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

Plan of work and budget (POWB) for 2018

Final version
(20 April 2018)

approved by the Independent Steering Committee of FTA
and endorsed by the Board of Trustees of the lead Center CIFOR

Table of Contents

1. Expected Key Results

1.1 Adjustments/Changes to FTA's Theories of Change

FTA's theory of change[1] remains unchanged apart from important adjustments in the ToC of FP2 (see corresponding section 1.4.2 and Annex 3), as part of the resubmission of the FP to ISPC.

The main novelty in 2018 is the new **priority-setting process** introduced in FTA. It promotes focus, alignment and coherence of all proposed activities in the POWB by streamlining and improving transparency and inclusiveness of the planning process, and by providing a unified framework and a set of guidelines, which helped organize discussions on work plans and on the best use of W1+2 and bilateral resources. The process has been crafted collectively by FTA Senior Management (FTA Director, FP leaders, MEL Leader), under the oversight of FTA ISC, which requested that FTA develop such a procedure, approved it and subsequently approved its results.

22 operational priorities[2] were identified through this process (see list in Annex 1), leading to increased focus on priority areas for W1+2 and bilateral/W3 investments to implement FTA's theory of change. These priorities address, within the framework of the proposal, important development demands and knowledge gaps, and are oriented towards the implementation of the SDGs and the Paris agreement on climate change. They build on the comparative advantages of FTA and its partners in order to maximize effectiveness and impact.

For each priority was prepared, in a collaborative, transparent and inclusive way, a dedicated program of work and budget, with W1+2 resources linked to specific activities and expected deliverables in 2018[3]. The priorities rely on the existing FTA structure and FPs. Three of the operational priorities are particularly cross-cutting and require a specific, program-wide approach for coordination: Restoration; Plantations and tree crop commodities; Enhanced nutrition and food security. All the other operational priorities are led by one flagship, with contributions of other flagships and cross-cutting themes of the Support Platform, and some of them comprise areas of interface with other CRPs.

There is also a greater emphasis on engagement with major international policy-processes such as the CBD and the UNFCCC, and engagement with international organizations such as FAO, also leveraging the convening power of the Global Landscapes Forum to bring FTA knowledge to a wide range of stakeholders, discuss emerging issues, and foster scaling-up and implementation of solutions brought-up by the program.

1.2 Expected CRP Progress Towards Intermediate Outcomes and SLOs

In 2018 FTA will focus on integrating existing and emerging knowledge and research around the set of operational priorities. These all are at the intersection of unmet development demands and major knowledge gaps , within the frame of the theory of change of FTA. In 2018, FTA will make progress by 1) integrating knowledge for use, 2) raising awareness through targeted engagement, and 3) supporting application and use. In 2018, second year of phase 2, the majority of the research is still pitched upwards to the theory of change, on necessary research works and outputs, prior to use and upscaling (i.e: feasibility assessments, synthesis work on suitability to contexts, generation and analysis of options available to stakeholders..).

---

[1] The FTA theory of change relies on a variety of targeted engagement strategies (knowledge co-production, research in development, audience segmented outreach etc.) to integrate strategic boundary partners, knowledge users and decision makers into the research cycle as key mechanisms to facilitate research use and influence.

[2] In FTA, an operational priority is defined as "*a coherent and focused set of works/activities (funded by bilateral projects or funded by W1+2) whose outputs aim at answering one or several key knowledge gap(s), and whose outcomes are directed to respond to a major development demand/challenge, building on the comparative advantage of FTA and its partners, and aiming at maximizing the effectiveness and impact of FTA*"

[3] In doing so, by construction, FTA abandons the practice of equal ex-ante allocation per FP. Therefore, section 1.1.5 of the FTA pull proposal on CRP financial management principles no longer holds.

FP1 will develop means for scaling-up towards the FTA 2022 outcome targets: policy measures, mass breeding of reproductive material, and decision support tools. It will focus on assessing the feasibility of on farm and in-situ Genetic Conservation Units for priority tree species to deliver multiple benefits, and on valuing tree genetic resources for more productive and resilient tropical agroforest landscapes and their importance for delivering SDGs. FP1 will further integrate new and orphan food trees into evolving African food systems using enhanced domestication approaches and generating supporting genome sequencing information. Awareness will be raised through engagement with policy makers, and capacity built through local partnerships.

FP2 will generate evidence on options for smallholder tree-crop systems, that is key to scaling-up according to a variety of contexts. First, it will generate evidence on the return on investment in ecological infrastructure and develop livelihood trajectory models to assess the extent to which agroforestry innovations can transform the livelihoods of smallholder farmers. It will develop diversification options for smallholder tree-crop commodity production systems. Last, it will synthesize data, information and perspectives on how agro-ecological intensification can contribute to global food and nutrition security, in order to inform a global UN policy dialogue.

FP3 will pitch its works at the analysis of the temporal and spatial dynamics of crop and timber plantations expansion, and of the necessary enabling conditions for zero-deforestation initiatives of various kinds, taking stock of the rapid developments in sustainable finance. It will analyse the limits of certification and approaches to move beyond certification, including transnational regimes such as the EU's Forest Law Enforcement, Governance and Trade (FLEGT), and their potential for addressing sustainability in commodity crops. FP3 will analyse the determinants and causal processes that shape the social, economic, and environmental performance, scalability, and replicability of inclusive business and finance initiatives.

FP4 will analyse options for enhancing landscapes' governance, with a review of two cases linked to restoration in Africa and Asia. It will synthetize analysis of restoration through forests, trees and agroforestry in Africa, Asia and Latin America, initiating a methodology for pan-tropical analysis foreseen in 2019. Finally, it will investigate the contributions of Forests, Trees and Agroforestry landscapes to diets and nutrition in Africa and Asia.

FP5 will support country-led implementation of their NDCs, to leverage what forests, trees and agroforestry can do to help countries meeting their NDC objectives and to best improve forest-based climate mitigation in their NDCs. It will expand work in its SWAMP project (Sustainable Wetlands Adaptation and Mitigation Project) and refine FTA's global wetlands map. Finally it will produce analysis on bio-energy yields and degraded land use suitable for biofuels production in Indonesia.

FTA will integrate throughout its research a **gender equality and social inclusion** perspective—including attention to issues of generation (youth) and the intersection of gender with different factors of social differentiation that cause marginalization. It will first focus on gender mainstreaming by strengthening the capacities and institutional processes for gender and social analyses, across the research in development cycle, and in informing the development of policies, programmes, and innovations that can advance gender equality.

On **capacity development,** FTA will review its strategy based on an assessment of related needs, in the framework of FTA's theory of change, as well as taking into account the findings and recommendations of the recently completed CGIAR's capacity development evaluation. It will complete the capacity needs' assessment. In addition, FTA will also strengthen collaboration with universities in Africa.

Table A summarises progress towards IDOs and SLOs for each FP[4].

---

[4] Please note that FTA has not (yet) revised the set of milestones as defined in the proposal. It was planned as part of the priority setting process but was held off when we learned that a new business plan was envisaged for the CGIAR with a possible anticipated end of the CRPs to 2021 instead of 2022. Such a decision would imply the need to revisit the milestones

1.3 Obtaining Evidence on Relevant Outcomes and Impacts

Evidence of FTA contribution to outcomes will be collected through two **end of project evaluations**: (i) Increased food and water security, enhancing market access, and strengthening the local economy in selected dryland areas of Burkina Faso, Mali, Niger, Ethiopia, and Kenya, and (ii) Improved knowledge and capacity to develop and implement land tenure reform processes in Uganda, Peru and Indonesia.

FTA will conduct a **mid-term review** on its GCS REDD+ phase 3, to check how the knowledge generated has been applied at the national and sub-national levels in 7 target countries (Indonesia, Peru, Brazil, Guyana, DRC, Myanmar, Vietnam) and how it has informed global processes.

An FTA-developed **impact assessment** methodology will be applied to assess the potential impacts of different FTA innovations in forest restoration, with data collected and models developed in 2018 for three projects (i) Nutrition-sensitive forest restoration to enhance adaptive capacity of rural communities in Burkina Faso, (ii) Climate-smart restoration in Peru's tropical dry forest, and (iii) Productivity, resilience and income generation potential of diversified cacao production systems in Peru.

These studies are designed to assess the ex-ante benefits and costs of FTA innovations related to forest restorations in people's lives. In addition, six major new FTA mapped bilateral projects that are commencing in 2018 will invest in baseline data collection to facilitate rigorous impact assessments at project conclusion.

1.4 Plans by CRP Flagships

In 2018, the 22 operational priorities orient all the CGIAR W1+2 funded work. Also, bilateral projects must relate to one of the operational priorities in order to be "mapped" to FTA. Therefore, the priority-setting process also drives the integration of bilateral projects into FTA. The FPs plans and the way they contribute to this new set-up are summarized below.

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

FP1 will in 2018 focus work on three of FTA's operational priorities. FP1 will lead two of those (Biodiversity, safeguarding and conservation; and Orphan crops) and co-lead a third (Restoration).

Leading the priority on **Biodiversity, safeguarding and conservation**, FP1/CoA1 will expand, in terms of species, areas and geographies, its work on assessing the feasibility of on farm and in-situ Genetic Conservation Units for priority tree species to deliver multiple benefits, and on valuing tree genetic resources for more productive and resilient tropical agroforest landscapes and their importance for delivering SDGs. The values of tree genetic resources remain little explored. Through screening and mapping of diversity within economically and ecologically important tree species in collaboration with local partners, FP1 will focus in 2018 on traits that influence production and value, adaptation to climate change, and identify centres of diversity in priority species. Work will also comprise new threat analyses and red list assessments to develop conservation prioritisation, planning and deployment tools. Awareness will be raised through continued engagement with policy makers, and capacity built through local partnerships.

Leading the priority on **Orphan crops**, FP1/CoA2 will continue its work promoting the integration of new and orphan food trees into evolving African food systems using enhanced domestication approaches. Improving genetic and phenotype knowledge, enhancing quality as well as productivity of tree-based foods is vital for food and nutritional security. The ongoing work of the African Orphan

---

and 2022 outcomes accordingly. We will therefore wait for the CGIAR-level decisions on the future business plan and end-year for CRPs. So, the FTA milestones and links to the SRF in Table A are still as per the proposal. However, allocations in Table A differ from the proposal as these are now determined as a consequence of the priorities and therefore reflect a refocus of the FPs and CoAs work.

Crop Consortium will be continued, supporting genome sequencing information for these orphan crops. To drive their integration into African food systems, FP1 will focus in 2018 on genetic improvement approaches, and on addressing barriers and leveraging opportunities for the integration of orphan crops in food systems, such as accelerating domestication and wider cultivation of orphan species (especially in the context of needed adaptation to climate change) and developing markets for related tree-based foods. This work will also be linked to the operational priority on **Enhanced nutrition and food security.**

Co-leading the priority on **Restoration**, FP1/CoA3 will develop means for scaling-up towards the FTA 2022 outcome targets, with three major areas of work in 2018: (i) development of new policy measures and regulatory frameworks to support application of appropriate tree genetic resource portfolios in current production systems and landscape restoration; (ii) expansion of 'mass' breeding of reproductive tree material in support of diversification and intensification; and (iii) enhancing existing decision-support tools for integration of appropriate tree genetic resource portfolios in production systems, for landscape restoration and biodiversity conservation. This work will have ramifications to other FTA priorities as well, including e.g. no. 2 (plantations), 3 (nutrition), 5 (NDCs), 8 (climate change adaptation) and 12 (markets).

