Native Tree Species Reforestation

(Parts of this project are also CarbonFIX certified – all areas are FSC certified)

Panama

According to the CCBA 2nd Edition

ForestFinance Service GmbH

January 2012
Project Summary

ForestFinance creates high quality carbon credits through the afforestation of native tree species and Teak (Tectona grandis) in mixed forests with added social and biodiversity benefits. The CO₂OL Native Tree Species Reforestation Project in Panama is the first afforestation/reforestation project established in this country to follow the guidelines of the CarbonFIX Standard (CFS) and the CCB Standard (CCBS).

The main objective of CO₂OL Native Tree Species is the creation of close to nature forests with the main goal of storing a high amount of atmospheric carbon and the production of fine tropical hardwood, while stabilizing and restoring fragile and degraded areas in an economically, socially, and ecologically viable way.

ForestFinance enhances the role of tropical forest plantations as components of multi-functional landscapes by contributing to native biodiversity conservation and restoration at different spatial scales. Its forest management practices protect watersheds, foster conservation of biodiversity, improve ecological processes through the preservation of locally adapted biodiversity, create ecological corridors and aim at retaining native biodiversity, while sequestering high amounts of greenhouse gases.

Overall, ForestFinance specific objectives are the establishment of profitable and sustainable forestry systems, creating year round work opportunities in our areas of activity. That allows the development of a stable work environment for men and women, will support the development of these regions. Through acceptable salaries and decent working conditions that allow a fair living, we want to contribute improved livelihoods in the lesser developed areas of Panama.

This document contains cross-references to the CarbonFIX Standard documents. These documents can be accessed over the project website www.CarbonFix.info/COI and www.climateprojects.info/PA-COI.

The new „Native Tree Species Project“ is a merge of the „Native Tree Species Project“ validated in 2007 and the „Tropical Mix Project“ validated in 2011. See also „History_Carbon_Projects_ForestFinance_PMA.pdf“
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GENERAL SECTION

G1. Original Conditions in the Project Area

G1.1. The location of the project and basic physical parameters (e.g., soil, geology, climate).
See CarbonFIX document „Environmental Aspects”

As the side conditions are similar on all farms of ForestFinance the above mentioned description is also a reference for the areas in the province Chiriqui.

G1.2. The types and condition of vegetation within the project area
See CarbonFIX documents „Environmental Aspects” and „Eligibility”

As the side conditions are similar on all farms of ForestFinance the above mentioned description is also a reference for the areas in the province Chiriqui.

G1.3. The boundaries of the project area and the project zone

Panama, located between Costa Rica and Colombia, is a bridge connecting two continents. The project is situated in the east of the country, in the province of Darién, which borders the Pacific Ocean in the south.
The reforestation project „CO2OL Native Tree Species“ is located in the province of Darien, in the east of Panama next to the country Colombia, the province Panama, close to the farms of the Darien and the provinces Veraguas and Chiriqui. Map 1 shows the project location within Panama.

For information on how to visit the Project see CarbonFIX document „CFS_v20_-_Template_-_Visit_of_the_Project_COI“ or see CarbonFIX project website or contact us directly under info@co2ol.de.
Map 1: Panama - project location

Map 2 provides an overview of all Management Units (MU) and their setting in the country Panama.
The project zone according to the definition of CCBA 2nd Edition is the MUs 0001 – 0009, with a 1km buffer (according to the CarbonFIX Standard neighbours definition).

In Map3,4,5,6 and Map7 you can see the different areas / MUs with a 1km zone and their surrounding population with the different size of people living there.

1 The project area is defined as the land within the carbon project boundary and under the control of the project proponent. And the project zone is defined as the project area and the land within the boundaries of the adjacent communities potentially affected by the project.

