Forest Investment Program Program Approval Request			
1. Country/Region:	*Mozambique*	**2. CIF Project ID#:**	(Trustee will assign ID)
3. Source of Funding:	☒ FIP	☐ PPCR	☐ SREP
4. Project/Program Title:	Emissions Reductions in the Forest Sector through Planted Forests with the Private Sector		
5. Type of CIF Investment:	☐ Public	☒ Private	☐ Mixed
6. Funding Request in million USD equivalent:	*Grant: US$ 1,850,000*	*Non-Grant: US$*	
7. Implementing MDB(s):	*IFC*		
8. National Implementing Agency:	*Private sector operation*		
9. MDB Focal Point and Project/Program Task Team Leader (TTL):	*Headquarters - Focal Point:* *Joyita Mukherjee*	*TTL:* *Dietrich Fischer*	
10. Program Description:			

I. Introduction

This project*, EMISSIONS REDUCTIONS IN THE FOREST SECTOR THROUGH PLANTED FORESTS WITH THE PRIVATE SECTOR*, is associated with the MDB's Mozambique Forest Investment Program Country Investment Plan *(MOZFIP, P160033)*. The Plan was endorsed by the FIP Sub Committee in June 2016 and this project plan outlines the IFC managed sub-component of the FIP, which aims to improve coordination and integration of private sector efforts into the broader MOZFIP program objectives and activities. Mozambique's Investment Plan is built on two levels of activity: (i) a national level focusing on policy and legal reform, governance and strengthening of capacity that will create the enabling conditions for change; and (ii) a landscape level focusing on the implementation of activities on the ground in specified geographic landscapes and in particular sectors. To address the drivers of deforestation, the government of Mozambique is applying a mix of policy and on-the-ground actions in key landscapes where these problems are acute. The IFC sub-component focuses specifically on the Integrated Landscape Program in Zambezia.

The proposed intervention will support smallholder farmers, SMEs and plantation forestry companies to transform degraded landscapes into highly productive mosaics of forestry blocks, out-grower tree production, houses, agricultural fields and well-managed natural forests. This will improve food security, increase agricultural income, preserve eco-system services and create employment for communities who are neighbors

to plantation concessions. All of these efforts will contribute to the sequestration of carbon across the landscape through planted trees and preserving high value conservation areas.

One important element of the IFC approach will be to define and register land rights for 14,000 households in and around IFC client plantation concessions (DUATs) in Zambezia, as clear land title is the first step in improving forest, soil, and other natural resource management. This is directly aligned with the Government of Mozambique's "Terra Segura" initiative, which aims to document the land rights of 5 million individual families and 4,000 communities over the next 5 years.

To accomplish this, and support the government's Terra Segura programme, an IFC client has partnered with the NGO ORAM and the consulting firm Terra Firma, to register 20 community land parcels, corresponding to the 20 chiefdoms (*Regulados*) affected by the client's plantations. Co-Funding for this effort has already been secured from the Legend Challenge Fund of DFID. Thus, this element of the IFC MOZFIP is already under way. Under the IFC sub-component of the FIP, the approaches and methodologies develop through LEGEND will be disseminated to all plantation forestry companies and other landscape stakeholders.

The IFC MOZFIP sub-component will be agile and is projected to start soon after the project approval. Co-funded activities, such as farmer training within the DUATs and community land delimitation through the LEGEND program, are already underway. This program design will provide two benefits – co-financing and private sector management. Thus, the IFC subcomponents will serve as a 'laboratory' for the wider FIP, providing early feedback into institutional learning processes.

Intervention Goal

The goal of the IFC FIP intervention is to *"leverage the private sector to link communities to the opportunities provided by major forest sector plantation investment"*.[1]

Intervention Purpose

The **intervention purpose** of the IFC MOZFIP programme is: "*to rapidly pilot private sector approaches to address drivers of deforestation in Zambezia that can be replicated across the Zambezia FIP landscape by other stakeholders*".[2]

Successful approaches can be replicated across the landscape under the WB sub-component, and under other projects and government initiatives. It should be noted that this objective is directly aligned with the overall MOZFIP, as a reduction in deforestation cannot be achieved if current drivers are left unchecked.

Planned elements of the IFC MOZFIP project include:

1. Development and dissemination of replicable land tenure clarification and registration mechanisms;
2. Fire risk modeling and early warning system development to reduce fire risk and inform community fire management;
3. Community forest and natural resource management planning and zoning methodological development. This will include special emphasis on community wildfire management (a shared concern with plantation forest investors);
4. Functional literacy designed around community and smallholder participation in plantation forestry;
5. Conservation agriculture training, and distribution of improved cassava varieties to replace those lost

[1] Forest Investment Plan (FIP) in Mozambique, Version 3.1, UT-REDD and MITADER
[2] Ibid

in recent extreme weather events and disease[3];

6. Large scale consumer pilot on post-harvest storage technologies and wood fuel stoves adoption and use, to reduce pressure on natural forests;
7. Research on Eucalyptus hydrology in Mozambique. Though Environmental Impact Assessments (EIAs) and models for southern Africa predict few impacts on hydrology, especially with the mosaic landscape approach, no data have ever been collected in Mozambique. Such data are important to inform the national level dialogue about the expansion of plantation forestry;
8. Livelihood monitoring system design and implementation, to include monitoring via digital tablet, to track in near-real time effects of plantation forestry and inclusivity efforts of community livelihoods. This is important to satisfy both national legislation as well as IFC performance standards.

To facilitate a quick start, IFC received a FIP Preparation Grant, with the following deliverables:

- Summary of existing Natural Resource Committees and their activities in areas surrounding forestry plantations feeding into baseline survey and MOZFIP IFC subcomponent design;
- Documented survey of in-country and in-community challenges, resources, methodologies, experiences, and ideas, incorporated into MOZFIP IFC subcomponent design;
- Documented field test leading to decision about household granary design, incorporating feedback from users, incorporated into MOZFIP IFC subcomponent design;
- Documented methodology for reducing land delimitation costs, based on a pilot in the lands of one community incorporated into MOZFIP IFC subcomponent design.