In 2018, a review of the state of tree 'mass' breeding and delivery programmes and of related legal instruments will be initiated in 2018 and concluded in 2019, with as point of departure the State of the World's forest genetic resources (FAO 2014) to provide the general prospects for advancing multiple species breeding programmes combining traditional and novel approaches based on modern advances in tree breeding. The focus will be on both upstream tools for researchers and downstream tools for practitioners, in particular in support of large scale forest landscape restoration.

A range of activities will only be launched pending availability of additional funds to the FTA finplan, or in 2019, amongst which (i) the impact assessment of tools (such as suitability maps, smartphone decision-support applications, etc.) to develop farm and landscape-level genetic resource conservation units, and (ii) the development of indicators for sustainable conservation and deployment of tree genetic resources.

1.4.2 FP2 Enhancing how trees and forests contribute to smallholder livelihoods

A revised flagship proposal was accepted by ISPC and rated strong. This involved reformulating the theory of change (ToC) to clarify what aspects are in spheres of control, influence and interest, and how place-based research contributes to the generation of IPGs as well as impact (Annex 3). In 2018 FP2 leads five of FTA's operational priorities and co-leads a sixth as well as contributing to several others (most notably restoration), through interactions from the one it leads.

Leading the priority on **Market-based forestry and agroforestry,** FP2 will step-up in generating evidence on the return on investment in ecological infrastructure. Paucity of evidence of the return on investment in trees underpinning sustainable intensification of smallholder systems is a key constraint. FP2 will assess returns to investment in tree root systems, tree architecture, forest habitat and soil carbon, that deliver high value products in a sustainable way, in Vietnam, Indonesia, Ethiopia, Uganda and Zambia together with a synthesis across these cases.

Leading the priority on **Livelihood trajectory modelling and assessment**, FP2 will start developing and using livelihood trajectory models to assess the extent to which agroforestry innovations can transform the livelihoods of smallholder farmers. This goes beyond reporting data on the performance of individual innovations to integrate them in livelihood trajectory models that can evaluate the extent to which their adoption (alone or in combination) can achieve food and nutrition security and end poverty for smallholder farm households. To do so, FP2 will expand its current partnership with an innovative software development company (Simulistics) in Edinburgh and CSIRO in Australia to develop a suite of submodels (simulation model components) that can capture the likely impact of smallholders adopting innovations in a range of African contexts using data from large scale farmer participatory trials in our ACIAR, IFAD/EU and DFID – funded bilateral projects.

Co-leading the priority on **Plantations and tree-crop commodities**, FP2 will increase its work on developing diversification options for smallholder tree-crop commodity production systems, setting up farmer participatory trial networks to evaluate them, including oil palm in Brazil partnering with the private sector (Natura); soil fertility, climate change adaptation and disease control in cocoa in West Africa, and coffee in Peru and Vietnam. However, FP2 had to put on hold its work on promoting uptake of FTA solutions to 500,000 cocoa farmers in Cote d'Ivoire, Ghana, Cameroon, Nigeria and Togo and 400,000 coffee farmers mainly in Rwanda, Uganda, Tanzania, Kenya and Ethiopia, because the related bilateral funding under the African Development Bank's Transforming African Agriculture with Technology (TAAT) program has been postponed to mid-2019.

Leading the priority on **Farm-forest policy** interface, FP2 will start developing an evidence-based national scaling platform for agroforestry in Ethiopia, continue integrated national policy initiatives for agroforestry in Rwanda and Uganda, and continue working on implementation modalities for agroforestry concessions in Peru as well as local and regional policies to support smallholders benefiting from trees and forests in Burkina Faso, Ghana and Vietnam.

Leading the priority on **Climate smart silvopastoral systems**, FP2 will start quantifying GHG emission reduction associated with trees in pastures in Latin America; deepen its research to evaluate forage management options and fodder value of bamboo and expand its policy analysis and engagement to overcome constraints to development of silvopastoral systems in Africa.

Leading the priority on **Agroecology**, FP2 will synthesise data, information and perspectives on how agro-ecological intensification can contribute to global food and nutrition security. This will inform the UN Committee on World Food Security (CFS), High Level Panel of Experts (HLPE) report on "*Agro-ecological approaches and other innovations for sustainable agriculture and food systems that enhance food security and nutrition", started in 2018*. The flagship leader has been appointed to lead a team of scientists from across the world to develop the report that will conclude in 2019 with policy recommendations. A draft report will be produced and put out for consultation during 2018.

1.4.3 FP3 Sustainable value chains and investments for supporting forest conservation and equitable development

In 2018, FP3 leads or co-leads five of FTA's operational priorities, sharpening the thematic focus of the work, as well as the selection of geographies, and policy dialogues and multi-stakeholder platforms for engagement, in order to promote greater integration to facilitate the achievement of expected outcomes.

Leading the priority on **Public and private commitments to zero deforestation**, FP3/CoA1 will in 2018 develop an analytical framework for analysing the social and environmental outputs, outcomes and impacts associated with zero deforestation and restoration commitments. It will start several case studies to analyse how combining value chain initiatives and sub-national jurisdictional approaches can help to advance zero deforestation and support restoration. Due to reduced resources, we will shrink our work to focus on key value chains in specific commodities, notably palm oil and timber, but could be started in case of the availability of uplift funding.

Leading the priority on **Effectiveness of approaches to sustainable supply**, FP3/CoA1 will deepen its analysis on the limits of certification and approaches to move beyond certification, as well as on transnational regimes such as the European Union's Forest Law Enforcement, Governance and Trade (FLEGT), and their potential for addressing sustainability in commodity crops. The work on certification is contracting, given the larger attention placed to new monitoring frameworks to address sustainability.

Leading the priority on **Inclusive finance and business models**, FP3 (CoA2 and CoA3) will finalize in 2018 a 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. This will be followed by select cases studies, to started in

2018 and finalized in 2019, of inclusive business and finance initiatives—by employing value chain, political economic, and (social) network analysis—drawing on multiple sources of primary and secondary information. Our ambition to systematize experiences of inclusive business models by development NGOs is evolving slow due to lack of resources.

Leading the priority on **Innovating finance for sustainable landscapes**, FP3/CoA2 will in 2018 take stock of current development of financing landscape initiatives, approaches and modes of operation for inclusive landscape financing, and organize communication material (a series of blogs) and visibility actions on key innovative concepts and approaches under existing finance platforms. This will contribute to put in place the key building blocks to develop future FP3's work on innovative finance, in strong interaction with already existing platforms and initiatives for financing sustainable landscapes, linking them with our research on options and approaches towards zero deforestation and restoration. Our expectation to assess the actual impacts of innovative finance mechanisms, with emphasis on those impacts from emerging blended funds, is not in place due to lack of resources to conduct systematic M&E.

Co-leading the priority on **Plantations and tree-crop commodities**, FP3/CoA1 will conduct initial work, in collaboration with partners, on assessing the temporal and spatial dynamics of crop and timber plantations expansion (including those for restoration and bioenergy development), with identification of 'hotspots', their drivers and impacts, and associated sustainability challenges.

1.4.4 FP4 Landscape dynamics, productivity and resilience

In 2018, FP4 will lead one operational priority, co-lead four others, and contribute to another set of four.

Leading the priority on **Landscape governance**, FP4/CoA4 will deepen its work on analysing options for enhancing landscapes' governance, starting and concluding a review of two cases linked to restoration in Africa and Asia, with a view of learning and eventual incorporation into future restoration efforts. Some practical work on designing and enhancing governance in the context of community forestry enterprises and community ecosystem-based adaptation will be given specific attention. On these issues, FTA will seek in 2018, among other through a joint workshop, to better define and leverage its interface with PIM's FP4.

Co-leading the priority on **Restoration**, FP4/CoA2 will conclude its analysis work of restoration through forests, trees and agroforestry in Africa, Asia and Latin America, and initiate a methodology for pan-tropical analysis foreseen in 2019. FP4 will also, based on past works, analyse the contributions of tree commodities and tree commodity landscapes to multiple SDGs in Africa and Asia. The whole will also contribute to the operational priorities on climate change adaptation, on plantations and on innovating finance for sustainable landscapes.

Co-leading the priority on **Enhanced nutrition and food security**, FP4/CoA3 will continue to investigate the contributions of Forests, Trees and Agroforestry landscapes to diets and nutrition in Africa and Asia. It will includes new data and analysis on food production and food access/consumption and on management of the landscape-nutrition nexus specifically in Burkina Faso, Ethiopia, Kenya, Uganda and Indonesia. Also, FP4 will conduct multidisciplinary approaches to develop better knowledge on the use and trade of wild meat, to help strengthen legal frameworks, and to provide recommendations and alternatives in order to promote the sustainable use of wildlife. This will include USAID-funded research on impact of oil palm plantations on wild meat and fish availability in Papua (Indonesia), and EC-DEVCO funded data collection and studies on the contribution of wild meat and fish to local diets in four sites in the Congo Basin – two in Cameroon, two in DRC.

Leading the priority on **Sentinel landscapes (SL)**, FP4 will review in 2018 the sentinel landscapes experience through three case studies, revisiting the sentinel landscapes in Borneo, Indonesia, in Southern Cameroon, and in Nicaragua-Honduras. Lessons will be drawn that will enable FTA to re-visit during the year its co-location strategy, including how to better link with theme-based versus place-based work within the CRP, and with other programs. Given the need to rely on the conclusion of the

three case studies mentioned above, FP4 deferred to 2019 the originally planned comparative study analysis across the whole set of SL sites in Asia, Africa and Latin America.

Contributing to the operational priority **on plantations and tree-crop commodities**, FP4 will be starting a series of publications including a special issue on tree commodities and SDGs that will bring together contributions from several FPs.

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

FP5 takes the lead in four operational priorities and co-leads a fifth one.

Leading the priority on **NDCs** (Nationally Determined Contributions of the Paris Agreement on Climate Change), FP5 now fully organizes its work to focus on supporting country-led implementation of NDCs by leveraging what forests, trees and agroforestry can do to help countries meeting their NDC objectives. This comprises several streams of work, some continuing from 2017, others starting.

First, FP5 will geographically expand its analysis on how countries can best improve forest-based climate mitigation in their NDCs. It will continue analysing REDD+ initiatives at country level in the context of NDCs and newly develop an analysis of NDCs in selected Central American countries, however funding constraints led us to drop the work originally planned on other mechanisms than REDD+, such as Nationally appropriate mitigation actions (NAMAs) and joint mitigation and adaptation (JMA). Likely, new research on efficiency and effectiveness of results-based climate finance and incentive mechanisms, and innovative mechanisms such as blockchains had to be dropped but would remain a priority, if uplift funding is available.

