Project Concept Note for the Use of Resources from the FIP Competitive Set-Aside

Country/Region:	Ghana / West Africa	**CIF Project ID#:**	
Project Title:	*Public-Private Partnership for restoration of degraded forest reserve through VCS and FSC certified plantations*		
Date of Endorsement of the Investment Plan:	November 5, 2012		
Funding Request (in million USD equivalent):	Grant: 0.3	*Loan: 10*	
Implementing MDB(s):	African Development Bank	x Private sector arm ☐ Public sector arm	
Executing Agency:	Form Ghana Ltd.		
MDB Focal Point and Project Task Team Leader (TTL):	*Focal Point:* Mafalda DUARTE Chief Climate Change Specialist, AfDB m.duarte@afdb.org	*TTL:* Albert MWANGI Senior Forestry Officer, AfDB a.mwangi@afdb.org	

1. PROJECT DESCRIPTION

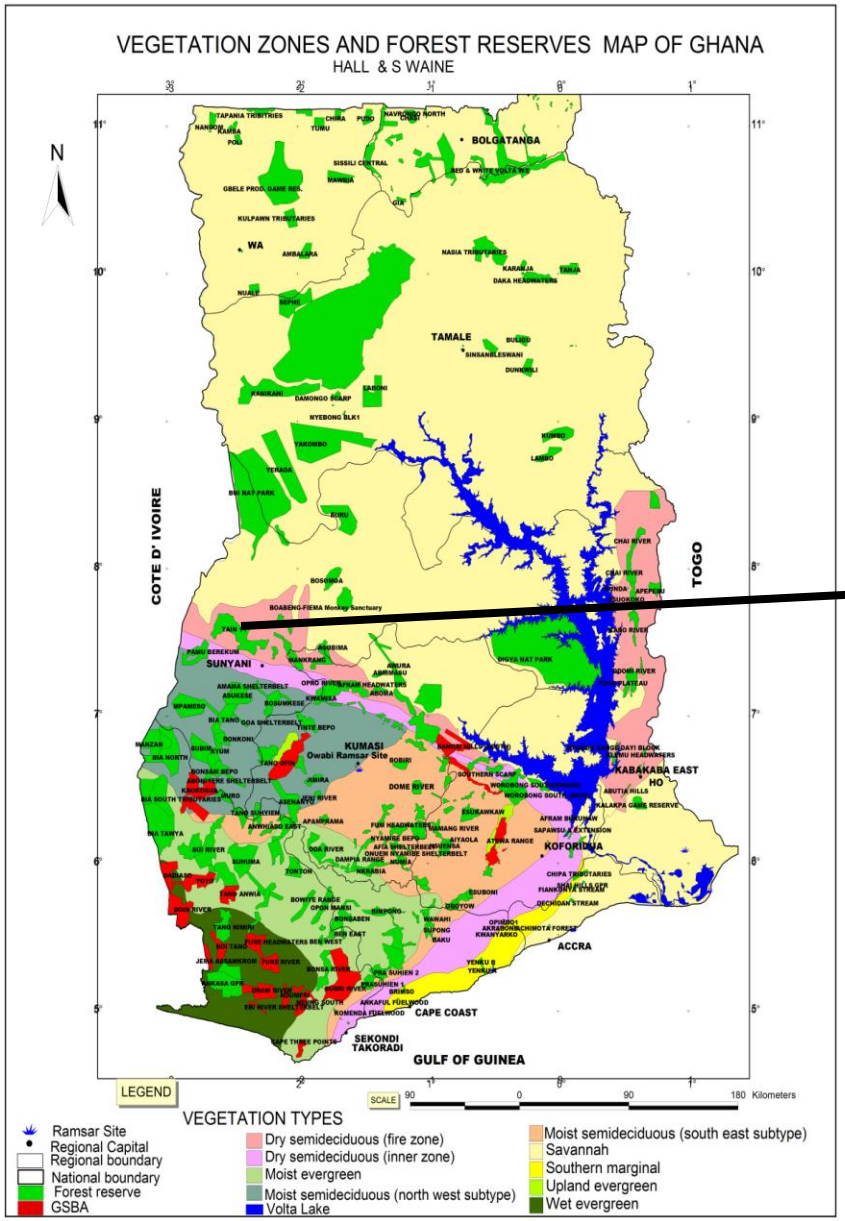
The project proponent, FORM Ghana, is a company limited under Ghanaian law, established in 2007. It has been certified according to the principles and criteria of the Forest Stewardship Council (FSC) since January 2010.