2 People who are influenced by project activities or live within the vicinity of the project area or parts of the project area, in case it is divided. Vicinity = Zone of 1km, in case a project or part of the project area is smaller than 1000 ha.
Forest Finance Carbon Project 2007/8
CO2OL Tropical Mix
vicinity - Zone of 1km
MUs: 0001, 0003, 0006, 0008

Map 3 - Vicinity - 1km Buffer Zone - MU 0001 0003 0006 0008 and surrounding population (see CarbonFIX documentation)
Forest Finance Carbon Project 2007/8
CO2OL Tropical Mix
vicinity - zone of 1km
MUs: 0002, 0004, 0005, 0007, 0009

Map 4 - Vicinity - 1km Buffer Zone - MU 0002 0004 0005 0007 0009 and surrounding population (see CarbonFIX documentation)
Map 5 - Vicinity - 1km Buffer Zone – Playa Chuzo 1 & 2, La Ocho and surrounding population
Map 6 - Vicinity - 1km Buffer Zone - Alabaster, Cleopatra 1+2, La Colina, Meteti 1+2, Ojo de Agua 1-3, Punuloso, El Tirao 1-4, La Relojera 1-4, El Javillo and surrounding population
Map 7 - 1km Buffer Zone - MU 0010 0011 0012 0013 0014 0015 and surrounding population

Detailed information of the size of each MU and the total size of the project is stated in the CarbonFIX document Eligibility – for the farms not part of the CarbonFIX certification you could find the information in the table below.

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The exact location of the project can also be accessed on the CO2OL Tropical Mix website on the CarbonFix platform: www.CarbonFix.info/COI. There are also detailed maps of each Management Unit available.

Also see our interactive map, where all farms of ForestFinance in Panama could be “visited” http://www.forestfinance.de/webmap3/map027.html

Further geographical information could be found in the file “attachments_G1.3”

G1.4. Describe current carbon stocks within the project area(s), using stratification by land-use or vegetation type and methods of carbon calculation from IPCC 2006 GL for AFOLU or a more robust and detailed methodology

See CarbonFIX document „Baseline“

As the side conditions are similar on all farms of ForestFinance the above mentioned description is also a reference for the areas in the province Chiriqui.

Was machen wir mit den Flächen die wir mit Bestockung übernommen haben?
Boca del Monte?
G1.5. Describe communities located in the project zone, including basic socio-economic and cultural information that describes the social, economic and cultural diversity within communities (wealth, gender, age, ethnicity etc.), identifies specific groups such as Indigenous Peoples and describes any community characteristics.

The Republic of Panama is politically divided into 10 Provinces and three Comarcas with provincial status: the Ngöbe Buglé, Kuna and Emberá-Wounaan. The indigenous population of Panama is composed of 180,700 individuals, which represents 7.8% of the total population of the country. There are seven indigenous groups (Bri Bri, Bugle, Emberá, Kuna, Ngöbe, Teribe and Wounaan) living in different regions of the country.

The indigenous Comarcas are concepts included in the country´s legislation and recognize in the socio-political realm, each having its own judicial tradition and relatively distinct functions. They have been used to achieve a distinct and special control over territories that are geographically distant from the central governmental power. These legal concepts have also been used as a flexible way to give land concessions to the indigenous peoples living in these areas, without posing a threat to the state´s sovereign rights over them.

![Map 8: location of "Comarcas"](image)

The Darien is the most sparsely populated province of Panama, located in the eastern part of the country bordering to Colombia. This region, with a total land surface of 16,803 km, is the largest and wildest province in Panama, and still the least well known. It is a region of dense tropical rainforest, even though these woody areas are in danger of deforestation. The construction of the Panama Canal and the projected Pan-American Highway across the Darién region, are clear examples of megaprojects that have already destroyed or are expected to have serious impacts on the forests, generating at the same time conflicts with the indigenous communities that live there. All of Panama's remaining frontier forests are threatened, and with them the rich natural heritage, the territories and livelihoods of native peoples they hold.
Until 20 years ago, there were no rideable roads in the Darien; now there is an asphalt highway cutting through its centre down as far as the town of Yaviza, 100 km short of the Colombian border. This 100 km stretch is the only uncompleted piece of the famous Pan-American Highway, which connects between Alaska and Tierra del Fuego in South America.