On remote sensing, FP5 will start expanding to South East Asia the work done in Latin America on refining terra-I as a deforestation early warning and near-real time detection tool, as well as to enhance its utility for land-use emissions measurement, reporting and verification (MRV) at landscape levels. Research to understand carbon source/sink dynamics to improve regional and global models had to be de-prioritized however given the current availability of W1-2 funds.

FP5/CoA4 on performance assessment will start new work to improve an available rating tool for sustainable landscapes in sub-national jurisdictions originally developed by the Climate, Community & Biodiversity Alliance (CCBA). The tool provides rapid and objective assessment of a jurisdiction's capacity to establish and ensure effective functioning of policies, plans, strategies, regulations, monitoring systems and multi-stakeholder platforms. With Tropenbos International, in 2018 FP5 will continue engagement with policy makers to make knowledge generated in this priority available to them for greater efficiency and effectiveness of national policy making.

Leading the priority on **Blue carbon and peatlands,** FP5/CoA1 will continue and expand work in its SWAMP project (Sustainable Wetlands Adaptation and Mitigation Project) and refine FTA's global wetlands map by validating its peatland component in Africa and Latin America. FP5 will generate new knowledge on peatland eco-hydrology and ecosystem services, and on carbon stocks dynamics and net primary productivity of rewetted peat as a peatland restoration option.

Leading the priority on **Adaptation**, FP5 will undertake four new main research activities underpinned by one workshop each. FTA will work with partners on the role of landscape restoration in adaptation to climate change and disaster risk reduction, by undertaking spatial analysis on the links between forest cover and disasters in Peru, and analysing the interaction between adaptation, human mobility (migration) and development. FP5 will start working with FP1 on the tree genetic resources levers and constraints for adaptation of forest and forest dependent people to a changing climate. With its partner INBAR, FP5 will start exploring the climate-change adaptive benefit potential of fast-growing tree species including bamboo. A workshop, co-organized with Tropenbos International, will make the new knowledge on landscape-level adaptation generated in 2018 available to policy makers.

Leading the priority on **Bioenergy**, FP5/CoA3 will continue and expand its analysis on degraded land use suitable for biofuels production in Indonesia (spatial assessment, landowner perception, soil rehabilitation, and socio-economic and environmental food/fuel integration assessment). This includes finalizing work on calorific values of different bamboo species in different energy forms and on the bamboo-water nexus, based on two studies (Brazil and Colombia). However, as per the priority setting process, several activities originally foreseen in the proposal were dropped, namely the scenario development work and global analysis of international and national drivers of bioenergy development, and of the related social and environmental outcomes. This work stands ready to be started, linked to foresight analyses, if funding permits.

Finally, FP5/CoA1 will contribute to the priority on **Restoration** with a paper providing an analysis of the restoration potential in Africa under realistic conditions. This builds on previous similar work done last year in Latin America with USAID funds, whose results will become available in 2018. However due to W1-2 funding constraints this work had to be reduced in geographical scope and sliced into annual steps: with Asia still missing we won't be able to provide in 2018 the originally foreseen global analysis. Also, constraints on W1-2 funding led us to forego the intended collaboration with the 20×20 global restoration initiative.

1.5. Cross Cutting Dimensions

1.5.1 Gender, Youth and Capacity Development

With Gender being one of its cross-cutting priorities, FTA has constituted a gender integration team to work with (non-gender) scientists all across the program. FTA aims at a transformative approach to gender equality by focusing on the structural barriers, including the gender norms, institutions and power relations that affect the capabilities of men and women in forest and agroforest landscapes to: (i) control assets and resources; (ii) share responsibilities and labour within the household; (iii) properly account for unremunerated labor; and (iv) meaningfully participate in decision-making at the household and community levels.

FTA integrates throughout its research a gender equality and social inclusion perspective—including attention to issues of generation (youth) and the intersection of gender with different factors of social differentiation that cause marginalization. It first focuses on **gender mainstreaming** by strengthening the capacities and institutional processes for gender and social analyses, across the research in development cycle, and in informing the development of policies, programmes, and innovations that can advance gender equality. Four aspects will be pursued in 2018 in this area: (i) strengthening capacities for gender analysis, to equip scientists and partners with the latest approaches and good practices in gender and environment, and with the skills to develop and implement gender-responsive projects, (ii) developing the FTA online gender learning and knowledge-sharing platform, (iii) supporting the integration of gender in FTA's monitoring, evaluation and adaptive learning frameworks, and (iv) leveraging inclusive partnerships to inform FTA gender research priorities and goals, develop institutional capacities, and share results for advocacy and scaling up for advancing gender equality and social inclusion.

A second focus of FTA 2018 gender research will concern the priority on **Restoration**. Unlocking the potential of Forest Landscape Restoration (FLR) to achieve both social and environmental outcomes rests critically on the support, contributions and cooperation of a wide range of stakeholders at all levels; with particular emphasis on those who rely on these landscapes for their livelihoods, and whose rights and wellbeing must be safeguarded and promoted for restoration to be sustainable. Ensuring that FLR initiatives do not marginalize certain social groups is particularly critical given their implementation in contexts with weak systems of governance, histories of land tenure conflicts, and structural discrimination against women and indigenous peoples. This will inform FLR initiatives that enhance women's rights, gender equality and social inclusion. Emphasis is on key considerations for gender-responsive FLR and influencing key stakeholders, policies, and debates in the field.

On **Capacity development,** FTA will review its strategy based on an assessment of related needs, in the framework of FTA's theory of change, as well as taking into account the findings and recommendations of the recently completed CGIAR's capacity development evaluation. Part of the 2018 workplan will be to complete the capacity needs' assessment at the flagship and program level in close consultation with research and development partners. The needs' assessment exercise will focus both on internal and the next user's capacity needs to enable progress along FTA's theory of change. In addition, FTA will also strengthen collaboration with universities in Africa in countries important to FTA through a) curricula reform in DRC, b) joint PhD fellowships in East Africa, and c) holding courses for African students and early career scientists on scientific writing and publishing.

1.5.2 Open Data and Intellectual Assets

FTA will continue to foster CGIAR's open data and intellectual property. FTA makes public in an open format all genome sequencing information it generates. Some 2018 highlights will include developing an FTA data portal, including a geospatial component that will enable users to discover, view and access geospatial information. It will provide seamless communication with data services that use a wide range of communication data protocols, and also support searching, publishing, and managing standards-based resources.

2. Planning for CRP Effectiveness and Efficiency

2.1 CRP Staffing in 2018

Following the retirement of the former FP4 leader designated at the time of the proposal, FTA will appoint a new FP leader, following an call open to all program participants; No other particularly exceptional staffing issues or constraints are identified. In specific areas that would deserve multi-year investment, FTA partners have difficulty to recruit scientists on a multi-year basis due to funding being defined on an annual basis only.

2.2 Financial Plan for 2018, including use of W1/2

In 2018, the overall FTA POWB results from the set of operational priorities: separate POWBs have been crafted for each of them with resources accordingly allocated to FPs (Annex 2).

FTA integrated in its budget a contingency planning mechanism (see section 3.1 for details, not represented in Table E). This will help all partners better manage cash flows according to operational priorities, and allows FTA to manage recurrent important ex-ante uncertainty on actual FTA funding in a transparent and effective manner.

2.3 Collaboration and Integration

2.3.1 New Key External Partnerships

FTA plans to increase its collaboration with FAO and IUFRO, and through its partners will renew its MoU with the CBD. In 2018 this will translate among other into two joint FTA/FAO publications and consultations on (i) guidelines for integration of forestry in national climate change adaptation plans, (ii) guidelines for climate change vulnerability assessment of forests and forest dependent people. Working in collaboration with FAO enables FTA to engage into global policy dialogues, as well as inform country-level works related to different global agendas (SDGs, climate change, food security and nutrition). FTA will organize with IUFRO two joint sessions at the International conference on "*Working across sectors to halt deforestation and increase forest areas*", organized by the collaborative partnerships on forests (CPF), (ii) and participate in the Global Forest Expert Panels (GFEP) on forests and water.

2.3.2 New Contribution to and from Platforms

FTA is a member of the Gender Platform Steering Committee, actively engaging in the platform through webinars, workshops, conferences, and communities of practice (CoP). It co-leads the GENNOVATE Community of Practice (CoP) that comprises scientists from across nearly all CRPs. Through the Gender Platform, FTA shares its didactic tools, materials, including monitoring and evaluation tools, with other CRP, with CGIAR postdoctoral fellows, and beyond the CGIAR. Also, FTA is a member of the Gender Platform's newly established monitoring and evaluation working group. Leveraging the Gender Platform campaigns and communications enhance the visibility of FTA gender-related work. Furthermore, FTA FP1 on tree genetic resources will continue close collaboration with Genebank and EiB.

2.3.3 New Cross-CRP Interactions

FTA has been spearheading the initiative of a multi-CRP workshop on landscape restoration, to be held in 2018 and which will gather the 3 CRPs which have a landscapes FP: WLE FP4, PIM FP4 and FTA FP4. This will be held back to back with the GLF "restoring African landscapes" conference in August 2018. The collaboration aims to bring together complementary research and evidence on landscape restoration from across the three CRPs, and channel this in a user-friendly format, that delivers targeted advice to policy and investment processes on land restoration. Bringing the CG-wide collective evidence together in this way has a strong potential for greater influence and impact on land restoration. The cross-CRP work will also aim at tackling how this influence and impact can be effectively assessed.

All five FTA Flagships, and the FTA gender integration team are collaborating with other CRPs in multiple ways, as described in Annex 3.7 of the FTA proposal. Some highlights in 2018 will include:

Flagship 2 is co-investing W1-2 resources on rice agroforestry with the RICE CRP. This will produce a synthesis of the impacts of trees on rice yields to be presented at a joint FTA-RICE session within the 5th International Rice Conference in Singapore in September. FTA brings data and expertise on trees while RICE contributes data and expertise on rice, including shade tolerant varieties, to a joint platform for developing agroforestry options for sustainable rice production.

Flagship 3 will collaborate with PIM Flagship 3 "Inclusive value chains and efficient trade" on joint works to better understand the conditions and causal processes that lead improved social, economic and environmental performance of business models, and on the factors contributing to scalability and replicability of inclusive business initiatives.

The FTA Gender Integration Team has been and will continue to collaborate with PIM, CCAFS, and WLE in multiple ways on topics related to tenure, climate change, and landscape restoration. As of March 2018, the FTA Gender Research Coordinator will also be the gender focal point for WLE's Flagship on Restoration of Degraded Lands, which will enable further collaborative opportunities. FTA will organize a joint side-event on gender and FLR in collaboration with PIM, CCAFS and WLE at the UNFCCC COP and/or at the GLF. PIM, CCAFS and WLE scientists will be invited to contribute to FTA's special issue on gender in FLR. FTA work on gender inclusive value chains is co-funded by PIM. Planned outputs for 2018 include a methodological guide for gender-responsive value chain development, which piloting in several countries is already leading to outcomes. The engagement and collaboration with WLE and PIM has also enabled ongoing research on the gendered dimensions of large-scale and smallholder-inclusive agricultural investments and the development of inclusive business models to foster more equitable outcomes for women and men producing major commodities.