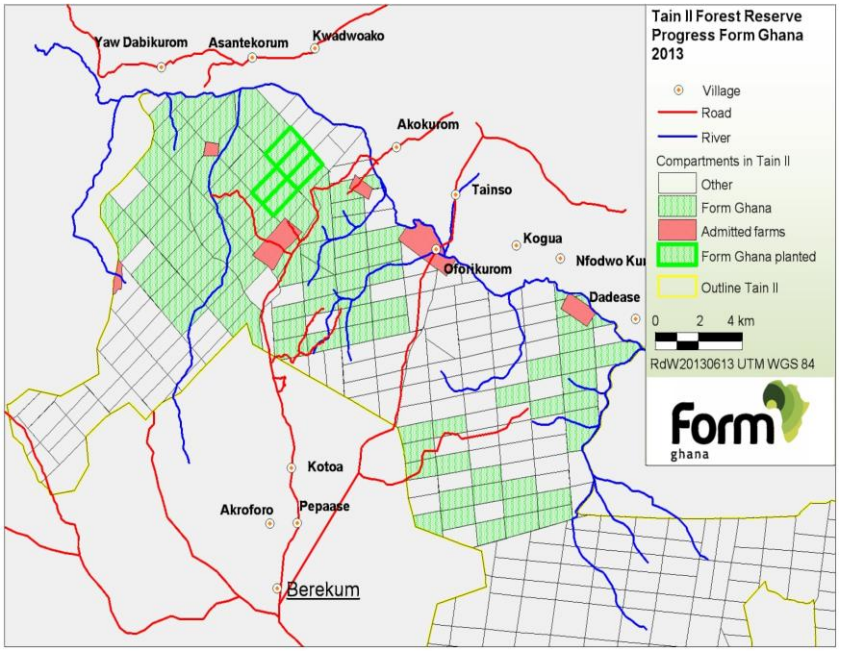
Form Ghana aims to expand its restoration of degraded Forest Reserves (FRs) program through forest plantations, from its current 4,140 ha (3 500 ha located in a FR near Akumadan and 640 ha in the Tain II FR) to 12,500 ha (approximately 11,250 ha of teak plantations and 1,125 ha of indigenous plantations, plus assisted natural regeneration). This expansion phase will be undertaken within a new and innovative framework: a Public-Private Partnership (PPP) that Form Ghana signed with the Government of Ghana in May 2013.

The expansion will take place in the already 50-year leased 14,000 hectares in the Tain II FR in the Brong Ahafo region (See the map - next page) where 640 ha have already been planted in may 2013. The Tain II FR used to be a productive semi-deciduous forest. In the past decades, the reserve was severely degraded due to overexploitation, bush fires and conversion to agricultural land.

The idea is to plant the area with teak and with a mix of indigenous tree species at an average planting rate of 1,500 ha per year, until 2018. As the existing 4,140 ha, the new plantation will be certified under the FSC and Verified Carbon Standard (VCS) certified carbon credits will be emitted. Eventually, the expansion of Form Ghana to Tain II FR will create more than 1,000 jobs and will also bring other socio-economic benefits to the area.

The project will also aim to showcase the innovative character and business approach of Form Ghana. Demonstration elements would encompass: PPP effectiveness to deliver high quality plantation and attract international investors, the company's sustainability approach including social and environmental components and climate change mitigation through reforestation. These demonstration elements will help the Government of Ghana to attract new international investments in the plantation sector, according to its draft plantation strategy (2013).


VEGETATION ZONES AND FOREST RESERVES MAP OF GHANA
HALL & S WAINE
N
BOLGATANGA
WA
TAMALE
SUNYANI
KUMASI
Owabi Ramsar Site
KOFORIDUA
KABAKABA EAST
HO
ACCRA
CAPE COAST
SEKONDI
TAKORADI
GULF OF GUINEA
COTE D' IVOIRE
TOGO
LEGEND
SCALE
90 0 90 180 Kilometers
VEGETATION TYPES
Ramsar Site
Regional Capital
Regional boundary
National boundary
Forest reserve
GSBA
Dry semideciduous (fire zone)
Dry semideciduous (inner zone)
Moist evergreen
Moist semideciduous (north west subtype)
Volta Lake
Moist semideciduous (south east subtype)
Savannah
Southern marginal
Upland evergreen
Wet evergreen


Yaw Dabikurom
Asantekorum
Kwadwoako
Akokurom
Tainso
Kogua
Nfodwo Kuu
Ofoikurom
Dadease
Kotoa
Akroforo
Pepaase
Berekum
Tain II Forest Reserve
Progress Form Ghana
2013
Village
Road
River
Compartments in Tain II
Other
Form Ghana
Admitted farms
Form Ghana planted
Outline Tain II
0 2 4 km
RdW20130613 UTM WGS 84
Form
ghana

2. RATIONALE

Importance of the forestry sector in Ghana

Forestry has historically been a critical sector in Ghana, supporting livelihoods and providing jobs. Around 11 million of Ghana's population (upon 24 millions) lives in forest areas and about two thirds of rural livelihoods are supported by forest activities: this includes chainsaw operators, fuel wood and charcoal producers, non-wood forest product harvesters, bush meat hunters, and woodcarvers.