While most of the traditional inhabitants of the Darien travel by river in „piraguas“, huge dugout canoes, the highway has opened up the beautiful Darien region to loggers, cattle ranchers, and landless peasants from the overcrowded interior provinces. This influx of population is threatening both the indigenous people and the primary forest. Nowadays deforestation rate has been estimated in 75,000 hectares a year. Indian groups throughout the shrinking tropical forests of Central America are presently fighting to gain land title to their territories. Conflicts over indigenous land rights have become one of the most pressing social issues in the region.

The indigenous groups settling in Darien are facing serious conflicts: they fight territorial rights and are also involved in the trans-border problems caused by the close Columbian drug and civil war problems. For this reason and to control illegal transport of any goods Darien is the most intensively vigilante area by police authorities.

**Emberá-Wounaan:**
The Embera and Wounaan are two distinct indigenous groups that inhabit eastern Panama and north-western Colombia. The two distinct groups were formerly and widely known by the name "Chocos" or "Chocoe" because of their autochthonous origins in the Pacific coastal Province of Choco in north-western Colombia.

The Emberá-Wounaan live in small isolated villages mostly in the Darién Province of Panama along the Pacific coast, and along the many tributary watercourses of numerous rivers. Panamanian census counts estimate that there may be around 9,000 Wounaan and 22,000 Embera in the country.

Note: Wounan and Embera people have long shared the same territory and their recent history and present culture is similar, so this general information shall serve for both groups.

Originally semi-nomadic forest dwellers the Embera and Wounan were known as hunter-gatherers. They hunted with blowpipes and poisonous darts - a technique still in practice in Colombia - bows and arrows and long spears. In addition to hunting, people also set traps for rodents and birds. A significant part of the diet came from the collection of jungle plants, fruits, heart of palm, roots and tubers.

Houses were traditionally built on stilts, up to ten feet high. At those heights the house was protected from wild animals. It also offered protection from flooding and even from other people. Houses today are still built on stilts but not as high, just a few feet of the ground to avoid the flooding of the rainy season and to prohibit the invasion of the insects. People climb into their house using a log in which they carve small steps. The roofs are made of thatch.
Schools in most villages have been built by the government and their concrete structures are a striking contrast to the thatched-roofed organic feel of the houses of the village. Each village has its casa communal used for official meetings, to receive guests, or for ceremonies. Traditionally communal houses were crowned with large round, sloping roofs.

Their government is political and administrative, with General Chiefs as maximum authority and sahitas for each village.

**Kuna:**
Kuna is the name of the other indigenous group of Panama and Colombia that partly live in the Darien. In the Kuna language, the name is Dule or Tule, meaning "people".

The Kuna live in three politically autonomous comarcas or reservations in Panama. The greatest number of Kuna people live on small islands in the comarca of Kuna Yala.

In Kuna Yala, each community has its own political organization, led by a Saila (pronounced "sai-lah"). The Saila is traditionally both the political and spiritual leader of the community; he memorizes songs which relate the sacred history of the people, and in turn transmits them to the people. Decisions are made in meetings held in the Onmaked Nega (Congress House), a structure which likewise serves both political and spiritual purposes. It is in the Onmaked Nega that the Saila sings the history, legends and laws of the Kuna, as well as administering the day-to-day political and social affairs.

Traditionally, Kuna families are matrilineal, with the bridegroom moving to become part of the bride's family.

The economy of Kuna Yala is based on agriculture and fishing, with a long tradition of international trade. Coconuts and lobsters are the most important export products, and migrant labour and the sale of molas provide other sources of income. Most imported goods originate from Colombian ships and are sold in retail stores owned by Kuna people. Tourism is an important part of the economy in the Carti region.

The Kuna are famous for their molas, a colourful textile art form made with the techniques of appliqué and reverse appliqué. Mola panels are used to make the blouses of the Kuna women's national dress, which is worn daily by many Kuna women.

The Kunas were living in what is now Colombia at the time of the Spanish invasion, and only later began to move westward towards what is now Kuna Yala.