II. Context

Country Context[4]

Mozambique's economy has experienced some of the world's fastest growth rates since the end of its devastating civil war in 1992, with an annual average economic growth of around 7.5 percent in the last decade – largely driven by foreign investments. However, poverty has fallen only slightly from 56 to 54 percent between 2003 and 2015. Per capita income in 2014 was US$586, about one-third of the Sub-Saharan African average. As evidenced by the country's low level of the Human Development Index (178 out of 187 countries in 2014), development challenges include basic health and education services, employment promotion, diversification of income sources and improving food security. Mozambique's recent growth has been driven by capital-and import-intensive mega-projects with limited linkages to the local economy. The bottom 40 percent of the population, located mostly in rural areas, has benefited less from growth than the overall population.

Despite its positive economic prospects, the Mozambican economy faces significant short-term economic difficulties. Growth slowed from 7.2 to 6.6 percent in 2015, its slowest pace since 2009, and will slow further in 2016. The slowdown in 2016 is accompanied by a weak external position and heightened levels of inflation. Debt (in nominal terms) has grown rapidly, from 40 percent of GDP in 2012 to an estimated 73.6 percent in

[3] Mozambique was the country most affected by extreme weather events in 2015, according to a paper presented at the recent UN climate talks in Marrakesh. Accessed 15.11.2016. http://clubofmozambique.com/news/mozambique-tops-global-list-countries-worst-hit-extreme-weather-2015/?utm_source=The+Mozambican+Investor_&utm_campaign=238d2c2080-EMAIL_CAMPAIGN_2016_11_11&utm_medium=email&utm_term=0_d3b369a42d-238d2c2080-206577869

[4] Much of this section is derived from the WB Project Appraisal Document for MOZFIP, Report No: PAD1913.

2015. Recently disclosed debt brings the estimated debt levels to about 85 percent of GDP. Hence, the short-term challenge will be to maintain macroeconomic stability, whilst also pursuing diversification for inclusive growth through sectors such as agriculture and renewable natural resources (i.e. forestry, fisheries). Stronger governance in managing public finance (including revenues from natural resources, such as forests and land) is called for.

Extreme poverty is concentrated in the central and northern regions, particularly among rural areas where many households derive their income from agricultural and forest related activities. While poverty rates dropped in most of Mozambique's provinces between 2003 and 2008, they increased in Zambezia, Sofala, Manica and Gaza. By 2009, almost three quarters of Zambezia's population lived under the extreme poverty threshold. Zambezia and Nampula, the two most populous provinces of Mozambique, accounted for 48 percent of the country's poor in 2009. Along with Cabo Delgado, these provinces contain some of Mozambique's most suitable lands for agriculture and forestry,[5] offering significant potential for poverty alleviation. Diversifying the economy, particularly in rural areas, while maintaining the productivity of the resource base upon which most of the population depends directly for their survival— water, forests, soils, and wetlands – is critical for sustainable and inclusive development.

Mozambique is richly endowed with natural resources – arable land, forests, fisheries, water and mineral resources. Mozambique's substantial natural capital includes 36 million ha of arable land and 40 million ha of natural forests. This translates into significant potential for agriculture and forestry development for food security and commercial purposes. However, Mozambique's natural resources are being rapidly depleted: 220,000 ha of natural forests are lost every year, and erosion is pervasive. Ensuring the sustainability and resilience of the natural resource base on which agriculture and forestry depend, particularly soil and water, is critical for sustainable development.

A new government took office in February 2015, after general elections. The new administration adopted a five-year Government Plan (*Plano Quinquenal do Governo*) 2015-19 (PQG) with a strong emphasis on sustainable rural development, and has identified agriculture forestry as priority sectors for poverty reduction.

Sectoral Context[6]

The forest cover area is 40 million ha (51 percent of the country), of which almost 27 million ha are categorized as productive forests, suitable for timber production, and over 13 million ha are conservation areas (CAs). Mozambique's predominant forest ecosystem is the miombo forest[7], which covers about two-thirds of forested land in the country. Mozambique is internationally recognized for its ecological richness and is home to important biodiversity hotspots with high levels of endemism such as Maputaland (coastal forests in Southern Mozambique), the humid evergreen montane forests in the central Mozambique, and the coastal dry forests in northern Mozambique.

The miombo forest provides a variety of biophysical ecosystem goods and services to local communities, including food, fuel, medicine and construction materials. Communities depend significantly on forests. It is estimated that in some areas, for example in the Gorongosa district, miombo woodlands contribute about 19% of household cash income and 40% of the household subsistence (non-cash) income. Fuelwood and charcoal are critical to national and household energy needs, with over 70% of the population depending on it for cooking, resulting in an annual consumption of almost 25 million m^3 of fuelwood (including charcoal, which is mostly used in urban areas). Non-timber forest products are significant contributors to nutritional and

[5] Systematic Country Diagnostic, 2015

[6] Much of this section is derived from the WB Project Appraisal Document for MOZFIP, Report No: PAD1913.

[7] Miombo forests are characterized by open woodland dominated by Cesalpinoideae tree species such as Brachystegia, Julbernardia, and Isoberlinia, often associated with a dense grass cover.

medicinal needs, and have significant potential to generate income.[8] Forests also act as a safety net for populations by providing secure access to resources and services. These include the ecological services upon which agriculture and food security depend, such as erosion control, water for irrigation, and stable soils, which can come under threat from weather and climatic variation.