The formal forestry and wildlife sector employs about 120,000 Ghanaians, while 260,000 are employed in the informal sector (mostly for domestic and regional markets). The timber industry is currently the 4th largest foreign exchange earner after minerals, cocoa and tourism and contributes about 2.5% of the gross domestic product. Primary wood and processed products account for 89% and 11% of timber exports, respectively.

However, forest resources are being depleted at an alarming rate. From the country's original forest cover of 8.2 million hectares at the turn of the 20th century, only 4.6 million hectares remain today with 1.6 million hectares as FR. Much of the off-reserve forest has already been harvested and degraded.

The FRs - established in the 1900-1930s - are now under threat. The Forest Research Institute of Ghana (FORIG) did an analysis of the FRs in the high forest zone: 14% have no forest, 15% are in very bad conditions, 20% are mostly degraded, and 35% partly degraded…only 14% are in good conditions, and 2% in excellent conditions.

The current unsustainable use of the forest resources can be seen from the imbalance of demand and supply of timber in Ghana. The challenge is compounded by the fact that there is some 5 million m3 of installed log processing capacity, although it is decreasing. According to the adjusted forestry master plan the annual allowable cut (AAC) is around 2 million m3. The current wood harvesting from the formal forestry enterprise sector is in the range of the AAC, i.e. around 2 million m3.

The illegal chain saw milling activity adds another 2.5 million m3 per year to the wood harvest of the formal sector. Though there is no precise data the bulk comes from the off-reserve areas but there is also considerable illegal harvesting in the FRs.

Unsustainable forest managements: issues at stake and options to address them

Plantation development may help to alleviate the shortage in wood resources, though this is as yet an underdeveloped sub-sector. Without strong incentives or a very clear policy framework to plant trees, the forest stock is likely to continue its downward trend. Funding a PPP for plantation would help demonstrate the efficiency of this kind of model.

According to the FIP Ghana Investment Plan, the forestry sector in Ghana still faces critical challenges, including:

(i) Poor incentive framework for sustainable forest management. There is widespread consensus that the existing tree tenure and benefit-sharing arrangements (BSA) on timber and non-timber forest products revenues is among the most important drivers behind the high deforestation rates in the country. There is still no agreement on the most appropriate tree tenure and BSA to incentivize sustainable management of forest resources;

(ii) Disconnect between sustainable timber supply and growing domestic demand. Ghana is facing a challenging situation where forest resources are put at extreme risk to supply an exploding domestic market. There is an urgent need to ensure a sustainable management

of the remaining FRs, to find alternative sources for timber (incl. through plantations) and to maximize processing efficiencies.

In this context, the Ghana FIP Investment Plan aims, *inter alia*, at ensuring the integrity and sustainable forest management of FRs, and restoring forest cover through forest plantation and rehabilitation of degraded forest land. To achieve these goals, the IP stance is that major transformations are needed, inter *alia*:

(i) A change in policies on tree tenure and BSA, especially regarding naturally occurring trees in off-reserve areas. Indeed, the current benefit sharing regime on trees, enshrined in Ghanaian Constitution, posits BSA under which stakeholders such as land owners, farmers and tenants may feel that they are not getting a fair share of the benefits accruing from trees harvest.

This is a major disincentive in the off-reserve areas but also influence attitudes towards trees and forests within reserves. Land rights and tenure are administered in a complex legal environment with customary laws and norms operating alongside statutes.

The customary owners (stools, clans, families, and Tendamba) who hold the allodial title, own about 78% of the total land area in Ghana. Of the remaining 22%, the State is the principal owner of about 20%, while 2% is held in dual ownership (i.e. the legal estate in the Government and the beneficiary/equitable interest in the community). Customary owners hold land in custody for communities and various arrangements on land use for community members prevail.

The situation has been further complicated by internal migration related primarily to expanding cocoa: in many areas, more than 50% of the population is from other parts of Ghana and engaged through various arrangements, (lease, share-cropping etc.) in cocoa and other farming activities.

Even though the State has elaborated institutional and legal structures for the management of all these types of land, the management of this resource is characterized by incoherent, conflicting and sometimes outdated legislations.

(ii) Improved management and BSA between stakeholders (Governments, Traditional Authorities, private sector, civil society) in the management of FRs;

(iii) Engaging the private sector in REDD+ and sustainable investments.