There is a wide consensus regarding the migrations of Kunas from Colombia and the Darien towards what is now Kuna Yala. These migrations were caused partly by wars, but some sources contend that they were mostly due by bad treatment by the Spanish invaders. The Kuna themselves attribute their migration to Kuna Yala to conflicts with the native peoples, and their migration to the islands to the excessive mosquito populations on the mainland.
During the first decades of the twentieth century, the Panamanian government attempted to suppress many of the traditional customs. This was bitterly resisted, culminating in a short-lived yet successful revolt in 1925, led by Iguabilikinya Nele Kantule of Ustupu and a treaty in which the Panamanians agreed to give the Kuna some degree of cultural autonomy.

Dulegaya is the primary language of daily life in the comarcas, and the majority of Kuna children speak the language. Spanish is also widely used, especially in education and written documents. Although it is relatively viable, Kuna is considered an endangered language.

The third and most obvious population group are the „Latin” peasants and urban population that live in the zone. For the most part they have arrived to the region from interregional migration principally from the central part of Panama during the past 40 years. Most of this population is dedicated to extensive cattle ranching and have driven the process of colonization of this area through the past decades.

The project zone, as defined in G1.3 almost does only contain little population. Close to the or within the Management Units are living the companies workers, as can be seen in the Map of the MUs 0006 and 0008 (Houses) during their working duties. Also in MU 0002 a house for workers exists. Our Workers come from different parts of the province, some from other provinces in Panama therefore they are living close to the project in special work accommodations.

Next to the project site on the Pan-American Highway Agua Fria No1 and 2 and El Tirao are three villages with more than 1000 peoples living there. El Mundito to the west of the MUs is a spread settlement of a few houses only with about 1-200 inhabitants.

There is sparse settlement along the roads and farms all over the area declining with growing distance to the interamerican highway – even near to the project sites although there is no settlement on the project area itself. People living in the area generally stay in their own land or land of their employers which is legally registered to them or belongs to them according to customary rights. Details on land ownership are explained in the amendment on Land Tenure Security. There are customary land tenure arrangements for the indigenous Comarcas that don't affect the project area for being distant to it.

The local population living in the project zone consists almost totally of “Latino” settlers who have been establishing themselves in the region migrating from the provinces of Los Santos, Veraguas and Chiriquí since the 1960s initially and in large scale with the open of the Interamerican Highway extension from Bayano to Yaviza. The city of Metetí grew from 80 inhabitants in 1970 to 1200 in 2000 (PNUD/MEF 2003). The economic activity these settlers established in Darien was farming and cattle breeding on an extensive scale. For the whole Darien province the Latin settlers provide the bulk of production in corn and rice and overall: beef. Contrary to the indigenous groups that pursue an economic strategy of subsistence farming the Latin settler are more strongly oriented to market production.

The nuclear family is a central feature of their social organization. The father has a central position within the family in decision-making. Land property usually equally belongs to the father or the parents. Even if the sons are adult they have their cattle on their father’s property,
this is divided between them generally only after his death. This mechanism of ongoing division of property under the children foments a continuous need for land which is the root of the migratory movement of these groups from the central provinces to Darien too.

Due to their orientation to agriculture and cattle ranching the Latin settlers tend to establish small and dispersed settlements. The general style of settlement of the Latin farmers has been generating many conflicts with the indigenous population as they have often been ignorant about management of the existing forests and their importance to indigenous. Subsequently the indigenous groups who do not possess the concept of property on land that can be transferred to third people struggled for delimitation of their lands which was granted in 1983 through the establishment of the comarca Emberá.

Most of these settlers established their properties as claims of land they occupied and registered afterwards as a customary property right (derecho posesorio) with the national land reform authority (Reforma Agraria). As the registering of titled properties has been a large and complicated process most of the farmer only title their possessions since the PRONAT-programme that started from 2001 on.

Living conditions in Darien can be characterized by deficiencies in basic social needs. Many people live with lack of appropriate housing, access to potable water is a problem in many remote places as well as road conditions once leaving the central axis of the Interamerican Highway. In 2000 about 40% of the households in the Darien province had no drinking water. More than 60% lacked electricity. Less than 3% had a landline telephone. It can be stated that the smaller the village the bigger is the lack of these services. In settlements up to 20 inhabitants 89% were without potable water in 2000, in those over 200 inhabitants only 31% suffered the same condition. For the settlements of Metetí and Agua Fría that lie adjacent to the project zone, the 2001 census shows 20 and 29% of houses without potable water respectively.

