engagement plans beyond time-bound project cycles, making better use of existing networks and forum, and working with well-connected local actors as co-publishers on all products. • A gap in the network mapping was identified. Consultancies commissioned to develop products and translate knowledge for specific decision-making processes are not recognized in the GCS, but are very influential in shaping national processes. <p>2) Working through international processes and the multi-lateral community</p> <p>This strategy was validated as REDD+ is implemented in line with frameworks and quality standards (determining how the efficiency, effectiveness and equity of REDD+ is designed and assessed). These are frequently aligned with policies and requirements of large multi-laterals through whom technical assistance flows, e.g. gender policies of the World Bank.</p>

Table 10: Update on actions taken in response to relevant evaluations

Name of the evaluation	Number of the recommendation	Recommendation	Status of response	Concrete actions taken	By whom	By when	Comments
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.	Ongoing	Produce a revised CapDev strategy based on systematic CapDev Needs Assessment.	CapDev thematic lead	July 2019	
	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 CapDev strategy review.	CapDev thematic lead	July 2019	
	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.	Ongoing	Being considered in CapDev strategy review.	FTA partners	End 2019	
Evaluation of Partnerships in CGIAR		All CRPs should have a distinct partnership strategy and accompanying operational plan.	Ongoing	FTA is currently revising its partnership strategy. Strategy discussed and approved by the MT, needs to go to ISC.	ISC, MT, PMU	July 2019	
	6	Emerging and developing country NARS with strong capacity should be more closely involved in research management in CRPs.	Ongoing	FTA already works with NARS. Strengthening relations with NARS will be part of the operational plan of the revised partnership strategy.	MT	December 2019	

Name of the evaluation	Number of the recommendation	Recommendation	Status of response	Concrete actions taken	By whom	By when	Comments
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.	Ongoing	FTA is refreshing its gender strategy to bring into focus attention on social inclusion that also emphasizes young men's and women's strategic interests. FTA has adopted in 2018 a new gender priority and will operationalize plans for 2019–2021.	MT, Gender lead	July 2019	
	6	CRPs should protect minimum core capacities in specialist gender expertise, while further exploring innovative ways of sharing resources and bringing in gender expertise.	Done	Done as per the 2018 POWB, including sharing of gender expertise with WLE's Restoration of Degraded Lands Flagship.	MT, Gender lead	December 2018	
	7b	Centers and CRPs should strengthen institutional mechanisms for mainstreaming gender in research.	Done	Done as per the 2018 POWB under the priority on Gender.	MT, Gender lead	December 2018	
	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	Design and integrate new metrics as part of the implementation of the quality of research for development framework in FTA.	MT, MELIA, Gender lead	December 2019	
Evaluation of Results-Based Management	3	Invest in CRP driven, system-relevant Management Information Systems	Ongoing	Joined the MARLO community and will have fully migrated to this system in time for 2019 POWB planning. Ensure sustainability of FTA data management systems and interoperability with CGIAR systems.	FTA Director	July 2019	
	5	<ul style="list-style-type: none"> Develop and implement annual RBM capacity building work plans 	Ongoing	Engage actively in forums that are shaping CGIAR	FTA Director,	December 2019	

Name of the evaluation	Number of the recommendation	Recommendation	Status of response	Concrete actions taken	By whom	By when	Comments
		<ul style="list-style-type: none"> Identifying champions at CRP and Center level CGIAR monitoring, evaluation and learning community of practice should continue to be supported, and be facilitated by the SMO. 		thinking in relation to operationalizing RBM across the CGIAR.	MSU and MELIA		
CRP evaluation of Forests, Trees, and Agroforestry	1	The Evaluation Team recommends that FTA's program and component-level objectives continue to be pursued programmatically because of their high global relevance. Several adjustments must be made to address emerging research themes, ensure better integration of forestry issues into the broader development agendas, and better balance current research priorities geographically.	Done	FTA has adopted a new prioritization process to devise its 2018 POWB. It will be continued for 2019–2021 plans.	FTA Director, MT, ISC	December 2018	
	2	The Evaluation Team recommends to better balance research priorities thematically, to adjust component coverage accordingly, and to establish 'tenure' as a cross-cutting activity.	Done	FTA has adopted a new prioritization process to devise its 2018 POWB. It will be continued for 2019–2021 plans.	FTA Director, MT, ISC	December 2018	
	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.	Ongoing	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 ICRAF and CIFOR, leading to de-siloing important parts of the work.	FTA Director, MT, ISC	December 2019	
	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	Ongoing	FTA is currently revisiting its impact pathways and end-of-program outcomes.	FTA Director, MT	December 2019	