Forests contribute directly to resilient and productive landscapes. Mozambique is one of the highest ranked African countries in terms of exposure to risks from weather-related climate hazards (drought, floods and tropical cyclones). The country's low adaptive capacity and the strong dependence of its population and economy on natural resources exacerbate its vulnerability to climate change. The growing intensification of weather hazards threatens efforts to meet national priorities, especially toward food security, which is essential to poverty alleviation. Deforestation and forest degradation increase vulnerability of rural communities to changing climatic conditions, particularly by making forests more prone to fires. On the other hand, well-managed landscapes[9] can provide resilient livelihoods in the face of erratic weather trends and buffer communities from natural disasters.[10] Healthy forests, and trees in agriculture lands, are a key piece in sustainable landscapes. Land restoration through planting trees, such as through agroforestry schemes, can increase the adaptive capacity of communities as well as lead to diversification of livelihoods.[11]

The loss of forest cover in Mozambique is high. Mozambique has a high annual deforestation rate of 0.23 percent/year, representing an annual loss of 138,000 ha of forest and annual emissions of 12 Mt CO2.[12] This (i) reduces the overall forest resources available to local communities and to the private sector, thus threatening the medium-term sustainability of the forest sector; (ii) contributes to the loss of important habitats for wildlife and biodiversity; and (iii) results in GHG emissions of around 23.4 Mt CO_2 per year.[13]

Forests are lost due to a combination of direct and indirect drivers linked to several sectors, primarily small-scale agriculture, biomass energy, and unsustainable forestry. Forest conversion to agriculture is the dominant driver of deforestation (65 percent of total deforestation), and includes mainly shifting subsistence cultivation (slash and burn agriculture, often resulting in uncontrolled spreading of fires), livestock and, to a lesser extent at present, but with the potential to become larger in the future, commercial agricultural expansion.

Deforestation rates in Mozambique show an increasing trend. As an example, the Province of Zambezia experienced forest loss of almost 310,000 ha between 1990 and 2013 at an annual rate of 0.61%. This rate reached 0.86% in the recent period between 2010 and 2013.[14]

There is significant potential for communities to reap more benefits from forests. A recent WB study[15] on land and community-based natural resources management (CBNRM) in Mozambique (2016) has shown that

[8] The study "Assessment of Non-Timber and Non-Wood Forest Products Value Chain in the Zambezia, Nampula and Cabo Delgado Provinces, Mozambique" (2015) conducted by PhytoTrade for the GoM showed that there is potential for NTFP development in the areas of the Project, coupled with the desire by communities for this for diversification of livelihood.

[9] The term "landscapes are used in this PAD refer to a defined geographic area where multiple land uses and demands in different sectors occur, and where multiple actors have a stake in the land and the resources. The landscape approach is central to the Project—an approach that addresses the complexity of a landscape, and attempts to integrates policy and practice for multiple land uses within a given area to ensure equitable and sustainable use of land while strengthening measures to adapt to climate change, and mitigate it when possible.

[10] Climate Change and Forest Resilience, IIED, 2006

11 How Forests Enhance Resilience to Climate Change, PROFOR, 2015

12 Figures from the National REDD+ Strategy, from a national deforestation study by Ceagre and Winrock (2016), based on a comparative analysis of global data sets derived from Hansen, et al. (2013). This data is being updated and the forest emissions reference level is being prepared as part of REDD+ Readiness.

13 National REDD+ Strategy, 2016

[14] EtcTerra (2016)

CBNRM has rarely delivered the results expected. Community land delimitation is an important tool to clarify land tenure rights, but needs to be applied more systematically as part of a wider strategy to promote rural development and sustainable natural resources management. Long-term capacity building to communities is needed, including on business development. Linking them to markets, where forest products with market potential exist, needs to be supported by long-term partnerships. Community-private sector partnerships around forest management could address some of these challenges.

Charcoal exploration is another key driver of degradation in Mozambique. Charcoal exploration is another key driver of forest degradation in Mozambique. 80 percent of energy consumed in the country is from fuelwood and charcoal, and it is estimated that up to 98 percent of all extracted forest products are annually used for these wood fuels. It can be argued that charcoal is the most important product of the Miombo forests in terms of market volume, but also a very significant factor of forest degradation, where 80-92 percent of charcoal production is done outside of agricultural areas.[16] Charcoal production through traditional means is particularly inefficient, while more modern kilns can increase efficiency (from a 7:1 wood to charcoal ratio with traditional kilns to 2.5:2 with retort kilns). In terms of shifting to sustainable forest management, the prevailing practice of uncontrolled and inefficient charcoal production needs to be addressed. There is potential to organize the sector in order to better manage this critical resource that provides an important economic activity for rural populations.

Mozambique has significant potential to develop small to large-scale commercial plantations. According to the National Reforestation Plan (2009), the Government aims to increase its commercial forest plantation area from the current 60,000 ha to 1 million ha in 2030. Mozambique has adequate conditions for expanding its commercial forestry, including strong political will, an abundance of land suitable for plantations, and a growing demand for forest products. Planted forests have high potential to generate jobs and increase rural incomes. They also play a role in landscape restoration and promoting sustainable landscape management through reducing pressure on natural forests and rehabilitating degraded areas.

While private investments in planted forests are taking place, there is still significant scope for growth. A leading company in pulp and paper production, is expected to establish over 200,000 ha of plantations and a transformative pulp and paper industry in the country that could generate up to 6,500 new jobs. The company is taking a mosaic approach to the plantation, where blocks of forest planted on degraded land will be intermixed with conservation areas of native miombo and communal lands to maximize the social and environmental benefits from such plantations. As shown by a recent WB study (2016),[17] the country's business climate for planted forests is reasonably good, but economic, social and environmental risks could be significantly reduced by a series of market-, production-, regulations-, and smallholders-related actions led by the Government in cooperation with companies. Outgrower schemes and other partnerships would help plantation investments to further support rural economic growth and diversification on the basis of wood supply arrangements. These have not yet been well established in Mozambique, but other countries in Africa (for example, South Africa and Uganda) have had good experiences. Outgrower schemes and other company-community partnerships (CCPs) frequently require subsidies and capacity building for new emerging producers, with the outcome being a more balanced sector comprised of anchor investments and small and medium growers.