Research on gender norms and innovation in the Kyrgyz Republic and Indonesia is part of a global comparative study, GENNOVATE, which involves Principal Investigators from nearly all CRPs. FTA sits on the Executive Committee of the global study. Planned outputs for 2018 include a closing workshop and stakeholder outreach event to share findings of the study with key development actors for uptake of the methodology and findings.

2.3.4 Expected Efforts on Country Coordination

No specific new initiative is foreseen in 2018 specifically linked to CGIAR Country Coordination (CCC), outside of the collaborations already existing between centres as part of collaborative placed-based research in FTA. Regarding formalizing its implication in different CCCs, FTA is waiting for more clarity on the future of this set-up.

2.4 Monitoring, Evaluation, and Learning

The FTA evaluation studies planned for 2018 (see section 1.3) will each explore a different strategy for influencing development outcomes through research. Insights from these studies will be shared between FTA partners to inform how these strategies are developed in the future.

In addition, an FTA gender strategy evaluation will use 12 case studies to identify and test context, mechanism outcome configurations that have supported the achievement of outcomes in FTA Phase 1. These lessons will be used to inform the next steps of FTA gender work in Phase 2. Case studies will be selected covering FTAs gender specific and gender integrated research and the gender integration team's policy and process engagement work.

Finally, FTA has adopted the CGIAR's QoR4D ("quality of research for development") framework, and will be piloting internally its implementation in 2018.

3. CRP Management

3.1 Management of Risks

FTA identified a few main risks for its research agenda, and has taken measures to address these.

The first is that of a financial shortfall in **W1-2 funds**. The MSU crafted the 2018 a financial contingency planning scheme, integrated into the W1+2 budget planning, in order to manage the ex-ante uncertainty of W1+2 funding for FTA partners, and cash-flow instalments related to the priority-setting process. This includes the definition of three tiers of budget linked to probability of funding (each with their set of activities and outputs), including an uplift Tier above the POWB finplan. The contingency planning mechanism, developed last year at the request of and approved by the ISC and the Lead Centre Board of Trustees (BoT), is available from the MSU on request.

A second risk to FTA's agenda, that of not having a sufficient **focus** (as identified initially by the ISPC), has now been addressed by the priority-setting process FTA started to implement in 2018.

A third risk in FTA -as in any other CRP- is the one of uneven **quality of research** across the CRP. To tackle this, and following substantial contributions from FTA to the design of ISPC's quality of research for development (QoR4D) framework, FTA will pilot in 2018 the implementation of this framework across the CRP. This will also take into account any new development linked to performance-based management as part of the new CGIAR business model.

A fourth risk identified in 2017 through the performance assessment of FTA's ISC was that some key **governance functions** in FTA may not have been sufficiently clarified, with risks of competency overlap. This risk has now been managed through an in-depth re-visiting of ISC's terms of reference. This has resulted in a clear delineation of the responsibilities and decisions delegated to ISC by the BoT of the Lead Centre, versus those not delegated by the BoT of the Lead Centre and for which the ISC plays an advisory role.

3.2 CRP Management and Governance

The ISC, with the BoT of CIFOR are the two key components of the **governance** of FTA. Following a performance assessment of ISC conducted in 2017, the ISC Terms of Reference (ToRs) were revised, including bringing the number of independent members to 5. FTA launched an open call to appoint two new independent ISC members, to start duties in May 2018.

From a **management** perspective, the description of the terms of reference of FTA FP leaders has been re-visited in order to strengthen accountability, clarify their responsibilities and those of their employers. The new TORs apply for existing FP leaders and are also being applied for the currently ongoing appointment of FTA FP4 leader. In 2018, FTA will revisit the terms of reference of its management team to take into account the new ISC ToRs, to further increase its efficiency as a key component of the new FTA priority-setting process, as well as to foster collective fundraising roles.

In 2018, FTA has shifted to **MARLO** as the system for managing planning and reporting, and 2018 is for FTA a transition year in that respect. MARLO is managed by the MSU, in liaison with MELIA. The work on QoR4D is managed by MELIA under direct oversight of the MSU. Finally, as a result of these changes and to streamline internal organization and avoid overlaps, the former "data for impact" cross-cutting theme (CCT) of FTA is discontinued in 2018 and the related set of activities (FTA external data portal and internal knowledge management tools, open data support, methods for the generation of International Public Goods/IPGs) are redirected under respectively the responsibility of the FTA communication, the MSU, and MELIA.

TABLES

Table A: Planned Outcome and Milestones

Table A1: 2022 CRP outcomes mapped to sub-IDOs with contributing budget.
Disclaimer: Please see relevant foot note in section 1.2

FP	Mapped and contributing to Sub-IDO	2022 CRP outcomes for each FP	2018 Budget	
			W1/2	W3/bilateral
FP1	Sub-IDO 1.4.4 Increased conservation and use of genetic resources. Sub-IDO 3.1.2 Enhanced conservation of habitats and resources. Sub-IDO C.1.1 Increased capacity of beneficiaries to adopt research outputs.	Outcome 1.1 Managers and policy-makers adopt effective monitoring methods, tools and practices to mitigate threats to valuable 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	342.982	3.765.307
FP1	Sub-IDO 1.4.3 Enhanced genetic gain. Sub-IDO 3.3.2 Enhanced adaptive capacity to climate risks. Sub-IDO C.1.3 Conducive agricultural policy environment.	Outcome 1.2 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 attention to smallholder breeders' rights	267.982	3.327.057
FP1	Sub-IDO 1.3.4 More efficient use of inputs. Sub-IDO A.1.3 Improved forecasting of impacts of climate change and targeted technology development Sub-IDO D.1.1 Enhanced institutional capacity of partner research organizations	Outcome 1.3 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	577.982	7.434.636
FP 2	2.1.2 Increased access to diverse, nutrient-rich food 1.3.2 Increased livelihood opportunities 3.2.1 More productive and equitable management of natural resources	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 outcome integrates some outputs from other research clusters through their scaling.	435.214	3.221.800

FP2	1.3.2 Increased livelihood opportunities 3.2.1 More productive and equitable management of natural resources	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	410.214	3.533.800
FP2	1.3.2 Increased livelihood opportunities 3.2.2 Agricultural systems intensified and diversified in ways that protect soils and water	Diversified tree-crop production systems covering 5 million ha and improving diets and livelihood opportunities for 20 million people in smallholder producer households.	407.214	4.184.800
FP2	1.3.1 Diversified enterprise opportunities 2.1.2 Increased access to diverse, nutrient-rich food 3.1.1 Land, water and forest degradation minimized and reversed	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.	348.214	3.388.800
FP2	3.1.1 Land, water and forest degradation minimized and reversed	Reducing yield gaps through improved pasture management and animal husbandry on over 15 million ha and 1 million animals and contributing to reducing and reversing land degradation on over 5 million ha	213.214	1.605.800
FP3	1.3.1 Diversified enterprise opportunities b.1.1 Gender equitable control of productive assets and resources	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	808.345	3.416.000
FP3	1.2.2 Reduce market barriers b.1.1 Gender equitable control of productive assets and resources	5 business platforms and 20 businesses and service providers develop and implement business models that are more inclusive, economically viable and environmentally sustainable	446.867	4.850.000
FP3	1.2.2 Reduce market barriers b.1.1 Gender equitable control of productive assets and resources	At least 30% of financial service providers lending to timber, tree and agricultural crops adopt ESG criteria, and increase in 25% the lending to models that integrate smallholders and SMEs	326.027	1.225.000
FP4	3.1.1 Land, water and forest degradation minimized and reversed C.1.3 Conducive agricultural policy environment	(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	457.899	763.085

		and tree cover change in space and time in sentinel landscapes understood on the basis of 'drivers' that operate at larger scales.		
FP4	3.1.1 Land, water and forest degradation minimized and reversed	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.	335.899	4.010.005
FP4	2.1.1 Increased availability of diverse nutrient-rich foods 2.1.2 Increased access to diverse nutrient-rich foods b.1.1 Gender equitable control of productive assets and resources	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 M people).	403.899	3.035.726
FP4	b.1.1 Gender equitable control of productive assets and resources b.1.3 Improved capacity of women and young people to participate in decision-making 3.3.1 Increased resilience of agro-ecosystems and communities, especially those including smallholders	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 multifunctionality and successful 'forest landscape restoration' through 'action research' and inclusive, participatory learning. This is aligned with efforts in PIM.5.2 -oe6 million hectares of shared landscapes under more productive and equitable management.	373.899	2.535.184
FP5	A.1.4 Enhanced capacity to deal with climate extremes	Efficient, effective and equitable climate national and international mitigation policies and funding, aligned with development objectives (3E+ goals).	648.750	6.381.731
FP5	A.1.1 Reduced net GHG emissions from agriculture, forests and other forms of land use	Risk-assessed ecosystem-based adaptation (EbA) policy and practice in place including joint mitigation and adaptation approaches.	288.750	2.723.308
FP5	A.1.1 Reduced net GHG emissions from agriculture, forests and other forms of land use	Food and bioenergy production policy and practice integrated more visibly in the intervention areas.	88.750	2.882.559

FP5	A.1.1 Reduced net GHG emissions from agriculture, forests and other forms of land use	Performance assessment of mitigation and adaptation policy and practice widely implemented following good evaluation practice.	198.750	3.193.402

Table A2 Planned milestones by flagship and assessment of risk to achievement.

FP	2022 CRP outcomes for each FP	Milestones *	Means of verification	Assessment of risk to achievement** (L/M/H)
FP1 CoA1	Outcome 1.1 Managers and policy-makers adopt effective monitoring methods, tools and practices to mitigate threats to valuable 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	Valuing tree genetic resources and feasibility of conservation for more productive and resilient tropical agroforest landscapes and their importance for delivering SDGs	Reporting of priority output items associated with the milestones and an assessment of their contribution to the outcomes will verify milestones and progress towards outcomes	Low
FP1 CoA 2	Outcome 1.2 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 attention to smallholder breeders' rights	Integrating new and orphan food trees into evolving African food systems using enhanced domestication approaches		Low
FP1 CoA 3	Outcome 1.3 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,	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		Low

	to supply high-quality site-appropriate tree-planting material to smallholders and other growers	landscape restoration and biodiversity conservation		
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 outcome integrates some outputs from other research clusters through their scaling.	Livelihood system models and predictions of impact from better use of tree resources for at least five countries in Africa, Asia and Latin America	Deliverables uploaded into MARLO	Low
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	Impacts of forest policy on socially and economically differentiated groups of actors collated across at least six countries and three regions	Deliverables uploaded into MARLO	Low
FP2	Diversified tree-crop production systems covering 5 million ha and improving diets and livelihood opportunities for 20 million people in smallholder producer households.	Options for managing intensive rubber production systems in environmentally sustainable ways in China	Deliverables uploaded into MARLO	Low
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.	Governance models required to reconcile free grazing of animals with tree regeneration across sub-Saharan Africa evaluated.	Deliverables uploaded into MARLO	Low
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	Strategy for development of climate smart silvopastoral systems developed	Deliverables uploaded into MARLO	Low
FP3	25 countries improve governance mechanisms, institutions and tools for a)	Completed assessment of the implementation gaps, challenges and opportunities in sustainable value chain	5 landscape assessments uploaded into MARLO as deliverables	Low

	safeguarding forests/tree diversity and b) equitably managing forests and trees within mosaic landscapes	governance with analysis social, economic and environmental impacts (based on key select indicators) in at least five landscapes		
FP3	About 20 multinational companies and 500 private sector actors pursue models and investments for a) improved mgt. and safeguarding of forest and tree resources and b) enhancement of inclusive landscape-based livelihoods and ecosystem services	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	3 outcome stories that substantiate our contribution to improved knowledge the engaged sector platforms	Low
FP3	About 20 multinational companies and 500 private sector actors pursue models and investments for a) improved mgt. and safeguarding of forest and tree resources and b) enhancement of inclusive landscape-based livelihoods and ecosystem services	Developed a conceptual framework for inclusive financing of landscapes and value chains taking stock of current development of financing landscape initiatives, approaches and modes of operation for inclusive landscape financing	Working paper outlining conceptual framework	Medium – delays in recruiting appropriate staff to lead this work
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.	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.	Deliverables uploaded into MARLO	Low
FP4	Sub)national governance systems in landscapes covering 100 M ha and inhabited by 70 M people use	Synthesis of options for achieving Aichi targets of biodiversity conservation through	Deliverables uploaded into MARLO	Low