Name of the evaluation	Number of the recommendation	Recommendation	Status of response	Concrete actions taken	By whom	By when	Comments
		research portfolio, including increased selectivity with regard to mapping bilaterally funded projects to the program.					
	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 December 2017. In 2018 a special workshop was held to decide the way forward for Sentinel Landscapes. Three stock take studies were launched in three Sentinel Landscapes.	MT	December 2021	
	6	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.	Ongoing	Revised social inclusion strategy drafted and presented to the Management Group in June 2018. New gender and social inclusion strategy (including Youth) in the making. FTA gender evaluation ongoing.	FTA Director and FTA GIT	December 2019	
	7	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.	Ongoing	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. This takes the form of joint scientific work and also joint engagement work. FTA will seek to engage strategic national partners	FTA Director, FP Leaders, ISC	December 2021	

Name of the evaluation	Number of the recommendation	Recommendation	Status of response	Concrete actions taken	By whom	By when	Comments
				and consult them on options for post-2021.			
Review of CRP Governance and Management	4	<p>Strengthen the authority of the CRP leader to manage for results:</p> <ul style="list-style-type: none"> place the reporting line and accountability for performance with the CRP governing body included in Recommendation 1, give CRP leaders the authority to establish appropriate management and program advisory arrangements, institute a formal role in the performance evaluation of CRP program managers and coordinators employed by centers. 	Done	All recommendations are now implemented. New ToRs of the flagship leaders have been elaborated and agreed to, including disposition for the CRP director to give feedback on performance of FP leaders.	FTA Director	December 2019	Performance appraisal of FP leaders for exercise 2018 to happen in 2019

Table 11: Examples of W1/2 use in this reporting period (2018)

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.
Assessment on gender and forest landscape restoration (FLR) in Kenya to inform development of Kenya's national FLR strategy.	Gender, Policy
Development of cross flagship synthesis publications; held a write shop on tree commodities and Sustainable Development Goals in which manuscripts were developed for a special issue on Sustainability Science. FP4 and FP5 mainly involved supporting the publication process.	Policy
Stock take on work done in three sentinel landscapes in Cameroon, Indonesia and Nicaragua-Honduras. Work done through partnership between CIFOR, ICRAF and CATIE.	Policy
Tree genetic resources (TGR) policy review.	Policy
Valuing TGR. Journal articles on screening for genetic diversity in important tree species and how this can support safeguarding and sustainable use.	Research
Publications on valuing TGRs and their importance for delivering SDGs (economic benefits).	
Establishing an effective operating delivery unit in the Ministry of Agriculture, working with other ministries, donors and implementers to achieve scaling up of agroforestry nationally, and national scaling strategies in Rwanda and Uganda. High profile journal paper and policy perspective, associated blog and extension materials documenting the process.	Delivery
Identification of key oil palm diversification options and establishment of controlled and participatory trials with private sector partners and farmers to evaluate their performance. Journal paper with associated blog and practical information sheets.	Policy
Simulation modeling tool, high impact paper on its utility with associated blog and information note.	Tool

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.
Development of conceptual framework for inclusive financing of landscapes and value chains, with a focus on smallholders.	Policy
Completed rating tool assessments for all jurisdictions; validation workshops with jurisdictional stakeholders; at least one publication on methods (tool) and results in 2018; dissemination of methods/results at one major international event.	Rating tool assessments
Research strategy on adaptation and human mobility, two draft papers on vulnerability analysis, adaptation and livelihoods in West Africa.	Research strategy
Prototype method for <i>ex ante</i> impact assessments.	MELIA
Pilot <i>ex ante</i> studies.	MELIA
FTA portal with high value datasets.	MELIA, Other
Analyses of contributions of research to change processes published as journal articles.	MELIA
Working paper on testing assumptions relating to effective research for development.	MELIA
Strengthen collaboration with African Universities through reformed curricula.	Capacity Development, Partnerships
Led analysis and publication of a comparative study on youth aspirations in seven countries, published in a special issue on GENNOVATE; co-edited special issue on GENNOVATE.	Cross-cutting (Youth)
Produced tools for enhancing capacities to conduct gender analyses in research (e.g. manual and webinar on intersectionality).	Cross-cutting (Gender) and Capacity Development
Developed policy submissions and joint knowledge products, organized joint events and workshops with key partners and participated in key forums (e.g. For All coalition, UNFCCC SB48) to leverage FTA research to inform gender mainstreaming under Rio Conventions (UNFCCC, CBD).	Gender, Policy