The current Government has publicly recognized forest-related challenges and shown commitment to addressing them. Over the last years a number of remarkable changes took place, which point to a change in direction in the management of the forest sector. A Ministry of Land, Environment and Rural Development

[15] For a summary, see the policy brief *Community Based Natural Resource Management: Reformulating and strengthening current approaches in Mozambique* (2016) produced by the World Bank.

16 EtcTerra, 2016

[17] Improving the Business Climate for Planted Forests in Mozambique, UNIQUE, 2016

(MITADER) has been established, bringing together responsibilities that were previously spread across several ministries. MITADER adopted several strategic actions to address challenges in the forest sector, including an ambitious project called "*Floresta em Pé"*, which aims to promote sustainable integrated rural development though protection, conservation, valorization, creation and sustainable management of forests.

Mozambique is also in the process of developing and implementing a program for Reducing Emissions from Deforestation and Forest Degradation (REDD+) Program. The National REDD+ Strategy development is informing the Government's approaches to target interventions to key drivers of deforestation and address institutional and capacity gaps. The strategy will orient interventions, including the present project, targeting Mozambique's key drivers of deforestation in partnership with all relevant stakeholders, as well as highlight important institutional and capacity gaps that need to be filled. The World Bank supports REDD+ readiness through a grant from the FCPF Readiness Fund. MITADER is also supporting the development of national-level forest certification standards.[18]

Project Context

Stakeholder risk is perhaps the main risk to forestry investment in Mozambique. For the past three years, the IFC has been providing advisory services in stakeholder engagement and community development to the largest player in the plantation forest sector in Mozambique, with an open door to others as well. Developing, managing and harvesting the plantations will create a significant amount of casual labor for households in close proximity to the plantations. These jobs will primarily be with service providers contracted to harvest and transport logs to the processing facility.

Although forestry investments will create opportunities and employment for the local population, making the agro-forestry mosaic approach work in the Mozambique context will be critical for long-term sustainable development of the communities. The vision is to take a landscape of low productivity such as the current mosaic of slash and burn agriculture, degraded lands, and forests, and turn it into a highly productive landscape, creating prosperity that will subsequently be shared by all those living within the landscape.

More than $3 million has already been spent on stakeholder engagement, community land delimitation and farmer training. During 2014, IFC assisted the client to design a community development program utilizing these resources to improve the livelihoods of neighboring households. The client's Community Development Program has three objectives: (i) To preserve and improve livelihoods; (ii) develop opportunities for economic growth; and (iii) support improvement for the quality of life.

Confluence of Interests and Activities with the FIP

The nature of the IFC client's activities and the mosaic approach means that the business model will in fact contribute to the sequestration of carbon across the geography in which it is implemented. However, there are concerns about indigenous forests that lie in and around forest plantations within the mosaic landscape. The development of plantation forestry in this landscape means that, despite an overall increase in productivity (prosperity to be shared), increased pressure will be brought to bear on the non-plantation elements of the landscape. These lands are used currently for agriculture, for timber, for charcoal making, for firewood, and for a very wide array of nontimber forest products, including medicinal plants as well as emergency foods to be eaten during hunger times.

[18] MITADER is seeking the elaboration of a national forest certification standard that lays out voluntary best practice guidelines for sustainability in the sector. An international firm is being hired to conduct consultations with forest stakeholders on its viability and utility, elaborate the standards, and lay out a roadmap for the implementation of the scheme.

The concern is that the increased pressure on remaining areas might lead to deforestation, increased emissions, and a loss of benefit to local communities from these areas, resulting in an overall reduction in benefit if loss of benefit from remaining non-plantation areas outweighs the complex of benefits to be derived from the plantations. Part of the solution, as noted before, is employment and secondary employment for community members. However, there are two additional focus areas needed as well, these being:

1. Support to more sustainable livelihoods (including Eucalyptus outgrowing).
2. Improvements in the community management of remaining agricultural and forest areas.

Both of these are directly aligned with FIP intentions, as a reduction in deforestation cannot be achieved if current dynamics are left unchecked.

Improvements in community management of their agricultural and forest areas involve several components, all of which are relevant to FIP and the reduction of deforestation:

1. **Clarification and documentation of land tenure**, as described earlier;
2. **Development of community capacities,** so that broad consensus can be built around management activities, not only the importance of managing, but also some idea of what the most important management activities are (early management burning, wildfire control, zoning of community crop lands and forests, etc.);
3. **Development of leadership and management structures** to lead and guide community efforts (these will include structures such as Community Landholding and Associations and Associations for Eucalyptus outgrowing and/or other agricultural activities), and developing supportive and counterbalancing relationships with existing community leaders such as *Regulos*;
4. Once these are in place, **management plans and zoning plans** can both be elaborated. Areas to be zoned might include agricultural areas, areas for agricultural expansion, riverine reserves, residential areas, sacred sites, areas for outgrower Eucalyptus planting, community forest reserves (these latter aligned to both the One Leader One Forest Initiative as well as the new *Floresta em Pe* program of the GoM). These community level plans are then shared, both widely within the community as well as within the various levels of the government, so they can feed into zoning and management planning being done at wider scales. Following sharing comes implementation.
5. Management plans and zoning plans must include clear **monitoring methodologies with indicators that can be tracked over time**, as well as the capacity to adjust plans according to results (adaptive management). One indicator might be changes in forest cover over community areas, and the tracking tool might be www.globalforestwatch.com.