The project proposed by Form Ghana will totally fit into the FIP Ghana Investment Plan. Indeed, plantations will allow to restore forest cover and therefore to ensure the integrity and sustainable management of FRs. The PPP agreement between Form Ghana and the Forestry Commission is an innovative way to engage the private sector and improve the BSA between Government of Ghana, private sector and Traditional Authorities. In addition, the company's VCS A/R program is the first and only forestry experience in Ghana with the voluntary carbon market, also contributing to the Ghana FIP Investment Plan.

Plantation development in Ghana from 2001 to 2013

Plantations have been seen for a long time as a priority sector to be developed in Ghana. The Government launched a National Forest Plantation Development Program (NFPDP) in September 2001. Plantations under this program have been implemented under different systems, whether by the public sector or by the private sector. None of the systems were as successful as expected.

Modified Taungya System (MTS): From 2001 to 2009, plantations were implemented under the MTS. It involved the establishment of plantations by the Forest Services Division (FSD) in partnership with farmers. The FSD provides technical direction and supplies pegs and seedlings while the farmers provide all the labor inputs (site preparation, planting, maintenance…). The farmers have a 40% share in the returns from the investment. The Government has a 40% share while the traditional landowner and community have a 15% and 5% share respectively.

The reported area planted under the MTS is 93,000 ha but the actual figure is likely to be a lot less (no technical audit has been carried out so far). In general, the plantations under MTS are very poorly maintained; there are a lot of planted seedlings destroyed by cattle and a lot of planted areas destroyed year after year by wildfires.

Government Plantation Development Project (GPDP): From 2004 to 2009, the GPDP took place: industrial plantations were created using hired labour and contracted supervisors. The FSD exercised general oversight and monitored field activities to ensure compliance with quality standards for plantations establishment. Under this scheme, the Government owns the plantations developed with the respective landowners entitled to royalty payments. This system was neither a real success. Indeed, on the reported 36,000 ha, only 17,000 were actually planted, and again most of them are poorly maintained.

Expanded Plantation Programme (EPP): It started in 2010. Under the EPP, contracts were signed with and public fund paid to private companies to undertake the establishment and maintenance of forest plantations and supply seedlings. We still do not have an assessment of the efficiency of the EPP. At least, it is worth noting that most of the plantations under this programme are very small ones.

Private Commercial Plantation Development (PCPD): All along this period, under the PCPD, degraded FR lands were released by the Forestry Commission (FC) to private entities, after endorsing their reforestation plan. The BSA under this scheme is set by the law: the private investor earns 90% of the total proceeds from the plantation while the FC, landowner and community earn 2%, 6% and 2% respectively. On top of that, an additional 2$ per hectare and per year is due to the traditional land owner.

Over the period, the FC allocated 88,600 ha in 274 lots, and to date 27,500 ha have been planted. Most of plantations are small, only 3 planted lots are larger than 1,000 ha. According to the FC, 60% of the planted area under this scheme is in poor condition.

In total, the National Forest Plantation Development Program resulted in a reported 169,000 ha over an 11-years period (no external evaluation, but it can be assumed that the actual figure is likely to be a lot less). A majority of this planted area is now in a poor condition.

The major reason for the poor success of both public and private plantations schemes experienced so far in Ghana is the lack of skills in plantation management. Plantation management is highly technical, and necessitates experienced staff not only for the planting itself but most importantly for the maintenance of the plantation: thinning, pruning, fire prevention… The revenue of a plantation is also highly dependent on the continuity of its maintenance: a permanent management is needed. The investors should therefore be able to bear the costs of the maintenance before the first returns on investment.

There are very few experienced plantation managers in Ghana and few investors able to take long term risks, that is why the Government of Ghana is now willing to attract experienced international plantation investors.

The draft Strategy for Plantation Development in Ghana (2013)

The plantation potential in Ghana is far from being realized in Ghana. The Government has just

drafted a "Strategy for Plantation Development" that compiles ideas on potentials for plantations - both community-based and private sector run. A new priority in this draft strategy is to attract international investors through large-scale lease and PPP. Indeed, for the establishment of a forest plantation, several investment barriers have to be overcome:

(i) First of all, there is a large initial investment required to set up a forest plantation: costs for plantation establishment and maintenance range from €1500 to €3000 per hectare for the first four years;

(ii) Secondly, it takes a long time before the returns on investment are received. The first commercial thinning can take place twelve years after planting. Currently, there are no medium- or long-term loans available in the country and commercial bank lending rates are very high, interest base rates of 20-30% are normal in Ghana;

(iii) Thirdly, the poor investment climate hampers plantations development in Ghana. The credit rating for Ghana is B, which is five steps below investment grade with a stable outlook.