Education for most of the population is limited to the basic level (6 years). There are only 3 schools offering medium educations in the whole province in 2000 (PNUD/MEF 2003). This is critical especially as the medium education level is obligatory in Panama. In 2000 there were only three centres of professional education, but none of them with focus in agricultural careers. This problem has been addressed in the meantime and there are courses nowadays for agriculture as well as for forestry and resource management in the region. Darien showed in 2000 a rate of illiteracy of 23% compared to 9% on national level.

In the health sector there are only 3 hospitals in the Darien province and 48 health centres. While mortality in Darien is quite low – due to low average age of the whole population (19 years in 2000), infant mortality is with 25% about 10% higher than on national level.

The project areas in the province Chiriqui include the communities of the Greater Las Lajas area, the Greater San Felix, a cluster of small communities located in the nearby indigenous Ngobe reserve.

Our project area of Las Lajas is located nearby the Ngobe Bugle indigenous reserve and the majority (approximately 60%) of the workers laboring at our Las Lajas project is of Ngobe Bugle origin. Panama has a well defined indigenous reserve system which has established – conjunctly with indigenous leaders indigenous occupational sites based on ancestral claims.

See also "Attachment_G1.5.1_Tropical_Mix.pdf".
References:
PNUD/MEF 2003; Programa de las Naciones Unidas para el Desarrollo / Ministerio de Economía y Finanzas. PROYECTO PAN/01/003. Características de la Población de Darín. Community effects of the project and optimization of community benefits (see attachment “attachment_G1.5_Tropical_Mix”).

For more information about the living population in the different provinces in Panama see http://www.contraloria.gob.pa/dec/Aplicaciones/POBLACION_VIVIENDA/.

G1.6. Describe current land use and customary and legal property rights including community property in the project zone, identifying any ongoing or unresolved conflicts or disputes and identifying and describing any disputes over land tenure that were resolved during the last ten years (see also G5)

Additional Information to CarbonFIX Document „Secured Land Tenure“

For all farms listed in table 1 the legal documents could be provided in the ForestFinance office in Panama City.

Panama has a setting of legal and customary property rights. These latter rights can be claims “derecho posesorios” which are registered in the national agency for agrarian reform (Dirección Nacional de Reforma Agraria) and then may be transformed into legal titles. There is a system of registering legal property titles in two governmental agencies Catastro and Registro Publico. The Registro Publico makes all property titles publicly available on its website (https://www.registro-publico.gob.pa/scripts/nwwisapi.dll/conweb/prinpage).

Customary rights so called Rights of Possession or „derechos posesorios“ which have been established in the 1960 as a legal instrument to secure land ownership to small peasants. After a certain time of using a defined portion of land the owner can apply for a right of possession which afterwards may be converted into a land title too. The titling of the land involves a process of land verification of the property boundaries and an inquiry with all neighbours in order to determine boundaries and possible claims on the land or part of it. Furthermore the Agricultural Reform Office makes an inspection after all neighbours have signed off eventual contesting claims. After this process a Right of Possession can be converted into a property title and be registered in the Registro Publico as such.

The presence of this mechanism has effectively led to most of the farmers register at least a Right of Possession on the land they own. For this reason property rights and rights of use on the land that ForestFinance purchases are quite well known and individualised.

There are further customary rights principally in areas of indigenous population which in the major part have led to the creation of special arrangements with the respective groups, the commarcas where these communities have a certain status of autonomy on the land. Getting access to these lands involves beneath the before mentioned authorities in the first place to settle arrangements with the communities that execute the traditional rights that establish some
kind of lease agreement or a certain usage permit. ForestFinance does not operate in these areas up to the moment.