Knowledge Gaps

The effects of Eucalyptus planting on hydrological basins and volume and periodicity of stream flow before and after Eucalyptus planting has been studied extensively in the international context, but never in Mozambique. The international literature suggests that a great number of variables are involved, including original condition of the land. Eucalyptus species present, slopes, climate, plantation layout, percentage coverage of the basin with Eucalyptus, and other factors. Although the EIA's suggest that there will be very low or insignificant impacts on streamflow output as a result of forest plantations in Zambezia, this has yet to be experientially

demonstrated.

Given the amount of Eucalyptus plantings that are planned for northern Mozambique, hard data in the Mozambican context would be broadly useful not just for specific clients, but for the country as a whole. Specifically important is to determine whether the management techniques (planting in mosaic, respect for riparian reserves, species choice, etc.) will indeed counteract the inherent tendency of Eucalyptus to use more water than indigenous forest (which is due to its higher growth rate, estimated at an order of magnitude or so above indigenous forest). This higher growth rate sequesters more carbon for a given time an area, yet it would be important to know if this is done at the expense of ecosystem water resources. Climate change makes such research all the more important; the sustainability of current plantation plans in the face of evolving climate change scenarios is of great importance to all concerned.

A second critical knowledge gap relates to the risk of anthropogenic (accidental and intentional) and natural fires. Households and communities use fire for land clearing, hunting small animals and other reasons. Fire risk models have not been developed for Mozambique, for either natural or plantation forests. This poses a significant risk to communities and forest plantation companies. New satellite imaging technologies permit near-real time fire monitoring. By combining modeling based on global best practice with remote sensing, the IFC sub-component will significantly advance Mozambique's expertise in this field.

III. Market Barriers

The main barriers to reduction of carbon emissions and deforestation have been discussed above can be summarized as follows:

a. Stakeholder risk (land and resource conflicts arising from the undocumented rights dilemma) are the major threat to plantation forestry. Main approaches to reducing these are:
    i. Clarifying and documenting land rights;
    ii. Sharing prosperity through a variety of value drivers, including employment, secondary employment, SME development, Eucalyptus outgrowing, and support to improved livelihoods and social infrastructures;
    iii. A variety of improved dialogue strategies (the IFC client has established a civil society steering committee to lead these discussions).

b. Increased pressure on remaining forests as land is occupied by the forest industry is another main threat. Population increases and slash and burn agricultural practices are compounded by the fragility of tropical soils. Conservation agriculture, to create a more stable agriculture, reduction of dependence on agriculture as a livelihoods strategy, and improved local forest governance are important here. While Mozambique is currently undergoing a rural to urban population transition (USAID predicts that Mozambique will move from 65 percent rural to 65 percent urban over the next 10-15 years), this may be affected by the new debt crisis and concomitant slowing of economic growth.

c. Misperceptions of Eucalyptus plantations.

IV. Objectives

Intervention Goal

The goal of the IFC FIP intervention is to *"leverage the private sector to link communities to the opportunities provided by major forest sector plantation investment".*

Intervention Purpose

The intervention purpose of the IFC MOZFIP programme is: "*to rapidly pilot private sector approaches to address drivers of deforestation in Zambezia that can be replicated across the Zambezia FIP landscape by other stakeholders*".

Successful approaches can be replicated across the landscape under the WB sub-component, and under other projects and government initiatives. Note that his objective is directly aligned with the overall MOZFIP, as a reduction in deforestation cannot be achieved if current drivers are left unchecked.

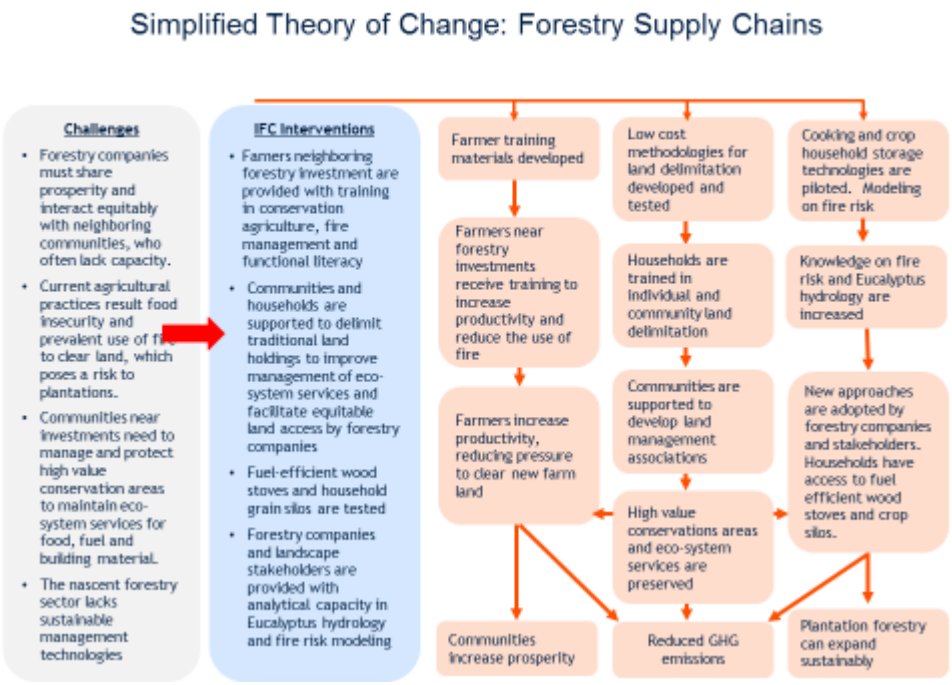
Specific objectives include the following:

1. Development and documentation of replicable land tenure clarification and registration mechanisms, including the documentation and registration of DUAT's. The field work for this activity is funded through the DFID LEGEND program. FIP resources will be used to document lessons learned and disseminate methodologies to other plantation forestry companies in the plantation forestry sector.
2. Development and documentation of Community Forest and Natural Resource Management planning and zoning methodologies, with management schemes and structures in place for affected communities, with a special emphasis on community wildfire management training (a shared concern with plantation forest investors);
3. Fire risk modeling based on historical satellite images, combined with a fire early warning system based on near-real time satellite data. The modeling and early warning will inform the community wildfire management described in Activity 2;
4. A curriculum for functional literacy designed around community and smallholder participation in plantation forestry. The functional literacy training will include land tenure, natural resource management and wildfire management;
5. Conservation agriculture training delivered, and distribution of improved cassava varieties to replace those lost in recent extreme weather events[19]. This activity will focus on areas outside of the DUATs, as IFC's client is working inside the DUATs;
6. Large scale pilot on post-harvest storage technologies and wood fuel stoves adoption and use;
7. Establish a baseline and methodology for ongoing research on Eucalyptus hydrology in Mozambique to start the longer-term process of hydrological monitoring;
8. Design and implement a Livelihood Monitoring System to include monitoring via digital tablet, to track in near-real time effects of plantation forestry and inclusivity efforts of community livelihoods.

V. Project Description

[19] Mozambique was the country most affected by extreme weather events in 2015, according to a paper presented at the recent UN climate talks in Marrakesh. Accessed 15.11.2016. http://clubofmozambique.com/news/mozambique-tops-global-list-countries-worst-hit-extreme-weather-2015/?utm_source=The+Mozambican+Investor_&utm_campaign=238d2c2080-EMAIL_CAMPAIGN_2016_11_11&utm_medium=email&utm_term=0_d3b369a42d-238d2c2080-206577869

The project is designed to reduce greenhouse gas emissions through three related sets of activities – training smallholder farmers in conservation, delimiting individual and community land to improve management and piloting new technologies for farmers and forestry companies. This approach is summarized in the Theory of Change chart below:



The project consists of the components described below, related to the objectives described above. In general, IFC will issue requests for proposals (RFP) to implement the various components. In some cases IFC will play leading or strongly supporting roles in activity design, though implementation will be via contractors, working in close collaboration with the IFC client. Numbering of components is related to the objective numbering above.

1. A curriculum for functional literacy and conservation agriculture is designed around community and smallholder participation in plantation forestry. The IFC client, using own funds, has contracted the local NGO ActionAid to design the curriculum, which will be based on ActionAid's widely respected REFLECT methodology. The curriculum, once field-tested, will be rolled out using a contracted service provider.

2. Conservation agriculture training is delivered, along with cuttings of improved cassava varieties to replace those lost in recent extreme weather events[20] for households living outside of the forestry DUATs. The IFC client, using own funds, has contracted the international NCBA CLUSA to serve as its

[20] Mozambique was the country most affected by extreme weather events in 2015, according to a paper presented at the recent UN climate talks in Marrakesh. Accessed 15.11.2016. http://clubofmozambique.com/news/mozambique-tops-global-list-countries-worst-hit-extreme-weather-2015/?utm_source=The+Mozambican+Investor_&utm_campaign=238d2c2080-EMAIL_CAMPAIGN_2016_11_11&utm_medium=email&utm_term=0_d3b369a42d-238d2c2080-206577869

agricultural extension service provider for the period 2015-2017.

3. Land Tenure documentation and Registration. The local IFC client and IFC have partnered with the local NGO ORAM and Terra Firma to advance with this component, using funds from the DFID LEGEND Challenge fund, as described earlier in this document.

4. Community Forest and Natural Resource Management planning and zoning methodologies. The local client, using own funds, has contracted a local service provider design a curriculum and field-test it in 10 "*povoacoes*" (smaller locations within the wider community). This is being done with substantial IFC planning support.

5. Fire risk modeling and early warning system development and documentation. Fire risk modeling will be based on global best practices, combined with historical satellite data, to better understand the size, frequency, distribution and seasonality of natural and human caused fires in the Zambezia landscape. Fire risk models will be complemented by near-real time infrared satellite monitoring to detect fires. Fire risk models and fire alerts will be provided to all landscape actors.

   The IFC client, using own funds, has also contracted IIAM (The Mozambican Agricultural Research Institute) to provide planting material for filed-testing of 10 new resistant cassava varieties. These are being multiplied by a local IFC client service provider, and field tested in neighboring communities. Large scale pilot on post-harvest storage technologies and wood fuel stoves adoption and use, for 500 Households. A variety of studies show that post-harvest losses in Mozambique range from 30 to 50%. These losses can be significantly reduced with improved storage, and would be an effective way to help preserve standing forests. The Project Planning Grant, combined with IFC client funds, allowed for a field trial of a variety of different types of grain storage units, using criteria of effectiveness, quality of stored grain, safety, cost and ease of construction, and others. One grain storage technology, the Gorongosa silo[21], has so far proven the most cost effective, in all areas except ease of construction[22].

   With respect to improved stoves, as part of the project planning phase, IFC has identified a highly efficient wood fuel stove that can burn small sticks and crop waste such as maize stalks, reducing the need to cut trees for firewood. Under the FIP, IFC will test this stove design with a sample of local households to determine consumer satisfaction and document fuel savings. If this initial effort shows promise, models for subsidizing and/or financing the stoves will be explored to achieve broader adoption.

6. Baseline and methodology for ongoing research on Eucalyptus hydrology in Mozambique. This will be done by measuring the flow of streams below several watersheds that contain Eucalyptus blocks and natural forests. Stream flow will be measured at weirs build across the streams. Data on rainfall, humidity and groundwater depth will also be collected to enable the development of water balance models.