Because of these investment barriers, complex financial strategies are needed to finance a large scale reforestation plantation, such as making use of multiple investors and combining public and private funding. This is difficult to achieve. Hence, there is a lack of funding for these projects and no large-scale plantations, other than Government-owned, exist in Ghana.

Moreover, the FC was reluctant so far to lease large pieces of land to private investors considering that the BSA set by the law for Commercial Plantation Development was not sufficiently advantageous for her.

The aim of PPP is to offer sufficiently large leased area (>10,000 ha) for international investors to take the risk to overcome all those barriers in exchange of a better remuneration for the FC (12% of wood revenues in Form's case). The FIP funding will allow to showcase the value of this new priority, will provide additional inputs to this strategy, and will help define best practices for future international investors.

3. CONSISTENCY WITH INVESTMENT CRITERIA

Climate change mitigation potential

Form Ghana has already been validated under the VCS for sequestering carbon by reforestation of degraded FRs. The validated project is a group project that includes the existing plantations (in Akumadan and in Tain II FR) and the future ones that could be funded by the FIP.

The existing Form Ghana plantations project has already been independently verified by SCS Global Services (SCS). Form Ghana is the first in West Africa to offer VCS verified carbon credits to the market and is able to provide a unique product for the voluntary carbon market: carbon credits that meet the strict VCS requirements from FSC certified forest plantations. The first 4,500 carbon credits (VCUs - Verified Carbon Units) are now offered to the market.

Project activities validated under VCS comprise CO2 sequestration in tree plantations with exotic and indigenous tree species, natural forest restoration in riparian buffer zones and harvesting of high quality timber. Project activities are carried out and monitored according to approved project methodology AR-ACM0001 version 05.2.0 for a project period of 40 years.

Above-ground and below-ground biomass are accounted for in the baseline as well as soil organic carbon in the project, as independent research showed a significant increase in this carbon pool due to project activity.

N2O and CH4 emissions from burning woody biomass are accounted, as fire is used as a management tool for land preparation and felled woody biomass is partially burned. Increase of CO2 emission due to displacement of pre-project agricultural activities is also accounted for.

The already VCS validated project estimates that the net GHG emission reductions or removals for the first 1,506 ha is 360,943 tCO2e over 40 years. Using this estimate has a basis for the entire project (i.e. the 12,500 ha), we could estimate a climate change mitigation potential around **2.99 MtCO2e**.

Demonstration potential at scale

The PPP model for sustainably managed forest plantations, if found feasible and effective, could be a) scaled up in Ghana to increase impact and b) replicated in West Africa, for instance in Ivory Coast, which faces quite the same challenges (FRs highly degraded, increasing gap between the annual increment and the legal/illegal harvest, forest industry in over-capacity, etc.)

The current draft National Plantation Strategy estimates that 10,000 ha per year could be planted under PPP between the FC and international investors. The high quality of the PPP proposed by Form Ghana, especially in terms of social and environmental co-benefits, could set standards for future international investments in plantations in Ghana. The combined FSC certification and VCS validated and verified carbon project form an excellent showcase on successful implementation of sustainable forest plantations in West Africa.

Cost-effectiveness

FIP funding will be leveraged at least 1:3, possibly 1:4. If we divide the total investment cost by the number of tC02e, we get a cost-effectiveness in terms of carbon sequestration of about **12.5 $ per ton**.

Implementation potential

Form Ghana has fairly robust experiences in plantation management in Ghana in the same geographical conditions, currently conducting the first and only FSC certified forest plantation in West Africa, and already emitting VCS carbon credits. Form Ghana is also supported by Form International, a Dutch consultancy with a huge experience in plantation management. The land lease and the benefit sharing agreement for the plantation are already signed. Therefore, the potential for the proposed interventions is high.

Integrating sustainable development (co-benefits)

The project will meet high-level standards of integration of environmental and social concerns.

1/ Environmental co-benefits

By reforesting degraded FRs, the project will make a valuable contribution to the restoration of Ghanaian forests and their ecosystem services: conservation of biodiversity, regulation of water regimes, maintenance of soil quality and limitation of erosion, fire protection and climate regulation.

For instance in terms of biodiversity, the standing degraded forest along river courses will be assisted in its recovery by assisted natural regeneration (ANR) techniques. Areas less suitable for teak and buffer zones along water streams will be actively reforested with a variety of indigenous tree species and endangered native tree species will be reintroduced in the area.

Due to the reforestation activities the ecosystem will change from an open savanna to a dense (plantation) forest ecosystem. This means fauna composition will also change over time and

endangered fauna species will be likely to be seen in the FR. That is why Form Ghana will protect wildlife with poaching control.