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.
Coordinated and engaged a global community of practice on gender and forest landscape restoration through joint knowledge products (e.g. set of briefs) and events.	Gender, Partnerships and Policy
REDD+ book.	Policy
Contribution to the Sustainable Landscapes Rating Tool (SLRT).	Policy
Program leadership, management and support, including communication and outreach.	Other

Table 12: CRP financial report

	Planned budget 2018				Actual expenditure 2018*				Difference				Comments
	W1/2*	W3/ bilateral	Center Fund	Total	W1/2	W3/ bilateral	Center Fund	Total	W1/2	W3/ bilateral	Center Fund	Total	
FP1	1,068	14,527		15,595	1,013	12,551	981	14,545	55	1,976	(981)	1,050	
FP2	1,630	15,935		17,565	1,324	17,309	(7)	18,626	306	(1,374)	7	(1,061)	
FP3	1,420	9,491		10,911	1,494	10,974	535	13,003	(74)	(1,483)	(535)	(2,092)	
FP4	1,412	8,837		10,249	1,211	7,469	731	9,411	201	1,368	(731)	838	
FP5	1,098	15,181		16,279	1,168	11,435	841	13,444	(70)	3,746	(841)	2,835	
Strategic Competitive Research grant				-					-	-	-		
CRP Management & Support Cost	2,244	1,617		3,861	2,105	190	22	2,317	139	1,427	(22)	1,544	
Less CGIAR Collaboration		-	-	-	126	1,224	-	1,350	(126)	(1,224)	-	(1,350)	
CRP Total	8,872	65,588	-	74,460	8,189	58,704	3,103	69,996	683	6,884	(3,103)	4,464	

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

*CIFOR 2018 Audited Consolidated Financial Statements

Annexes

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 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 2018 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:** Specific attention to gender is warranted and the overall gender CCT budget is ringfenced in 2019 at a minimum of the 2018 level (USD 700,000). This envelope includes a range of gender activities integrated in operational priorities, as well as the operational priority on gender.
- 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's Theory of Change (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, and 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, extending projects' scientific and development relevance beyond their completion.

Annex 2: Detailed description of flagship program progress

FP1 – Tree genetic resources to bridge production gaps and promote resilience

Under cluster of activities (CoA) 1 on safeguarding and the priority on safeguarding and biodiversity, work on mapping, assessing and valuing tree genetic diversity was expanded in the Asia-Pacific region and in various African and Latin American countries, to support the design of adequate conservation strategies based on genetic conservation units; documentation will be available in 2019 (seven articles on screening diversity were published in 2018). A [study of Brazil nut in Amazonia](#) revealed that the essential contribution of ecosystem services by hyper-dominant species may be even more important than so far considered. The flagship (all clusters) led a highly successful [discussion forum](#) (100+ participants) at the Global Landscapes Forum in Bonn on the critical role of delivering genetically diverse and high quality planting material for resilient restoration.

Under CoA2 on domestication and the priority on new and orphan crops, the work on orphan crops was advanced with publication of a strategy, [Supporting human nutrition in Africa through the integration of new and orphan crops into food systems](#), using exemplar crop analysis to guide the building of business models and advanced genomic breeding. A [study on the African fiber producing desert plant, *Calotropis*](#), provided novel insights into the genetic diversity and population structure of the species, which will promote further resource utilization and the development of genetic improvement strategies for *Calotropis*. Five orphan crop reference genomes were published in the [GigaScience Database](#), with a common reference article in [GigaScience](#). Part of this work was featured in [The Economist](#) in late 2017. Also in CoA2, contributing to the **priority on enhanced nutrition and food security**, fruit tree portfolios targeting dietary diversity through ag-biodiversity were upscaled in [several sites in East Africa](#) and published for further mainstreaming.