7. Livelihoods Monitoring System. A livelihood baseline was measured in 2016 by interviewing 600 households randomly selected households in Zambezia (600 HH in Manica were also surveyed). These households are geospatially located, so they can be re-located easily. Poverty level (via Simple Poverty

[21] Prodezateam, 2015. Improved Granaries to reduce Post-Harvest Losses. Accessed 15.11.2016. https://prodezanews.wordpress.com/2015/10/20/celeiros-melhorados-para-reducao-de-percas-pos-colheita-improved-granaries-to-reduce-post-harvest-losses/

[22] Filimone, C. 2015. Celeiros Melhorados De Tipo Gorongosa**.** Accessed 15.11.2016. http://cfilimone.blogspot.com/2015/01/celeiros-melhorados-de-tipo-gorongosa_21.html#!

Scorecard), consumption (via SWIFT as a proxy for income), food security (FAO methodology) and diet diversity (FAO methodology) were measured. The survey also tracks sources of alternate income and use of eco-system services, including cooking fuel, building material, wild fruit, mushrooms, honey and other forest products.

This survey will be repeated annually. In 2018, the survey will be expanded to cover area adjacent to forestry concessions, where FIP-funded farmers training will occur. In this process, the capacity of IFC's client will be increased, so that they are able to maintain livelihood monitoring beyond the FIP.

Two related trends may affect livelihoods over the longer term – increasing full-time employment in the forestry sector and influx due to economic growth. To date, employment has been limited to temporary labor for land clearing and planting. This has not caused influx, because work crews are formed by village leaders. The livelihood survey will capture full time employment in the forestry sector. In the future, influx will be monitored through roof top counts using satellite imagery, which IFC's client purchases periodically for operational reasons.

The results of the annual livelihood survey (described above) will be reported and disseminated in three ways. First, a summary of the results will be included in IFC's annual reporting to the Climate Investment Fund. Second, IFC's client will include the results in their annual Sustainability Report, which is an IFC requirement. Third, the results of the survey will be presented to the NGO Consultative Committee. This committee is composed of 30 national and international NGOs, focusing on land tenure, environment, economic growth and social development. The Committee meets quarterly to provide feedback on the environmental and social performance of IFC's client. Reporting channels two and three will continue beyond the end of IFC's Forest Investment Program.

11. Consistency with FIP Investment Criteria:

The IFC-MOZFIP Programme is consistent with the FIP criteria in the following ways:

(a) Climate Change Mitigation Potential

IFC's plantation forestry client is developing a greenhouse gas (GHG) monitoring program, as part of compliance with IFC's Performance Standards. Since the Eucalyptus is being planted on degraded land, significant carbon sequestration is expected once the seven-year growth and replanting cycle is stable across the plantation. Monitoring data will be made available to the World Bank for incorporation into broader FIP GHG monitoring at the landscape level.

(b) Demonstration potential at scale.

Demonstration potential at scale has been discussed in previous sections, and in the WB MOZFIP appraisal document. Some key elements include:

1. Development of a clear and replicable models for:
   a. Resolution of the 'undocumented rights dilemma';
   b. Reduced costs for land delimitation, based on the use of new methodologies and the approval of the General Boundary Principle;
   c. Use of clear land tenure as a driver of land stewardship;

d. Use of improved grain storage, combined with conservation agriculture as a way to reduce pressure on natural forests (reduce slash and burn agriculture).

2. Development of a literacy curriculum based on community participation in the forest industry that may be used widely in Mozambique. This will feed into development of a model for improved community management of natural forests.
3. Investigation into the actual effects of Eucalyptus plantations on hydrology established in the mosaic fashion will feed into the national dialogue and planning processes about future plantation development.
4. Monitoring of the programme, and the effects of Eucalyptus plantations established in the mosaic fashion on the socio-economic status of local communities will also feed into the national dialogue and planning processes about future plantation development.
5. Monitoring of the socio-economic reality of all families affected by the IFC clients' plantations taking advantage of new tools and technology.

(c) Cost-effectiveness.

Although calculation of the costs per ton of CO2 reduced have yet to be calculated, the successful implantation of plantation forestry will likely result in substantial carbon sequestration across the landscape.

Investment in the IFC FIP will produce substantial leverage factors. Several of these have been mentioned previously:

1. The Legend Challenge Fund of DFID is providing $814,000 for Land Tenure clarification and documentation;
2. The IFC client has provided $3 million for stakeholder engagement, community land delimitation and farmer training, and developed community development program to improve the livelihoods of neighboring households.

The project exit strategy is clear: communities and the IFC client will continue their efforts (both having a substantial stake in the processes), with the support of the GoM and with IFC client funding.

(d) Implementation potential.

As explained previously, IFC MOZFIP is consistent with government policies and procedures, leverages private and other finance, and in fact is already under implementation.

(e) Integrating sustainable development (co-benefits).

1. The objective of this sub-component is to reduce the pressure on indigenous forests within the mosaic landscape that lie in and around the plantation forests. To do so, part of the solution will be to (a) support to more sustainable livelihoods (such as Eucalyptus outgrowing); and (b) improve community management of remaining agricultural and forest areas.

2. IFC proposes to pilot replicable approaches to improved community livelihoods in ways that reduce deforestation, in the areas of (for example) improved post-harvest crop storage, development of Eucalyptus outgrowing program to feed into private-sector value chains, and the development of alternatives to charcoal from indigenous species.

3. To complement the above, this sub-component will also test replicable approaches in effective community management of forest and agricultural resources to ensure that they are not degraded over time, and will continue to provide both ecosystem services to meet community needs and sequester carbon.

4. And finally, this sub-component will also include working with other stakeholders to develop clear and cost effective methods for resolving the 'undocumented rights dilemma' paving the way for less conflict and more integration of agricultural investments into the Mozambican landscapes and reducing stakeholder risk to investors.

(f) Safeguards

IFC MOZFIP is consistent with the IFC Performance Standards and has been and will be regularly supervised by the IFC CRKI team (Environmental and Social Compliance).