2/ Social co-benefits

The project will comply with the social criteria of FSC, which is beneficial not only to the employees, but also to local people that are indirectly involved in the activities of Form Ghana. The project will deliver important social benefits to the area in a number of ways: through a land lease and BSA, employment generation and cooperation with local farmers.

Form Ghana has a long-term land lease agreement with traditional land owners and the Government to restore productive forest in the degraded forest reserves. Additionally, the FC, Form Ghana and the Berekum Traditional Council signed a BSA on the 14th May, 2013 to formally document the responsibilities and future benefits of each of the three key stakeholders for Tain II FR.

Under this BSA, Form Ghana will keep 80 % of the revenue of the forest plantation, 12% will go to the FC, 6% to the Chief/Land Owner and 2% to the communities. In addition, Form will pay a 4$/ha/year to the land owner as a “facilitation tax”.

The company currently employs circa 200 permanent workers and 300 temporary workers. These numbers will grow to a total of 1,000 as operations are expanding. Employees are offered a safe and healthy working environment, with good employment terms, favorable health insurance and retirement conditions. Free meals and transportation are provided to the employees. They also receive training in fire-fighting, safety-regulations, first aid, silvicultural and reduced impact logging practices.

In the FRs managed by Form Ghana (both Akumadan and Tain II), illegal farming was widespread. This was mainly practiced by migrants from the North that do not have easy access to land outside the reserve. The project will offer these illegal farmers the option to participate in an intercropping system: during the first two years after tree planting, farmers will be able to plant their annual food crops, like maize, okra or tomatoes, in between the seedlings. After the two years, farmers have the option of moving their intercropping areas to new plantation areas, thus migrating with the company’s activities. If such farmers do not want to migrate, thus putting the plantations at risk, the Berekum Traditional Council would be called in order to insure mediation with the squatters, and find alternative settlements for them. Also, many inter-croppers find temporary/permanent employment with the company.

If feasible, the plantation out-grower schemes will provide extra opportunities for local smallholders to generate income. In this scheme, smallholders will be offered input and technical assistance to plant some of their land with teak. The feasibility and specifics of the out-grower system are to be investigated and developed in a preparatory study, but the basic idea is that the company assists smallholders to establish teak plantations (size estimate 0.5 to 100 hectares per developer) within the framework of a long term agreement where timber would be sold to the company and the company provides upfront financial and technical support.

In case the preparatory study shows that an out-grower scheme could be developed feasibly, also a decision will follow on the size of the program. This will at first be a small program with an order magnitude between 50 and 500 hectares until 2018.

Safeguards

To assess the potential environmental and social impacts of the plantation, several preparatory studies have been and are currently being undertaken such as a hydrological and soil survey, a Social and Environmental Impact Assessment and a High Conservation Value Forest Analysis. These studies will form the basis for the Management Plan of Tain II FR.

The environmental impact of sustainable teak production is low. It is planted on deep, fertile and level soils which are relatively insensitive to erosion and not planted in the buffer zones or other ecologically valuable areas. No chemical treatments are required for pest control because of the low susceptibility of teak to diseases.

Also, the spread of teak outside the plantation can easily be controlled, since dispersal distance of teak seeds is limited. Teak cannot invade areas with dense (high grass) vegetation without human interference because it is a high light demanding species. The presence of buffer strips and fire outbreaks around the plantation inhibits the spread of teak outside plantation boundaries. Most areas surrounding the plantation are in agricultural use for which teak poses no threat. Therefore, no ecological damage is caused to the environment.

The company holds regular stakeholder meetings to stay in good contact with local communities. Also relations with the traditional landowner and FC are constant, to develop the plantations and operate in good consultation with all stakeholders. Social projects are occasionally undertaken, where possible and appropriate. Examples of works already carried out are road rehabilitation, provision of a bore hole with clean drinking water, and an environmental education program for school children.

4. TYPE OF PRIVATE SECTOR ENGAGEMENT

The plantation will be carried out by Form Ghana Ltd., a forest plantation management company based in Ghana that provides services in the field of reforestation of degraded FRs and plantation management.

The company was established by Paul Hol in 2007, as an affiliate company of Dutch forestry consultancy Form international, in close cooperation with Wienco Ghana Ltd. The establishment of Form Ghana put into practice the extensive experience in sustainable forest management that was gained with Form international.

The company operates in a socially, ecologically and economically responsible way. This resulted in a certificate for sustainable forest management awarded by the FSC in 2010. The company's reforestation activities have also been independently validated under the VCS, which shows the company's contributions to climate change mitigation.