	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.	managed transition zones around protected areas, landscape connectivity and ecological corridors and development zoning utilizing full spectrum of FTA land use systems		
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 M people).	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."	Deliverables uploaded into MARLO	Low
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 multifunctionality and successful 'forest landscape restoration' through 'action research' and inclusive, participatory learning. This is aligned with efforts in PIM.5.2 -oe6 million hectares of shared landscapes under more productive and equitable management.	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 space for local adaptive landscape management.	Deliverables uploaded into MARLO	Low
FP5	Efficient, effective and equitable climate national and international mitigation policies and funding, aligned with development objectives (3E+ goals).	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+)	Deliverables uploaded into MARLO	Low
FP5	Risk-assessed ecosystem-based adaptation (EbA) policy and practice in place including joint mitigation and adaptation approaches.	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	Deliverables uploaded into MARLO	Low
FP5	Food and bioenergy production policy and practice integrated more visibly in the intervention areas.	Analysis of options for bioenergy production to understand land allocation to bioenergy production concluded and used in national policies	Deliverables uploaded into MARLO	Low
FP5	Performance assessment of mitigation and adaptation policy and practice widely implemented following good evaluation practice.	Performance assessment of carbon and non-carbon outcomes of mitigation policies and	Deliverables uploaded into MARLO	Low

		practices carried out, and methods refined, e.g. for use in multi-stakeholder platforms.		

* Milestones include both outputs, output use and outcomes along the impact pathways as appropriate to the scale and maturity of the work. In this table A, please focus as much as possible on significant milestones towards outcomes which can be justified the completion at reporting.

Table B: Planned Studies for Relevant Outcomes and Impacts

Planned topic of study	Geographic scope	Relevant to Sub-IDO, or SRF target if appropriate	Comments
The Drylands Development Project (DryDev)	Burkina Faso, Mali, Niger, Ethiopia, and Kenya	IDO 3.2, 3.3, 5.2,10.1, 8.1 B1	The project supports transitions to sustainable rural development. It aims to do this by increasing food and water security, enhancing market access, and strengthening the local economy. The evaluation will investigate the potential for scaling up learning among external stakeholders.
A Global Comparative Study for achieving effective, efficient and equitable REDD+ results (GCS REDD+ Phase 3)	Peru, Brazil, Indonesia, Guyana, DRC, Ethiopia, Myanmar, Vietnam	IDO 10.2, 10.3, 3.2, B.1, D.2	Mid-term review aimed at assessing cumulative contribution to outcomes from Phase 1, 2 and 3 identifying opportunities to enhance contribution to outcomes at national and sub-national scales by 2021
Assessment of the impact of FTA interventions related to forest restoration	Peru, Burkina Faso	8.3	Impact assessment methodology will be developed that can be replicated with other interventions
Realist evaluation of outcomes from the implementation of the FTA gender strategy	Case study selection on-going	B.1	Case studies will be selected covering FTAs gender specific and gender integrated research and the gender integration team's policy and process engagement work.
Evaluation of a global comparative study on securing tenure and rights of resource users across forest and tree landscapes	Uganda, Indonesia, Peru	B.1	

Table D: CRP Staffing (OPTIONAL IN POWB 2018)

*FTE= Full Time Equivalent
Non CGIAR staff between parenthesis

Category	Female Nr	Female (FTE*)	Male Nr	Male (FTE*)	Total FTE	% Female (FTE)
Program director & flagship leaders	1 (0)	0.9 (0)	5 (0)	4.8 (0)	5.7 (0)	15.79%

Principal Investigators	18 (3)	17.3 (0.9)	47 (18)	19.4 (3.6)	36.7 (4.5)	47.14%
Other Senior Scientists (not PIs)	29 (2)	18.8 (0.7)	44 (8)	20.5 (1.6)	39.3 (2.3)	47.84%
Post-docs / junior scientists	16 (5)	14.1 (1.6)	24 (0)	10 (0)	24.1 (1.6)	58.51%
Research fellows	4 (0)	1.2 (0)	10 (0)	2.7 (0)	3.9 (0)	30.77%
Other science support staff	22 (2)	11.1 (0.2)	13 (1)	8.8 (0.5)	19.9 (0.7)	55.78%
TOTAL FTA	90 (12)	63.4 (3.4)	143 (27)	66.2 (5.7)	129.6 (9.1)	48.92%

Table E: CRP Planned Budget

	Planned budget 2018					Comments on major changes
	2017 Carry forward W1/2	W1/2	W3/bilateral	Center own fund	Total	
FP1	169,520	1,188,945	14,527,000 (incl.51,000 non CGIAR)		15,885,464 (incl. 51,000 non CGIAR)	
FP2	-	1,814,068 (incl. 260,000 non CGIAR)	15,935,000 (incl. 499,000 non CGIAR)		17,749,068 (incl. 759,000 non CGIAR)	
FP3	224,118 (incl. 70,193 non CGIAR)	1,581,239 (incl. 398,557 non CGIAR)	9,491,000 (incl. 2,565,000 non CGIAR)		11,296,357 (incl. 3,033,750 non CGIAR)	
FP4	207,218 (incl. 30,518 non CGIAR)	1,571,594 (incl. 173,282 non CGIAR)	10,344,000 (incl. 1,600,000 non CGIAR)		12,122,813 (incl. 1,803,800 non CGIAR)	
FP5	183,439 (incl. 37,436 non CGIAR)	1,222,653 (incl. 212,564 non CGIAR)	15,181,000 (incl. 2,224,000 non CGIAR)		16,587,092 (incl. 2,474,000 non CGIAR)	
Strategic Competitive Research grant	See priority-setting process (section 1.1)					
CRP Mgt & Support Cost *	-	2,497,502	110,000		2,607,502	
CRP Total	784,295 (incl. 138,148 non CGIAR)	9,876,000 (incl. 1.044.402 non CGIAR)	65,588,000 (incl. 6,939,000 non CGIAR)		76,248,295 (incl. 8,121,550 non CGIAR)	

*includes PMU, MARLO and planning/reporting systems, communication and outreach, data.

NB: CGIAR funds include often a significant amount of bilateral resources or of W1+2 transferred to one of FTA's CGIAR program participants (CIFOR, Bioversity, CIAT, ICRAF) that may be passed through by the CG partner to non CGIAR entities. Therefore, the "non CGIAR" amounts presented between parenthesis in the above table are an absolute lower bound figure of funds actually transferred to non CGIAR partners.

Table G: New Internal (CGIAR) Collaborations among Programs and between the Program and Platforms

Name of CRP or Platform	Brief description of collaboration (give and take among CRPs) and value added*	Relevant FP
RICE	Produce a synthesis of the impacts of trees on rice yields to be presented at a joint FTA-RICE session within the 5th International Rice Conference in Singapore in September. FTA brings data and expertise on trees while RICE contributes data and expertise on rice, including shade tolerant varieties, to a joint platform for developing agroforestry options for sustainable rice production.	FP2
PIM	FTA FP3 is exploring to undertake more collaborative work with PIM FP3 "Inclusive value chains and efficient trade", linking our work on understanding the conditions and causal processes that lead to improve the social, economic and environmental performance of business models, and what factors can contribute to scalability, and replicability of inclusive business initiatives.	FP3

	FTA will collaborate with WLE and PIM to work on landscape restoration, with FTA working on restoration and conservation options, performance and suitability to contexts, including institutional context, and PIM will provide analyses of related governance and tenure reforms.	
WLE	FTA plans to increase collaboration with WLE, among other in water management, ecosystem services and restoration. A FT-WLE-PIM workshop is planned for August 2018 to elaborate joint worksplans on restoration.	FP4
CGIAR Collaborative Platform for Gender Research	As a member of the Gender Platform Steering Committee FTA will influence the strategic priorities and annual operational plan for the Platform; including communication products, capacity building opportunities, selection of collaborative research topics for co-investment and generation of consolidated products. FTA is a member of the Gender Platform's newly established monitoring and evaluation working group.	Gender CCT

*e.g. scientific or efficiency benefits

Table H: Planned Monitoring, Evaluation, and Learning Exercises

Planned studies/learning exercises in 2018	Comments
The Drylands Development Project (DryDev) Evaluation	The project supports transitions to sustainable rural development. It aims to do this by increasing food and water security, enhancing market access, and strengthening the local economy. The evaluation will investigate the potential for scaling up learning among external stakeholders.
A Global Comparative Study for achieving effective, efficient and equitable REDD+ results (GCS REDD+ Phase 3)	Mid-term review aimed at identifying opportunities to enhance contribution to outcomes at national and sub-national scales by 2021
Assessment of the impact of FTA interventions related to forest restoration	Impact assessment methodology will be developed that can be replicated with other interventions
Realist evaluation of outcomes from the implementation of the FTA gender strategy	12 case studies will be selected covering FTA's gender specific and gender integrated research and the gender integration team's policy and process engagement work. The evaluation will identify and test context, mechanism outcome configurations and inform FTA gender strategy work in the future.
Evaluation of a global comparative study on securing tenure and rights of resource users across forest and tree landscapes	The project supports transitions to sustainable rural development. It aims to do this by increasing food and water security, enhancing market access, and strengthening the local economy. The evaluation will investigate the potential for scaling up learning among external stakeholders.

FTA Gender Strategy Evaluation	Mid-term review aimed at identifying opportunities to enhance contribution to outcomes at national and sub-national scales by 2021

Annex 1 List of FTA's operational priorities

The 22 operational priorities [5] are articulated in the following way: the ultimate **outcomes at household** level of enhanced nutrition and food security and improved livelihoods, including gender (3, 15, 10) are supported by **action in farming systems**: silvopastoral systems, market-based agroforestry-forestry, farm-forest policy interface, agroecology, plantations and tree crop commodities (11, 12, 13, 14, 2) and by **coordinated action along value chains** : Inclusive finance and business models, innovating finance for sustainable landscapes, public and private commitments to zero deforestation, effectiveness of approaches to sustainable supply like certification and FLEGT (16, 17, 18, 20). They rely on **sustainable management of natural resources**: land and forest restoration, biodiversity, safeguarding and conservation of genetic resources, orphan crops, landscape governance (1, 4, 19, 9); and fully **address climate change** and implementation of the NDCs both adaptation and mitigation, including zero deforestation, bioenergy and blue carbon and peatlands (5, 6, 7, 8, 18). Two operational priorities **ensure the quality of FTA research for development** (21) and monitor a set of sentinel landscapes (22).