Under CoA3 on delivery and the priority on restoration of forests and landscapes, suitability modeling of tree species to current and future climates has developed further in 2018, in the form of theory, tools and field application. An article on methodology was [published](#) early in the year, following [publication of the atlas](#) for 54 species in Central America in late 2017, providing a tool for species selection. The methodology has been mainstreamed into a development program in Ethiopia to guide implementation of a multiple species breeding program, based on the principle of multiple population breeding; five orchards were established in 2018 and 14 are planned for 2019. This work was embraced by a Nature news feature on [how to plant a trillion trees](#). Thematic studies on management and monitoring diversity, in support of the global agenda for agricultural diversification, were provided in the form of contributions to the first “State of the World’s Biodiversity” and the “State of the World’s Forest Genetic Resources”.

FP3 – Sustainable value chains and investments

In 2018, FP3 led and co-led five of FTA’s operational priorities. Results were achieved in all priorities, but with some variation. Two priorities were added to FP3 on plantations (P2) and effective sustainable supply approaches (P20), which sharpened the thematic focus of the work, as well as the selection of geographies, policy dialogues and multi-stakeholder platforms for engagement.

Leading the priority on **public and private commitments to zero deforestation**, FP3 developed an analytical framework for analyzing social and environmental outputs, outcomes and impacts associated with jurisdictional zero-deforestation and landscape restoration commitments. It completed analyses of implementation gaps related to: i) livestock zero-deforestation commitments in Brazil; (ii) oil palm sustainable commitments in Indonesia; (iii) livestock and cacao zero-deforestation commitments in Colombia; iv) the Cocoa and Forest initiative in Ghana; and v) engagement with stakeholders in seven landscapes. Completing an analysis that began in 2017, FP3 presented to FSC the main implementation gaps behind FSC certification in seven countries (ISEAL event, May 2018,

Sao Paulo), providing recommendations to make international standards more credible. FP3 worked with FP5 on subnational jurisdictional approaches, including a jurisdictional survey of private sector information and analysis, which resulted in two publications.

Co-leading the priority on **plantations and tree-crop commodities**, FP3 started reviews for timber, rubber and oil palm plantations. Overview reports will be delivered in early 2019. The reviews assess the temporal and spatial dynamics of plantations expansion (including those for restoration and bioenergy development), with identification of ‘hotspots’, their drivers and impacts, and associated sustainability challenges. The reviews are being used to define research questions, case studies and engagement and outreach strategies for each commodity.

Leading the priority on **effectiveness of approaches to sustainable supply**, FP3 completed a report on the European Union’s Forest Law Enforcement, Governance and Trade (FLEGT) approaches available for Cameroon. This report will be converted to an Occasional Paper and will be presented at the World Agroforestry Congress in May 2019. The literature review of environment, social and governance (ESG) standards and preliminary cost-benefit analysis of oil palm in Indonesia was completed. CIFOR presented FP3 research results at two Innovation Forum events in London during 2018, “Harnessing the SDGs to strengthen smallholder supply chains” in March 2018 (palm oil) and the Sustainable Landscapes event in November 2018. The latter also served to explore a potential new science partnership between CIFOR-TFA and Innovation Forum as an effective corporate multi-stakeholder platform to complement the GLF. The analysis for beyond certification was postponed to 2019. This work will broaden the understanding of the limits of certification, and will identify new approaches and their potential for addressing sustainability in commodity crops.

Leading the priority on **inclusive finance and business models**, FP3 conducted structured consultations with over 50 inclusive business proponents, including four multi-stakeholder seminars. Consultations contributed to development of the conceptual and methodological framework to identify the determinants and causal processes that shape the social, economic, and environmental performance, scalability, and replicability of inclusive business and finance initiatives. FP3 also developed a conceptual framework identifying the main barriers to accessing finance for smallholders and SMEs, and is working on a compendium of successful blended finance initiatives and their approaches towards inclusive landscape financing. Interviews were also held with industry experts to explore a diversity of perspectives on scaling inclusive finance.

FP3 helped establish new partnerships to develop collaborative and need-driven research for 2019. This will form the foundation for supporting a change in business (model) practices. An interactive map (Papua, Indonesia) is under development. Materials prepared in 2018 will be used for blogs as well as a session at the ICBE conference in Papua in 2019.