So far, the company has planted about 3,500 ha, mainly with teak and about 15% with indigenous species in the Akumadan area. This plantation is the first and only FSC certified plantation in West Africa. The Akumadan plantation is 1,5 hour drive away from the Tain II FR.

The plantation proposed to the FIP set-aside will be carried out under a PPP. Indeed, Form Ghana and the FC signed on the 8th May 2013 a PPP lease agreement to jointly reforest an estimated 14,000 ha of degraded forest land within the Tain Tributaries II Forest Reserve near Berekum in the Brong Ahafo Region.

Under this PPP, the Forestry Commission is committed to deliver a number of services, being: survey and demarcation, mapping, fire education and sensitization, yield marking, monitoring and reporting.

This year's planting season has already been used for the Tain II FR. In total, 640 ha have been planted in this first year. Other areas (i.e. further that the 14,000 ha) could be acquired through an extension of the lease, new leases and possibly out-growers.

5. INNOVATION

The project is innovative by its structure: the PPP, the first of its kind in Ghana, is an innovative form of collaboration between public and private institutions with a common goal to restore forests and to strengthen the local and national economies. The PPP allows the FC to get a better return from plantations while allowing the private investors to get a large leased area. Indeed, such big areas allow scale economies that may attract international investors.

The project is innovative by its social and environmental content: FSC certification showing the adherence of the project to the highest sustainability standards of both social and ecological aspects, and the VCS certification showing the willingness to fight climate-change on a sound scientific basic.

This project should demonstrate the efficiency of PPP for FR restoration through high-quality commercial plantations and set the ground to attract new international investors.

6. TECHNOLOGY, PRODUCT AND/OR BUSINESS MODEL

In West-Africa the production of teak has been adopted successfully. In comparison to indigenous, as well as other exotic tree species, teak performs best economically.

Experience with the silviculture of teak plantations started in the 19th century and this longstanding practice has resulted in sound management guidelines and good yield prognoses. This provides a solid technical basis for plantation establishment.

Form Ghana tailored its management from all these many experiences across the tropics and especially according to teak research done in Ivory Coast by Dupuy (1990 and 1993) at the *Centre Technique des Forêts Tropicales* (CTFT). Form Ghana has checked the yield tables with growth in a 64-hectare pilot site planted in 2001, which was further confirmed on the 4,000 hectares planted between 2008 and 2013.

Teak plantations are managed as even-aged stands, with a rotation cycle of 20 year and three intermediate thinnings. This choice is based on economic and silvicultural considerations.

In terms of financial sustainability, constant revenues from timber and carbon credits form a reliable source of income. Economic sustainability is assured through good financial returns from teak round-wood production. A constant supply of timber is assured by the rotational harvest and the heterogeneous character of the plantation: a mix of teak and indigenous species is planted with a maximum of 90% teak.

Certified carbon credits add to the viable revenue stream in this pioneer sustainable business model and decrease the investment hurdle. This can significantly enhance the economic sustainability.

The plantation cost is around 3,000 $/ha. Revenues are calculated based on sales of teak timber (price ranges of 25 to 250 €/m3 depending on log sizes) and carbon credits (4 €/credit). Internal Form Ghana calculations indicate an internal revenue rate of 10-12% for the 12,500 hectares until 2058.

Form Ghana is seeking for the most concessional loan resources indeed the risk profile is relatively high due to the long investment period needed and the time until positive cash flow is around 12 years. The rate and the size of the plantation extension will depend on the cost of the resource.

The project does not stop at Form's commercial interest but aims to contribute to the economy at a local, national and global scale as well. Form Ghana currently employs circa 500 workers

mainly from fringing communities, which makes it one of the largest employers in the region. This creates business opportunities for smallholders in the vicinity of the company. Finally, the Government of Ghana receives tax payments as is due.

7. MARKET

Teak is a commodity and, as such, pricing varies according to market supply and demand. Currently less than 7% of the world supply comes from plantations, with most teak coming out of the South-East Asian rainforests that are quickly running out of commercially viable wood. Harvest from remaining forests will likely be restricted soon, so supply will decrease unless many plantations start planting teak soon.

Current market prices for teak of large dimensions vary from 300 $/m3 (teak logs) to more than 3,800 $/m3 depending on age, and age related factors such as girth, length and grade quality of wood. The price for teak has raised an average of 5.2% over the past 30 years (FAO, 2012. Teak resources and market assessment) and with more old growth forests being made off-limits for loggers, this will make teak and fast growing plantation species more valuable than ever.

Sustainable timber certification only exists for fifteen years, and the certified forest area is still relatively small. Therefore, certified tropical timber will continue to have a strong market position over the coming decades.