List of operational priorities (the ordering does not imply any prioritization within the list).

1. **Restoration** of forests and landscapes, to carry out research on different aspects (from genetic resources, to management modes and policy and governance options) and to integrate findings and emerging lessons into the main policy platforms and governance processes.
2. **Plantations and tree crop commodities**, including timber and high-value tree crop plantations, namely tea, coffee, cocoa, oil palm and rubber, and addressing the economic, social and environmental challenges and opportunities of land-use intensification through plantations.
3. **Enhanced nutrition and food security:** how do tree-based agroecosystems and changing patterns of land use and productive activities at the landscape scale interact with market forces to cause changes in local diets in many countries, and what can be done about it?
4. **Biodiversity, safeguarding and conservation** in forests and agroforestry systems, for productivity and resilience of these systems.
5. **NDCs** [6]**,** supporting countries in meeting their NDC objectives through an improved use of their forests and tree-based resources.
6. **Bioenergy** as an essential part of low-emissions development strategies and policies. How can they be developed, especially in degraded lands, and how to broaden the species basis?
7. **Blue carbon and peatlands**, providing knowledge on eco-hydrology and ecosystem services, on carbon stocks dynamics, and on productivity to devise specific restoration options
8. **Climate change adaptation**: FT&A resources are key to adaptation of forest-dependent communities and agricultural systems to climate change, and have themselves to adapt.
9. **Landscape governance** as it relates to agriculture, forestry and other land uses, and to the livelihoods they sustain
10. **Gender** equitable outcomes, aiming at integrating a gender equality and social inclusion perspective—including attention to issues of generation (youth) across the FTA portfolio.
11. **Silvopastoral systems**, for production, fodder, shade, soil fertility and biodiversity. Retaining trees on pastures can halt and reverse degradation following deforestation.
12. **Market-based agroforestry-forestry**, to deliver evidence of the return on investment, and provide practical strategies for overcoming the time-lag between investment and returns.
13. **Farm-forest policy interface**, to better understand policy constraints, and embed FTA methods, approaches, tools and technologies into major national agroforestry scaling-up programs.

---

[5] Numbers in parenthesis refer to the operational priorities in the list, with no significance of the order.
[6] Nationally Determined Contributions of the Paris Agreement on Climate Change

14. **Agroecology**, emphasizing integrated agro-ecological approaches that include trees in agroecosystems for improving smallholder livelihoods.
15. **Livelihood trajectory modelling and assessment** to capture the likely impact of adopting FTA innovations on smallholder livelihoods in a range of different contexts.
16. **Inclusive finance and business models**, and related institutional factors to help address barriers faced by smallholders, improve value-chain coordination and learning.
17. **Innovating finance for sustainable landscapes**, to understand the potential of responsible finance for providing incentives for the uptake and upscaling of sustainable production practices
18. **Public and private commitments to zero deforestation**, as still little is known about the actual social, economic and ecological impacts of those commitments.
19. **Orphan tree crops**, to support their genetic characterization and their domestication to improve nutrition, as well as for resilience, adaptation to climate change and environmental stresses.
20. **Effectiveness of approaches to sustainable supply**: to understand the role of supply chain arrangements to halt deforestation, and how territorial approaches can facilitate that process.
21. **Quality of FTA research for development** (R4D), to devise better research, learn from experiments, and improve overall performance of FTA as a research-for-development program.
22. **Sentinel landscapes.** FTA had devised its own set up to observe changes in landscapes, their causes and consequences. Where does this set-up stand? How to move forward?

Annex 2 Specific contributions of Flagships and CCT to priorities, and related W1+2 budget

TABLE G

NB: In Table E, FTA MELIA (Monitoring, Evaluation, Learning and Impact Assessment works (before last column of the above table G) and works of the Gender Integration Team (last column), are mainstreamed and integrated

PRIORITY index	BUDGET	FP1	FP2	FP3	FP4	FP5	Melia	Gender
PR 1	1.033.105	464.800			240.000	40.000	50.000	238.305
PR 2	879.500		299.000	255.000	292.000			33.500
PR 3	338.500				308.000		25.000	5.500
PR 4	282.456	269.750						12.706
PR 5	530.000					530.000		
PR 6	40.000					40.000		
PR 7	180.000					180.000		
PR 8	269.506					240.000		29.506
PR 9	291.400				278.800			12.600
PR 10	344.340						75.000	269.340
PR 11	105.000		105.000					
PR 12	369.512		342.000					27.512
PR 13	250.000		250.000					
PR 14	90.000		90.000					
PR 15	208.718		187.000					21.718
PR 16	413.046			355.340				57.706
PR 17	234.500			234.500				
PR 18	329.818			329.818				
PR 19	207.500	207.500						
PR 20	132.000			132.000				
PR 21	432.391						432.391	
PR 22	75.000				75.000			
COORD	1.000.000	190.000	230.000	190.000	195.000	195.000		
TOTAL	8.036.292	1.132.050	1.503.000	1.496.658	1.388.800	1.225.000	582.391	708.393

as relevant into the corresponding FPs where the work takes place. Cross-cutting contributions to priorities of the Cap Dev team, data and communications and PMU are not shown in this table.

Annex 3. Revised impact pathway and theory of change for Flagship 2

The theory of change (ToC) for the flagship (Figure 1 below) rests on three interrelated assumptions evidenced in the previous sections of the proposal that: (i) current management of tree cover on farms, in pastures (including silvo-pastoral systems) and at forest margins can be improved contributing to sustainable intensification of livelihoods through higher total factor productivity[1], leading to higher food and nutrition security; (ii) smallholders and particularly women, can achieve higher returns from tree and forest products by better marketing and processing, thereby increasing their income; and (iii) people (especially women, young people and other marginalized groups) can participate more in, and benefit more from, using tree and forest resources, if policies, legislation and institutions affecting their use, are reformed to enable this, including financing investment to establish trees.

The flagship conducts basic research on priority topics that improves understanding of constraints to, and opportunities for, people to benefit from tree and forest resources, and our understanding of how trees can increase total factor productivity of livelihood systems, yielding IPGs in the process (Box 1, Figure 1). The improved understanding thus generated is then used within the flagship to develop methods, tools and policy interventions to operationalize this knowledge. This involves development of appropriate options for smallholders across large scaling up domains constituted by a portfolio of co-located project clusters, through partnerships with development actors (Boxes 2 and 4, Figure 1). The success of this approach rests on key assumptions about the willingness of development partners, and those who finance them, to engage with the place-based research through i) using evidence to decide upon the options they promote and ii) acknowledge where evidence is lacking and co-generate new knowledge about local adaptation of options and the contexts for which different options are suitable, through building planned comparisons into their promotion of options (Figure 2). The partnership strategy involved and how risks are managed is outlined in the relevant Section of the proposal. The partners include national and local research providers, extension providers, the private sector (in terms of market actors) and policy makers, convened as nested scale innovation platforms at local, national and international levels.

These co-produced methods and tools are tested, improved and used in the place-based research through which they are generated, yielding new, generalizable knowledge (IPGs). Here, there is an important interaction with development partners and with development spending, that is several magnitudes larger than that for research. Through embedding research within the scaling up process, the flagship simultaneously accelerates impact for development partners and enables research to be conducted at the scale at which we aspire to make impact[2] (Boxes 2 and 4 in Figure 1 and Figure 2). Basic knowledge generated from the placed-based research about relationships between contextual factors and the suitability of different options and combinations of options (including interventions in the enabling environment), together with demand driven research priorities required to address bottlenecks to adoption, are fed back into the fundamental research effort (Box 1, Figure 1).

Transforming the co-produced knowledge, methods and tools (Box 2, Figure 1) into impact, requires change in knowledge, attitudes and skills and hence the behavior of NARES and NGOs who promote agricultural and forest innovations, policy makers and implementers who frame the enabling environment, private sector market actors, and public and private institutions that provide finance for sustainable development in ways outlined in Box 3, Figure 1. Within the co-located portfolio of place-based research (Table C) these changes are mediated and supported through development of nested scale (local, national, international) innovation platforms. The platforms directly involve the key actors mentioned above, and the successes and failures of the experience of convening them, together with results of systematic planned comparisons to compare the cost-effectiveness of different approaches to effecting change, generate important IPGs that are published and publicized. In this way the direct impact at the co-located sites is complemented by a second more distributed pathway to impact where innovations, methods, tools and experience are adopted and used by a wider range of extension, policy and market actors beyond the co-located placed-based research sites. This wider

uptake is fostered through capacity development and the targeted use of social media (Box 3, Figure 1).

Table B shows annually trackable indicators of reach; that is, for how many people and ha, FTA innovations are potentially available through development partners (e.g. farmers in Ethiopia within the catchment area of the government nurseries converted to entrepreneurial rural resource centers following the FTA model; farmers in Rwanda to which the One Acre Fund promotes trees using FTA options by context methods) and as a result of people falling within the jurisdiction of relevant policy change (e.g. farmers in Peru eligible for agroforestry restoration concessions that enable formalizing land title; farmers in Vietnam eligible for incentive payments to establish agroforestry on sloping land resulting from provincial policy change documented as being catalyzed by FTA research). We distinguish this 'reach' from the extent to which it is translated into adoption and impact that are the subject of specific studies to quantify these.

Progress along impact pathways is tracked at project level and used to inform project implementation and where necessary redesign.

The flagship has an integrated monitoring, evaluation, impact and learning (MELIA) strategy to track progress along impact pathways and the ultimate impact of the flagship. This includes the following key elements.

1. Tracking cumulative annual indicators at flagship level, of the reach of the flagship program (Table B), in terms of cumulative counts of people and ha for whom flagship innovations are available, through the promotion efforts of development partners, and the jurisdiction of policy reform.

2. Outcome evaluation at project level, to document and track changes in behavior of actors along specific impact pathways, using appropriate elements of outcome mapping, contribution analysis, realist evaluation and process tracing[3]. Reflection on this generates learning, that feeds back into modification of current project activity and design of new projects to maximize effectiveness.

3. Periodic strategic *ex post* impact assessment funded from w1/w2 to quantify the extent to which reach is translated into adoption and has an effect on poverty, food security and environmental integrity.

4. The use of planned comparisons in the place-based research portfolio to quantify the cost-effectiveness of alternative approaches and options[4].