12. Stakeholder Engagement:

The development of Project interventions was built on the initial work by the IFC and its client company to consult communities about their development needs and concerns. In total, more than 15,000 residents of the DUAT areas attended these consultations. Based on these consultations, IFC has supported the company to complete a detailed Environmental and Social Impact Assessment, Stakeholder Engagement Plan and Community Development Plan. Numerous interviews were also conducted with other agribusinesses, farmer organizations, government and NGOs. This Project has also been within the scope of Mozambique's FIP preparatory activities (as described in section I).

This Project will continue to actively engage with key stakeholders at the governmental, private sector and community levels. Furthermore, the IFC will work closely with other development agencies and PPCR partners to leverage their best-practices and network.

Governmental Level

The IFC team has been in dialogue and working in coordination with the Government of Mozambique (GoM) during the FIP project preparation phase as well as during the development of the Stakeholder Engagement and Community Development Plans. Moreover, the IFC team is committed to continue cooperation with the GoM during Project implementation.

The IFC and its client have created a formal Project Consultative Committee that included not only civil society bodies but also high-level representation from the GoM, MITADER.

Private Sector Level

During the Project preparation, the IFC and the company teams engaged with banks, off-takers, agri-input distributors and large international agri-input suppliers. The Project will continue to engage with various private sector players throughout its implementation. Moreover, it is expected that during the Project implementation phase, the client may work closely with other agribusinesses, banks, DFIs, aggregators, export agencies and other potential off-takers.

It is also important to note that one result of the successful implementation will the engagement of private

sector service contractors, and also the development of local community members to a level where they can be service providers and outgrowers for the IFC Client.

Community Level

Community engagement by the IFC and its client have been ongoing since 2014. This process began with a series of community consultations, attended by more than 15,000 people living in and around the DUATs. In 2014, the company began an ongoing dialog with 78 provincial, national and international NGOs, resulting in a Consultative Committee that meets quarterly to provide advice on the investment. A number of structures have been created, including a Communications Department, local community liaisons and a community outreach department. A specific community development program with three objectives: (i) To preserve and improve livelihoods; (ii) develop opportunities for economic growth; and (iii) support improvement for the quality of life is currently befitting 6,000 households.

The IFC's Performance Standards will be applied to the Project and consequently stakeholder engagement will continue as the basis for building strong, constructive and responsive relationships. Such relationships are essential for the successful management of the program[23].

13. Gender considerations:

In Mozambique, more women (83%) participate in the active labor force than men (72%). The great majority of women (89%) are occupied in the agriculture sector while only 5.5% work in commerce and 3.3% in the service sector[24]. Women tend to work in the agricultural, informal sectors and low-paid occupations while men move to pursue higher earnings in other sectors. Improving the productivity of women in agriculture would boost economic growth and reduce poverty. However, a country study found that women are less likely than men to grow tradable crops because they concentrate on basic foods to feed their family. Yet the study also reported that women with education do move into commercial agriculture[25] and as such may be interested in service provision or Eucalyptus outgrowing.

The Environmental and Social Impact Assessment conducted by the company in 2014 found that 26% of households in Manica Province and 20% in Zambezia Province are headed by women. An additional 5% of households are headed by people over 65 or include sick and disabled members. Because these households typically have one or no able-bodied adults, they face labor constraints that may lead to food insecurity.

The Eucalyptus nursery established by the IFC client in Zambezia (the largest in Africa) is staffed 65% by women; there is a crèche onsite to allow local women to work and tend their children, breastfeed, etc. This demonstrates a commitment to gender balance on the part of the client.

Gender targets are found in the next section.

[23] For information on the IFC's Performance Standards see: www.ifc.org/sustainabilityframework
[24] Gender Polices and Feminization of Poverty in Mozambique (Tvedten, Inge & M. Paulo, G. Montserrat, 2008).
[25] Trade Reform and Gender in Mozambique (Arndt & Tarp, 2006).

14. Indicators and Targets (consistent with results framework):

See Results Framework and Toolkit with description of core indicators here

Mozambique is developing a sub-national monitoring system for GHG emissions under REDD+, which covers the Zambezia landscape where the IFC FIP sub-component will operate.

In addition, IFC's forestry client in Zambezia is developing a GHG monitoring system for its DUATs, utilizing the Carbon Assessment Tool for Afforestation and Reforestation (CAT-AR). This is required to meet IFC's Performance Standards and is described in the Environmental and social Action Plan.

IFC will provide all necessary data to both monitoring initiatives.

IFC will provide annual reports to the Climate Investment Fund covering the following indicators. The annual report will also feature a summary of the results of the annual livelihood survey.

Indicator (aligned with World Bank Mozambique FIP)	Target
Land area under sustainable landscape management practices (Hectares) The number of hectares planted with sustainable agroforestry practices, such as conservation farming that reduces use of fire. IFC will also track the number of hectares delimited at household and community level, which contributes to sustainable management through documented land tenure. This is projected to be 20,000 hectares.	2,500 hectares
Land users adopting sustainable land management practices as a result of the project This will be the number of households adopting improved agroforestry practices for conservation farming, fire management, crop storage and use of improved stoves.	4,000 households of which 20 percent will be female-headed households, equivalent to 20,000 people

Target beneficiaries in selected landscapes with rating "Satisfied" or above with project (percent) This will be tracked through the annual Household Livelihood survey. 20 percent of surveyed households will be female-headed.	75 percent

15. Co-Financing		
	Amount (USD):	*Type of contribution:*
DFID Legend Challenge Fund	$814,000	Grant for land tenure field work
IFC Client	$3,000,000	Own finance for complementary activities within DUATs
Co-Financing Total	**$3,814,000**	

16. Project/Program Timeframe:
Expected Board/MDB Management Approval Date: Summer 2017 Expected Mid-Term Review Date: Fall 2018 Expected Project closure Date: Summer 2019