The supply of other high quality tropical hardwoods from natural forests is under pressure. For instance, the supply of dark red Merantis from Indonesia and Malaysia for window frames is dwindling. High quality species are extremely important for specific use in house constructions (window frames, doors, etc.) but a stable supply of volume and quality is no more usual.

Teak is an excellent alternative for these markets because it can meet the high quality requirements and can be supplied in constant volumes and qualities from plantations. Therefore the price level of plantation teak is expected to continue to rise, due to drying up of natural resources and increased quality of teak logs.

WWF predicts that, until 2050, around 250 million hectares of forest plantations are needed in addition to present day's plantations to fulfill worldwide demand in timber, fuel and fiber (WWF 2012, The Living Forests Report). This is one of the main reasons why there is a high potential for hardwood plantations to realize sound stable and reliable high returns.

In 2012, Form Ghana did its first commercial thinning in the 2001 pilot plantation: 4,184 billets with an approximate volume of 257 m3 were sold locally to a Ghanaian company. In the near future, both national and international markets will be targeted.

8. FINANCIAL PLAN (INDICATIVE)

Source of Funding: equity, debt, guarantee, grants, credit lines, etc.	**MUSD**	**%**
Project developer (equity)	27.5	73
AfDB (credit line)	TBD	TBD
FIP (credit line)	10.0	27
Local banks		
Other investors		
Bilaterals		
Others		
TOTAL	37.5	100

9. EXPECTED RESULTS AND INDICATORS

The results and indicators below are built on those of the FIP Ghana Investment Plan.

Results	Indicators
Reduced pressure on forest ecosystems	ha of plantation area
	$/te$CO_2$ sequestered
A regulatory framework that supports sustainable management of forests and protects the rights of local communities	evidence that the PPP and implementation practices provide inclusive land tenure rights / land use systems, and protect the rights of local communities
Biodiversity conservation co-benefits	ha of assisted natural regeneration
	ha of indigenous plantation
Social co-benefits	number of permanent and temporary employees
	number of contracts for inter-croppers

10. IMPLEMENTATION FEASIBILITY AND ARRANGEMENTS

The project is ready to be implemented as soon as the FIP Sub-Committee and the AfDB approved it.

Plantation has already started: Form Ghana employees have been trained in the correct planting techniques and, by the end of May 2013, five compartments were planted at the northern boundary of Tain II FR. In total, 624 ha have been reforested with teak and 16 ha has been planted with a mixture of indigenous tree species (Ofram, Mahogany and Kola).

To be able to develop a PPP effectiveness component (that could encompass: analysis of the effectivity of the current PPP, elaboration of guidelines for the negotiation of future PPP: size of the land lease, return to the FC and the communities, minimum standards for the plantations…) and an out-grower component, preparatory studies need to be undertaken in the first year to properly assess these topics and develop strategies and programs for follow-up. Subsequently, activities can be implemented to enhance and show-case PPP effectiveness.

In case feasible out-grower scenarios can be demonstrated in a study, part of the expansion could be carried out with out-growers. This will have to be considered carefully though, as there does not yet exist any out-grower scheme for forestry in Ghana (unlike agriculture or rubber). A grant of 300,000 $ is requested for the preparatory studies.

Expected FIP Sub-Committee approval date: November 1, 2013

Expected MDB Approval date: January 31, 2014

11. POTENTIAL RISKS AND MITIGATION MEASURES

Operational risks and mitigation measures:

The project design and the proposed implementation arrangements are straightforward. Many risks can be contained through a good management team and skilled employees. The management team is formed by staff with significant experience in their respective professional fields.

Form Ghana staff is supported also by a Form international team consisting of several experienced forestry experts.

The company has a very intensive fire management system to prevent and combat fires and has ample experience combating fires. The system includes intensive community involvement in prevention and combating of fires.

There is ongoing enforcement to prevent encroachment by outside actors to protect the entire project area. There is a full time security team deployed by Form Ghana surveying the project area boundaries and interior. There are effective procedures in place for detection of encroachment and appropriate response mechanisms.

The company has developed a set of measures and activities that should lead to net positive community benefits and mitigate social risks. For instance: by adhering to all ILO conventions, the company ensures a safe working environment, pays more than the minimum wage, provides health care, free meals and transportation to the employees. Also, employees receive training in aspects such as firefighting, safety-regulations and reduced impact logging practices.

External risks

Ghana is known for its political stability and pro-business policy environment. Changes in the global economy or disruptions in the domestic economic might lead to lower teak prices or carbon ton prices. However, since the sources of revenues are diversified and the products (carbon and timber) are getting high level standards (VCS and FSC respectively), these risks may be mitigated.