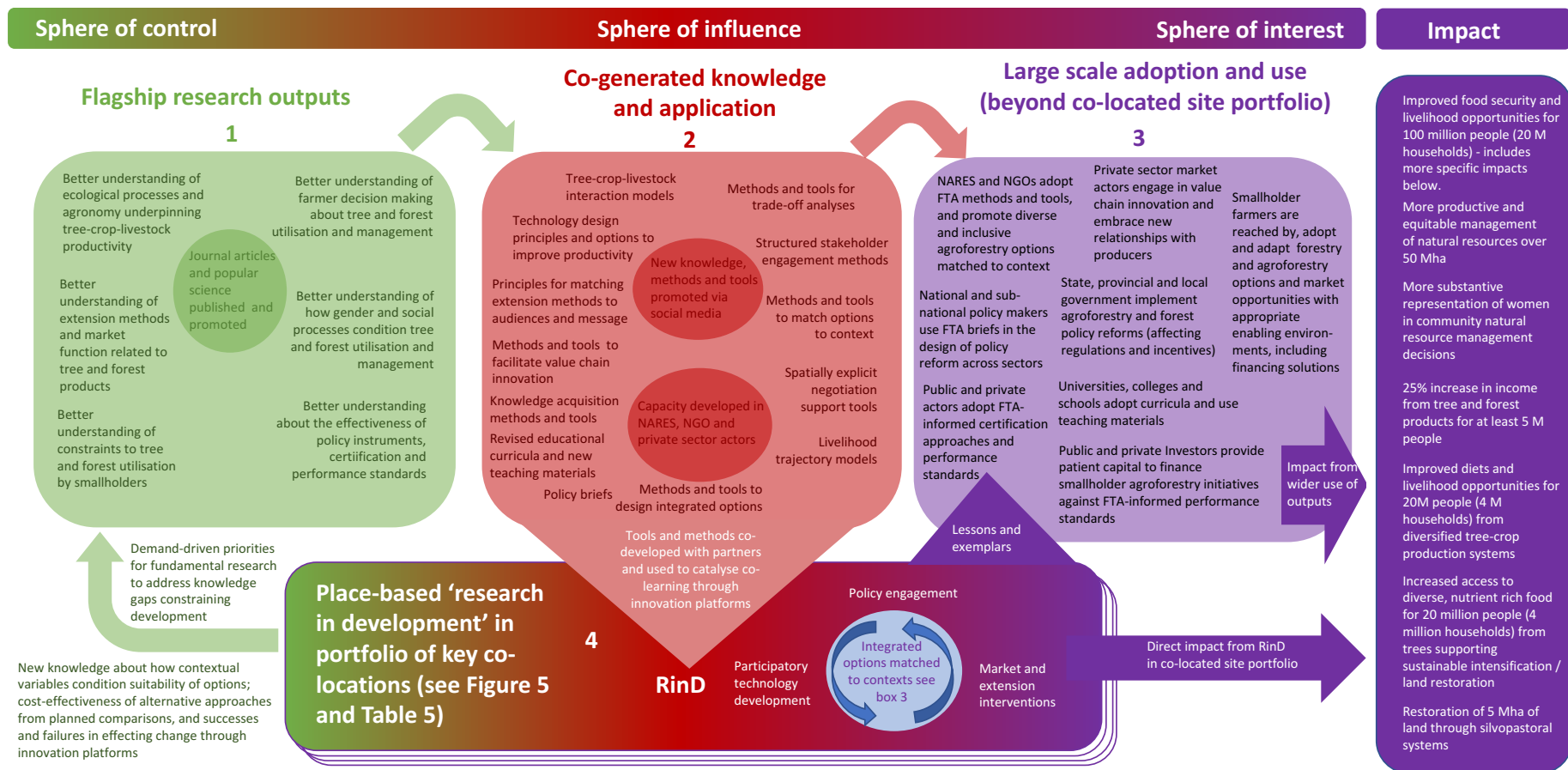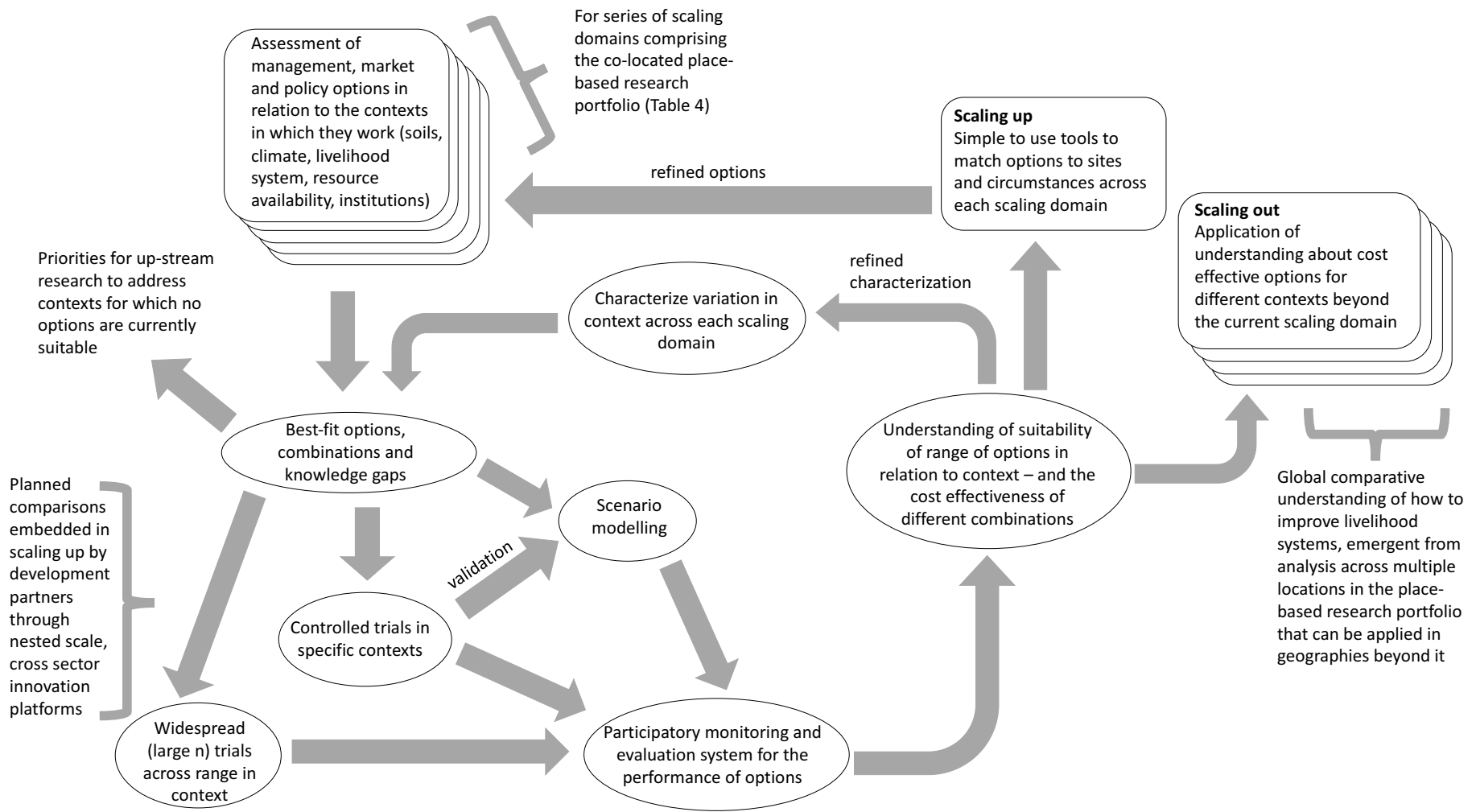Figure 1 Key stages in the co-generation and use of research outputs to create impact

Figure 2. **The research 'in' development (RinD) approach** (adapted from Coe et al. 2014[5]) that embeds research within development practice by considering options in relation to context and systematically evaluating options across ranges in context[6] through coupling planned comparisons with innovations in data collection from extensive trials.

Table H. Annually trackable indicators of contributions to Sub-IDOs and 2022 targets

Sub-IDO	Indicators (cumulative)	2022 Target
3.2 Increased livelihood opportunities	Cumulative number of people *reached* by development partners *using* FTA-related options or *affected by* government policy changes that enable adoption of FTA-related livelihood opportunities.	20 million households (roughly 100 million people)
3.3 Increased value capture by producers	Cumulative number of people with *access to* FTA-related technologies, market interventions and/or policy or institutional innovations that can demonstrably enable an income increase by at least 25%	1.2 million households (roughly 5 million people)
5.2 Increased access to diverse, nutrient-rich food	Cumulative number of people in smallholder households with *access to* FTA-related innovations that can demonstrably improve food production (quantity and availability seasonally) and dietary diversity (minimum dietary energy requirements and an adequate number of food groups).	350K households (roughly 1.75M people)
8.1 Land degradation minimized and reversed	Cumulative number of ha *reached by* FTA innovations that can demonstrably avoid degradation or restore productivity of degraded land.	22 M ha
9.1 More productive and equitable management of natural resources	Cumulative number of ha of land *reached by* FTA innovations in natural resource governance that can demonstrably improve productivity or equity.	1M ha
9.2 Agricultural systems intensified and diversified in ways that protect soils and water	Cumulative number of ha of land *reached by* FTA innovations involving improved tree cover management that can demonstrably protect soils and water.	8 M ha
10.1 Increased resilience of agroecosystems and communities	Cumulative number of people residing in communities reached by FTA innovations that demonstrably increase livelihood resilience	1 M people
	Cumulative number of ha of land *reached by* FTA innovations that demonstrably increase agroecosystem resilience.	12 M ha
B.1 Gender-equitable control of productive assets and resources	Cumulative number of women, and members of vulnerable groups, *affected by* decision making institutions governing the management of tree and forest resources, for which FTA innovations *are available* that can demonstrably increase numerical and substantive representation of these groups in decision making. This relates specifically to involvement in devolved governance of natural resources such as community forest associations, and does not include women who benefit from innovation in policy and practice more generally.	50K women
C.3 Conducive agricultural policy environment	Cumulative number of people *potentially affected by* policy changes with a demonstrable link to FTA innovation (evidenced by process tracing).	15M households (roughly 75M people)
D.3 Increased capacity for innovation in partner research organizations	Cumulative number of people in partner research organisations *engaged in* co-learning communities of practice involving FTA innovations	1000
D.4 Increased capacity for innovation in partner development organizations and in poor and vulnerable communities	Cumulative number of development partner staff *engaged in* co-learning communities of practice involving FTA innovations	3000

Table I. The co-located place-based, integrated research portfolio linking technological innovation at scale with national and sub-national policy and market intervention.

Funding shown for associated development programs is indicative of uptake potential of FTA outputs but does not constitute funding for the underpinning research that requires w1/w2 resources without which the integrated portfolio cannot function.