Leading the priority on **innovating finance for sustainable landscapes**, FP3 developed a conceptual framework identifying the main barriers to accessing finance for smallholders and SMEs. A compendium of successful blended finance initiatives and their approaches towards inclusive landscape financing is under development. This will contribute to putting in place the key building blocks to develop future FP3 work on innovative finance, in strong interaction with pre-existing platforms and initiatives for financing sustainable landscapes, closely linking them with our research on options and approaches towards zero deforestation and restoration. Renewed efforts to mobilize additional finance to conduct research on blended finance will be undertaken in 2019.

FP4 – Landscape dynamics, productivity and resilience

FP4 continued to make progress towards attaining the vision of effective multifunctional landscapes with trees in 2018, focusing on a number of key research areas. Work on **landscape mosaics, biodiversity and ecosystems services (CoA 4.2)** centered around innovative performance-based

finance of community forest enterprises in Cameroon and the Gambia, with a view to impacting multiple ecosystem services and livelihoods. Within the DFID-financed [Dryad](#) project in Cameroon, 34 community forest enterprises have been supported in 2018, developing an investment portfolio of about USD 1 million in 29 community forests, covering about 100,000 ha of community forests. The portfolio of enterprises includes non-timber forest products harvesting, processing and marketing (e.g. *Irvingia gabonensis*, *Ricinodendron heudelotii*), reforestation with agriculture including maize and plantain, charcoal production from abandoned and waste logs, and three joint-timber harvesting enterprises.

In the Gambia, business cases and plans have been developed for 25 community forests, including an overarching [baseline report](#) on community forests and ecosystems-based adaptation covering 125 communities. A [business case for co-investment in ecosystem services in Rejoso watershed in Indonesia](#). New inroads and lessons are being developed on performance-based finance, with a [technical brief](#) published in 2018, and an event held in Yaoundé, Cameroon in September to share early lessons.

At a global level FTA had privileged engagement in the IUFRO Global Assessment, [Forest and water on a changing planet: Vulnerability, adaptation and governance opportunities](#). This saw FTA staff leading overall and in multiple sections, including a [presentation](#) in New York at the High Level Political Forum (HLPF) on Sustainable Development on 10 July 2018, during the session entitled [Forest and water on a changing planet: Scientific insights for building sustainable and resilience societies](#). Other noteworthy contributions from this CoA in 2018 include a restoration manual and a report on transforming livelihoods in refugee contexts for reduced migration through tree-based/tree-related enterprises, following a project in northern Uganda.

Within [landscape diversity for healthy diets \(CoA 4.3\)](#), a systematic review on the relationship between tropical forests and fisheries work was completed. Preliminary results and dietary recommendations from our research project “From growing food to growing cash” were also presented to national stakeholders in Jakarta and at district and village levels in West Kalimantan and Papua where the research was carried out. One season of data collection on diets in two sites in Cameroon and in two sites in DRC was also completed. We also signed an agreement with the government of West Papua to advise on policies for moving towards a sustainable food system in that province.

In the area of [adaptive landscape institutions \(CoA 4.4\)](#), FTA contributed to the global forest governance discourse through a major special feature reviewing [Twenty years of community forestry in Cameroon: Opportunities and challenges for sustainable development](#), published in the Ecology and Society journal through a collaborative effort between FTA partners in 2018. The feature covers themes such as [innovations ecosystems perspective to the evolution of community forests](#), [a review of governance in community forests](#), [equity](#), [REDD+ potential on community forests](#), [success factors and social enterprise in Cameroon](#), [viability of community forests as social enterprises](#) and one paper comparing [community forests and community-based forest management in Cameroon, Kenya and Tanzania](#). FTA engaged in agroforestry policy development support in ASEAN and Nepal. Draft policies developed with leadership from FTA scientists are under consideration by the ASEAN Council of Ministers (a [policy](#) and a [manual](#)) and the Government of Nepal respectively. FTA has also supported green-growth strategy development at sub-national levels in South Sumatra province in Indonesia and in Vietnam. Finally, FP4 started an important new stream of research around the behavioral science of enhancing forests, trees and agroforestry in landscapes with two publications, [Deforestation and forest degradation as an environmental behavior: Unpacking realities shaping community actions](#) and [Rethinking environmentalism: Linking justice, sustainability, and diversity](#).