The land ownership on the project area at project start is registered to the project developer. Land is purchased generally from local or national landowners in possession of farms through a process that involves contractual agreements settled through negotiations and fixed by lawyers in accordance to all national regulations. This agreement gets officialised in the Registro Publico as shown in attachment 13-01. Afterwards through contractual agreements ownership passes on to investors.

This ownership may have different forms:

a) Full property right registered to the Registered Publico. In this case clients grant full rights over all management decisions on the land to the project owner.

b) Lease agreement with Forest Finance for the project term, where the property title stays with Forest Finance.

In the end there are three possible legal arrangements to the land in the project area.

1) Property right of an investor that grants full management powers to the project owner

2) property of the project owner leased out to investor that grants full management powers to the project owner

3) Property of the project owner such as reserves, protection area and access roads without any lease arrangements.

G1.7. Describe current biodiversity within the project zone (diversity of species and ecosystems) and threats to that biodiversity, using appropriate methodologies, substantiated where possible with appropriate reference material.

In the "Environmental Aspects" document of the CarbonFix PDD a description of the four ecosystem types within the project area is given. In the following the four existing ecosystems grassland, shrubland, sparse grass vegetation and forest will be described briefly.

**Grasslands** are areas where vegetation is dominated by grasses (*Poaceae*) and other herbaceous (non-woody) plants (forbs). The main specie is a grass called ‘Pasto mejorado’ (group of different species out of the family *Brachiaria spp.*) which is especially planted by the farmers for the grazing cows. This very aggressive grass is responsible for the low biodiversity in this ecosystem. The main animal groups are insects and birds which are breeding on the ground. The overgrazing cattle combined with strong rainfalls may cause erosion as well as soil compactation. On the "cattle tracks" (like could be seen in picture 1, red arrow) the potential of erosion is higher than in areas covered with vegetation like shrubs and trees, which is protecting the soil with their root system.
The vegetation type “sparse grass vegetation” is a mixture between grassland and shrubland. It could be described as grassland with sporadic shrubs. Tree canopy cover 0-50%.

**Shrubland.** **Scrubland, scrub** or **brush** is a plant community characterized by vegetation composed largely of (woody) shrubs, often also including grasses, herbs, and geophytes. Shrublands are the result of human activity, after the degradation of forests through overexploitation by humans. The main species are bushy plants like *Cecropia* (family *Urticaceae*) and shrubs out of the family *musacea*. Small trees like *tabebuia rosea* and *anacardium excelsium* are also very common. The Tree canopy cover is 50 up to 100%. Erosion is normally not likely to cause. This ecosystem provides habitats for local animals and flowers. Compared to primary forests, the natural potential vegetation in the shrubland is different and with less diversity although lots of species that cannot live in the predominant grassland strata find niches for survival here.

**Forestland** is an area with a very high density of trees. The forests are the source of the species we are using on our reforestation areas and this type of ecosystem is providing us the knowledge which we need to do our work in the best possible way. Tree canopy cover 100%. Forest is the natural potential vegetation type for almost all of the countries area. The reforestations of ForestFinance, with a mixed forest concept, with native tree species and different stories of vegetation try to bring back this type of ecosystem to the project area.

The Project zone is mainly characterized (round about 90%) by grasslands that are used for cattle ranching by the local population (see CarbonFIX document “Additionality”). Within these grasslands there are patches and greater areas of residual rainforests and of secondary forest that established on fallow land. The grasslands generally contain single trees that remained from the original rainforest vegetation or have spontaneous or intentionally grown as shade trees for the cattle. As soils are relatively fertile parts of the grassland farms are temporarily converted into cropland for one or some consecutive years. Pictures 1 and 2 show the farm La Colina (north of the road) with the neighbour farm in the south of the photo, which shows the “normal” land use, in the Zone project zone. The vegetation
of grassland is described in the attachment “Attachment_G1.7_Tropical_Mix” and “Attachment_G1.8_Tropical_Mix”
Through the remaining natural and secondary patches (see picture 3) there is still considerable wildlife present in the region, most obviously represented through an abundance of wild birds that live in and migrate through this region. At the same time regarding the course of the creek in picture 3 towards the west it can be seen, that many farmers do not conserver these retreats even if law requires it.