Location	Co-located research projects and associated development initiatives	Examples of progress along impact pathway leading to impact at scale
Ethiopia	ACIAR – Trees4FoodSecurity, DFID – SAIRLA, IFAD – Dryland restoration, Irish Aid – Watershed Rehabilitation, DGIS - DrylandsDevelopment program, USAID-Africa Rising associated with the PASDIP II IFAD loan program (144 M USD), and GEF UNDP – Integrated Landscape Management to Enhance Food Security and Resilience (10.2 M USD + 144 M co-financing) and connecting to CRPs on WLE, MAIZE, WHEAT and Livestock and FTA FPs 1 and 4.	In response to FTA co-located research results on performance of agroforestry options a cross-sector national agroforestry scaling platform in Ethiopia has been established with the Ministries of Agriculture, Forestry and Livestock that includes development of national policy, the establishment of a delivery unit in the Ministry of Agriculture scientifically supported by FTA and a commitment to hand over 33,000 government nurseries to entrepreneur youth and women's groups following the success of the FTA ACIAR-funded Trees for Food Security (T4FS) Rural Resource Centre (RRC) model for generating and promoting quality germplasm, farmer training and agroforestry knowledge. More than a thousand farmers are participating in FTA planned comparisons on tree establishment in collaboration with WorldVision.
Uganda	ACIAR – Trees4FoodSecurity; ACIAR – Value Chain Innovation Platforms4FoodSecurity; Heifer – EADD; the Nile-Congo Sentinel Landscape; IUCN - associated with the PRELNOR IFAD loan program (71 M USD) and GEF UNDP FAO – Fostering Sustainability and resilience in Karamoja (7.1 M USD with 51 M co-financing) and connecting to WLE, Livestock and FTA FPs 1 and 4.	Fifteen members of the Ugandan parliament including ten who sit on the Agriculture and Natural Resources committee and the Food Security Platform visited sites where FTA innovations were adopted in July 2017, established a cros-sector unit involving the Ministries of Agriculture and of Water and Environment to move forward a national agroforestry strategy currently in draft. A national task force co-ordinated by the Uganda Farmer's Federation (UNFEE) and involving an MP from the parliamentary Food Security Forum, a legal advisor and representatives from FTA (who through ICRAF together with Vi-Agroforestry are trialing agroforestry options with over 20,000 smallholder farmers in the country) has been constituted to advise on steering the strategy through parliamentary procedures.
Rwanda, Burundi and DRC	ACIAR – Trees4FoodSecurity, EU – Forests and Climate Change in the Congo (FFFC), EU - FORETS; the Nile-Congo Sentinel Landscape associated with GEF UNDP – Lake Tanganyika Catchment Management (13.5 M + 28.6 M co-financing), GEF FAO Support for Sustainable Food Production in Burundi (7.3 M USD + 45 M co-financing) and connecting to MAIZE and FTA FPs 1, 4 and 5.	Co-investment by the government of Rwanda with the FTA T4FS project will increase the number of pilot RRC's from two to nine, the One Acre Fund has engaged in an options by context analysis related to diversification of their tree promotion programme and FAO has contracted ICRAF to advise the Government on development of national agroforestry policy. Change in knowledge, attitudes and behavior of development partners to adopt more diverse and inclusive agroforestry options was documented in DRC and is now being taken forward by WWF across North Kivu using technical options and approaches developed by FTA. This builds on the success of FTA combining high end science (identification of erosion hotspots from satellite image analysis) with local knowledge to control sediment flow and enhance livelihoods in the Lake Tanganyika catchment where >2 million trees were locally raised and planted in 2012, including 16 native species not previously promoted in the region.
Kenya	IFAD – Dryland restoration, DGIS - DrylandsDevelopment program associated with IFAD KCEP-CRAL loan program (116 M USD), GEF IFAD Upper Tana Nairobi Water Fund (7.2 M USD + 61 M co-financing) and in connection with WLE, Livestock and FTA FPs 1 and 4.	FTA research is embedded in the KCEP-CRAL loan program and the water fund through characterization of context, matching options to contexts and impact evaluation with >3000 farmers trying out and providing feedback on soil and water conservation, tree planting and post-harvest pest control innovations in systematic planned comparisons spanning three counties. Novel livelihood trajectory modelling using the Simile modelling environment is being used to identify levels of adoption of different interventions (and combinations) necessary for households to achieve food security and transition out of poverty.
Malawi / Zambia	ACIAR – Value Chain Innovation Platforms4FoodSecurity, DFID – SAIRLA, Irish Aid – Agroforesrty for Food Security phases 1 and 2 associated with GEF IFAD – Enhancing the resilience of agro-ecological systems in Malawi (7.1 M USD + 87.3 M co-financing) and in connection with FTA FP1.	The use of fertilizer trees became well established in southern Africa following a critical meta -analysis that showed positive impacts on maize yields across the region, leading to support for scaling agroforestry to underpin food security by Irish Aid in Malawi and a farmer-led initiative to establish fertilizer trees in fields in Zambia. Assessments of the performance of agroforestry practices nationally in Malawi and impact assessment of AFSP have highlighted the variation in the performance of practices across contexts and the need for extension approaches that support farmers in establishing appropriate high quality trees. Novel

		modelling of tree-crop interactions that delivers accurate predictions of crop yield, incorporated in the APSIM framework, is being applied to help define niches for different practices.
Cote d'Ivoire / Ghana cocoa belt	Mars – vision for change, Danida – Climcocoa, Danida – VALOR associated with AfDB – CSSVD control, AfDB – TAAT tree-crop value chains.	FTA research showing that farmers wanted more trees and more tree diversity on their cocoa farms in Cote d'Ivoire associated with major public-private investment in rejuvenation strategies for cocoa through the Mars-funded V4C program and more recently in CSSVD control, has led to a national shift from an emphasis on full sun systems to a strategy embracing agroforestry to increase and sustain cocoa productivity coupled with new research on using agroforestry to mitigate effects of climate change on cocoa in Ghana. These now underpin an emerging AfDB investment to rejuvenate cocoa across West Africa as part of it's TAAT initiative.
Mali / Niger/ northern Ghana / Burkina Faso	IFAD – Dryland restoration, DGIS - **Dry**lands**Dev**elopment program, IFAD – WAFFI, USAID –scaling up climate smart agriculture, West Africa Sentinel Landscape associated with IFAD PASADEM (31.7 M USD), Rumanmu (25.7 M USD), (GEF UNDP – Family Farming Development Program in Niger (7.6 M USD + 60.3 M co-financing); IFAD PAPAM loan program in Mali (173 M USD), GEF IFAD – Participatory Natural Resource Management and Rural Development in BF (7.2 M USD + 35.9 M co-financing); GEF World Bank – Sustainable Land and Water Management in Ghana (12.8 M USD + 22 M co-financing);	The FTA impact study of farmer managed natural regeneration (FMNR) across five countries in the Sahel quantified for the first time the benefits that farmers were receiving from higher tree densities in their fields including 15-25% higher crop yield and higher livestock productivity in addition to 34-38% increase in value of tree products. Outcomes included a higher mean income of 72 USD per annum and increase in dietary diversity of 12-14% in households with over those without FMNR. There are over 5 million ha of FMNR in Niger alone and a lot of scope to further increase benefits to farmers through enrichment planting, tree and crop management innovations and improved marketing of tree products. In many parts of the region (e.g. Mali, Ghana and Burkina Faso) policy constraints to farmers benefiting fully from tree and forest resources remain and are being addressed through FTA participatory action research. There are >5000 farmers participating in systematic planned comparisons of FMNR enhancement options and providing feedback on their performance across Mali and Niger.
Vietnam	ACIAR – AFLi, FAO – national policy development; Mekong Sentinel Landscape, associated with provincial and national scaling.	The Ministry Nationally and Provincial Departments of Agriculture and Rural Development (DARD) in three provinces of northwest Vietnam have co-invested in the development of six exemplar agroforestry landscapes and the Yen Bai DARD has effected three specific policy changes to create incentives for farmers to adopt agroforestry options developed through the FTA ACIAR-funded AFLi project across the province.
Indonesia	ACIAR – Kanoppi, Canada – AGFOR embedded in national development	National agroforestry centre established, integrated cross-sector agricultural and forest policy approaches developed in three provinces and an integrated smallholder agroforestry project supported in Sulawesi.
India	Nationally embedded FTA program of research with ICAR; Western Ghats Sentinel Landscape; support for state level agroforestry research and development (e.g. Odisha)	National agroforestry policy inaugurated in 2013 now rolling out in state level implementation, together with availability of loans to smallholders to establish agroforestry through the National Bank for Agriculture and Rural Development (NABARD). Now exploring involvement in design of agroforestry options to enhance soil health associated with the role out of soil health cards nationally to farmers.
Peru	Range of projects on coffee, cocoa and timber in relation to national and regional restoration and forest policy, Western Amazon Sentinel Landscape.	Government has incorporated policy changes to enable implementation of an FTA options by context approach in an agroforestry concessions scheme to contribute to restoration in agricultural frontiers of the Amazon region as part of the county's 20 x 20 and Bonn Challenge commitment to restore 3.5 M ha by 2020. The legislation (passed in 2015) confers land rights to farmers provided that they establish sustainably managed agroforestry systems on >20% of the designated area. FTA is now working with the relevant Ministries on implementation guidelines. This builds on previous engagement in redefining agroforestry in forest legislation legalizing smallholder timber sales from sustainably managed fallows in the Amazon region.
Brazil	USAID (via Natura) – oil palm diversification; IUCN – land restoration through agroforestry; embedded in national development and policy processes	FTA restoration through agroforestry options and approaches have been adopted by the Brazilian forest service as well as a range of NGOs and state bodies working on restoration across the Cerrado and Caatinga biomes in Brazil contributing to the national target to restore 22 M ha of forest, cropland and pastures by 2030.
Central America	Series of silvopastoral system research projects at CATIE some collaborative with CIRAD, ICRAF and Bangor University; Nicaragua Sentinel Landscape	CATIE pioneered integrated co-located research at landscape scale through their MIP project making the Nicaragua-Honduras Sentinel landscape a hub for collaborative research across FTA. The key focus of this flagship is on development of silvopastoral systems and their impact on sustainable productivity and in association with FP5 reducing greenhouse gas emissions from livestock production systems and the development of sustainable coffee and cacao agroforestry systems in the face of climate change.

[1] Antle, J.M. and Capalbo, S.M. (1988) 'An Introduction to Recent Developments in Production Theory and Productivity Measurement', in Capalbo, S.M. and Antle, J.M. (Eds), Agricultural Productivity, Measurement and Explanation, Resources for the Future, Washington, DC, pp. 17–95.

[2] Sinclair, F. L. (2017). Systems science at the scale of impact: reconciling bottom-up participation with the production of widely applicable research outputs. In Sustainable Intensification in Smallholder Agriculture: An Integrated Systems Research Approach. (Eds I. Oborn, B. Vanlauwe, M. Phillips, R. Thomas, W. Brooijmans and K. Atta-Krah). London: Earthscan

[3] Belcher B, Suryadarma D and Halimanjaya A (2017) Evaluating policy-relevant research: lessons from a series of theory-based outcomes assessments. *Palgrave Communications* 3:17017

[4] Hughes K, Oduol J, Coe R, Sinclair F and Peralta A. 2016. Guidelines for identifying and designing planned comparisons. ICRAF Nairobi, Kenya.

[5] Coe R, Sinclair F and Barrios E. 2014. Scaling up agroforestry requires research 'in' rather than 'for' development. *Current Opinion in Environmental Sustainability* 6:73–7. http://dx.doi.org/10.1016/j.cosust.2013.10.013

[6] Coe R, Njoloma J and Sinclair FL. 2016. Loading the dice in favour of the farmer: Reducing the risk of adopting agronomic innovations. *Experimental Agriculture.* doi: http://dx.doi.org/10.1017/S0014479716000181