FP5 – Forests, trees and agroforestry for climate change adaptation and mitigation

FP5 continued its work on mitigation and adaptation (CoA1 and CoA2), its bioenergy research (CoA3), and its work on impact assessment (CoA4). FP5 held two side events at United Nations Climate Change Conferences, and four international events (Tropical Peatland Exchange, GLFs in Nairobi, Bonn and Katowice). FP5 continued to provide capacity development to eight BSc students (six males, two females), 14 MSc students (four males, 10 females) and 28 PhD students (13 males, 15 females). Short trainings have been given to 1,052 people (614 males, 438 females).

In CoA 5.1, from FP5's Global Comparative Study on REDD+, 20 ISI journal articles were generated, in addition to four non-ISI journal articles, one book, nine briefs and 15 blogs.

A particularly meaningful result comes from FP5's contribution to the Sustainable Landscapes Rating Tool (SLRT) and the REDD+ subnational jurisdictional approach. SLRT was implemented by FP5 in four states/provinces in Brazil, five in Peru, four in Mexico, one in Ecuador, two in Cote d'Ivoire, and three in Indonesia. This included fieldwork to conduct interviews with key informants and hold validation workshops with local stakeholders (two of four workshops in Brazil will be completed in February 2019 due to delays associated with 2018 presidential and governor elections). The SLRTs are either already published or being prepared to be published on the [GCF Impact Platform](#). Two-page summary profiles were created for 18 sub-national jurisdictions (provinces/states): Madre de Dios, Peru; Amazonas, Peru; Huanuco, Peru; Loreto, Peru; Ucayali, Peru; Campeche, Mexico; Quintana Roo, Mexico; Tabasco, Mexico; Yucatan, Mexico; Cavally, Ivory Coast; Belier, Ivory Coast; Cross River, Nigeria; Aceh, Indonesia; North Kalimantan, Indonesia; East Kalimantan, Indonesia; Sabah, Malaysia; Zambézia, Mozambique; and Maï Ndombe, Democratic Republic of Congo. All published two-page profiles are available [here](#). Seven additional two-page profiles are being finalized for publication, on: Pastaza, Ecuador; Oromia, Ethiopia; West Kalimantan, Indonesia; Amapa, Brazil; Amazonas, Brazil; Maranhao, Brazil; and Tocantins, Brazil. The [State of jurisdictional sustainability report](#) was completed in 2018 and released in California during the annual Governors' Climate and Forests Task Force (GCF) meeting. This work and its results were presented at the Oslo Tropical Forest Forum (June 2018) and at an official side event led by Earth Innovation Institute at UNFCCC COP 24 (December 2018). A paper on the SLRT methods and approach is currently being drafted and will be presented at the annual meeting of American Association of Geographers in April 2019 for feedback. It will then be revised accordingly and submitted for publication by June 2019.

FTA has also developed a good basis for deepened future collaboration with new partners in Japan and South Korea. We expect to explore this angle in new work on value chains and the role of wood-based products in circular economies, contributing to mitigation and adaptation.

In CoA5.2, FP5 has been finishing work on the interlinks between migration, financial remittances and the state of land use in villages where migrants come from. This is being finalized but the project saw a no-cost extension, so final results will become available in early 2019.

In CoA5.3, FP5 has further continued work on expanding the studies on biomass grown on marginal lands in Indonesia and developing public-private partnerships with a variety of national and international companies, in collaboration with South Korea's National Institute for Forestry Research (NIFOS) and other partners in South Korea. In Indonesia, we developed a feasibility study for private sector actors wanting to install a forest-based restoration program.

In CoA5.4, FP5 concluded the third round of data collection in the assessment of REDD+ implementation planned for 2018, completed previously in 2010 and 2014. Data was collected from sites in Brazil, Indonesia and Peru following a protocol developed in earlier stages of the study. PhD students were trained and concluded fieldwork in eight sites. Analysis is now underway.



Cover and back cover photos: Workers tend to Acacia plants in a tree nursery, Yangambi, DRC. Photos by A. Fassio/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 funders who supported this research through their contributions to the CGIAR Trust Fund: cgiar.org/funders/

LED BY



IN PARTNERSHIP WITH



RESEARCH PROGRAM ON
Forests, Trees and
Agroforestry

 foreststreesagroforestry.org
 cgiaforestsandtrees@cgiar.org

 @FTA_CGIAR
 foreststreesagroforestry