Picture 3 shows the Punuloso (MU 0006 & 0008) with the established road network and the protected area (marked with red circle).

Like could be seen in the comparison of picture above and map below ForestFinance is protecting existing parts of secondary forest vegetation and also old shrubland zones. With this action we ensure the stability of our forest and in the same way we help to bring back and protect the local fauna and flora of project area and project zone.
Throughout the province only in the Comarca areas the indigenous population has been conserving most of the forests thus maintaining a real functional refuge for the original biodiversity of the region. The reforestation activity may cause a thread to the introduced grassland ecosystem. But due to overall project size and spatial structure this can be regarded as negligible and is overcompensated by the enhanced biodiversity of a mixed forest plantation recreating habitat for original forest biodiversity.

In the attachment „attachment_G1.7_Tropical_Mix” an extract of the environmental impact study of Punuloso (MU 0006 & 0008) is provided. This document describes an environmental impact study where also the current biodiversity is described. The whole study is available in the office of ForestFinance in Panama City.

In the attachment “Attachment_G1.8_Tropical_Mix” the “Evaluacions tecnica para determiner atributos consistentes con los bosques de alto valor de conservacion – BAVC, en los proyectos de reforestacion porpiedad de ForestFinance S.A.” (Study of High Conservation Values).
This study describes the biodiversity in the project area and project zone which is a diverse plant community consisting of native tree or woody species, grasses and herbaceous. Like mentioned above, the characteristic landscape is made up of areas of pasture, interspersed with areas covered with secondary pioneer vegetation, known as “rastrojo”. This type of vegetation describes the ‘without’ project scenario (or the scenario before the reforestation project started) in the project area but in the same way the ecosystem in the project zone of the CO2OL Native Tree Species Project.

For all areas in the province Chiriqui the updated High Conservation Value Study will be provided soon.

See also CarbonFIX document “Environmental Aspects” and the supporting documentation (especially 05-12 Bosques con un alto valor de conservación-textoVERS209.pdf)

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G1.8. Evaluate whether the project zone includes any of the following High Conservation Values (HCVs) and describe the qualifying attributes

The evaluation of High Conservation Values came to the following result: After analyzing each of the management units and comparing them with methodological guidance developed by ProForest, no indications of high conservation values have been encountered within the provinces Panama, Darien and Veraguas.
In the Chiriqui province, the farm Los Monos (see 05-12 Bosques con un alto valor de conservación-textoVERS209.pdf) has been declared as high conservation value area.

For further detail see attachment “Attachment_G1.8_Tropical_Mix”.

**G2. Baseline Projections**

G2.1. Describe the most likely land-use scenario in the absence of the project following IPCC 2006 GL for AFOLU or a more robust and detailed methodology, describing the range of potential land-use scenarios and the associated drivers of GHG emissions and justifying why the land-use scenario selected is most likely.

See CarbonFIX documents “Additionality” and “Baseline”.
See also attachment “Attachment_G2.1_Tropical_Mix”.

G2.2. Document that project benefits would not have occurred in the absence of the project, explaining how existing laws or regulations would likely affect land use and justifying that the benefits being claimed by the project are truly ‘additional’ and would be unlikely to occur without the project.

See CarbonFIX documents “Additionality” and “history of the project”.

The Additionality of the areas in Chiriqui has already shown within the PDD of the former project Native Tree Species, already gold rated (v1) in 2007. As the concept of ForestFinance is the same on all farms named in this PDD the Additionality documentation of the CarbonFIX PDD is representative!

“The additionality concept of our project lays on the premise that converting low productivity grasslands used for extensive cattle ranching into diverse multispecies forest plantations for protection and timber production purposes directly leads to a net anthropogenic reduction of carbon emissions. In addition, we believe that our project faces several barriers which could prevent its implementation or replication if it did not receive CDM certification. Such barriers include: Traditional barriers: Panama does not have a significant forestry history or economic sector. Financial: The initial investment cost to establish such a project is very high and it is unlikely that local agropastoralists would be able to obtain the necessary financing to develop a similar type of project. Technical: Because Panama does not have a strong forestry sector, there is a significant lack of national expertise and access to forestry technology which impede the development of largescale, financially viable AR CDM projects. The regions where the project is currently operating, as with the rest of Panama, do not have a strong forestry tradition. The dominant economic activities include subsistence slashandburn agriculture and extensive cattle ranching. Few subsistence farmers integrate agroforestry or silvipastoral practices in their systems. The vast majority of forest plantations found in Panama have been established over the last 20 years. A recent study published by the National Environmental Authority demonstrates that most of these plantations will hardly see a return on their investment, primarily due to poor management. High quality seeds, for appropriate forest species, are difficult to obtain (in our case our seeds are imported from all across Central America or directly from national scientific institutions) and so is technical assistance or capacity. Panama established its first university
program in forestry about 5 years ago, and there are very few qualified people in the country who can effectively transfer their newly learned forestry knowledge to local entrepreneurs who would be interested in developing a similar type of project. In addition, it would be quite difficult for small-scale farmers and even for larger cattle ranchers to obtain the necessary financing to initiate a large scale AR CDM project activity such as the one we are implementing. The financial risks of establishing a project such as ours are high, and only with the proper economic and technical support can a project with such a long lifetime be financially viable. Therefore, we consider our project to be additional to the baseline scenario (abandoned and low-productivity green pasture land).” (see “original” PDD of Native Tree Species”)

G2.3. Calculate the estimated carbon stock changes associated with the ‘without project’ reference scenario described above. Provide estimation of carbon stocks for each of the land-use classes of concern and a definition of the carbon pools included, among the classes defined in the IPCC 2006 GL for AFOLU. The timeframe for this analysis can be either the project lifetime (see G3) or the project GHG accounting period, whichever is more appropriate. Estimate the net change in the emissions of non-CO\(_2\) GHG emissions such as CH\(_4\) and N\(_2\)O in the ‘without project’ scenario. Non-CO\(_2\) gases must be included if they are likely to account for more than 5% (in terms of CO\(_2\)-equivalent) of the project’s overall GHG impact over each monitoring period. Projects whose activities are designed to avoid GHG emissions (e.g., REDD) must include an analysis of the relevant drivers and rates of deforestation and/or degradation and a description and justification of the approaches, assumptions and data used to perform this analysis.

As described in the CarbonFIX document “Additionality” the most likely without-project scenario, the landuse will be cattle grazing and pasture (.90%), otherwise are Teak plantations a possible baseline scenario (10%).

For the project area, CarbonFIX methodology has been used to determine the baseline carbon stock changes.

The following carbon pools are selected to determine the carbon sequestration of the project:

1. Woody above ground: stem, branches and bark → selected for Future CO\(_2\)-Fixation, Leakage and Baseline calculation
2. Woody below ground: Tree roots → selected for Baseline calculation
3. Non woody above ground: Grass → selected for Baseline and Future CO\(_2\)-Fixation calculation
4. Non woody below ground: Grass roots → selected for Baseline calculation

Following a very conservative approach the baseline is set to 29tCO\(_2\)/ha (see CarbonFIX document “Baseline”).
G2.4. Describe how the ‘without project’ reference scenario would affect communities in the project zone, including the impact of likely changes in water, soil and other locally important ecosystem services.

As described in the CarbonFIX document ‘Additionality’ is the most likely ‘without project’ scenario cattle grazing and pasture. Within this scenario the grassland area will be in threat of human and probably seasonal fires, which implies loss of biodiversity and habitat for the local flora and fauna as well as environmental services. Long term consequences of this scenario will be the loss of several ecosystem functions and changes to micro-climate such as a sinking water table, more profound drought effects in the region, and the permanent loss of many wildlife and plant species that still manage to survive in small patches of forest residues. In the western and central regions of Panama, where for example potable water availability is getting a serious problem for communities, these long term effects can be observed very well. Also in terms of scenario without the project, the following consequences are expected without a specific and sustainable management. Areas which are now under protection, e.g. forests or older secondary forest parts, continuously will be cut down, or slashed and burned in the areas. The ongoing practice increases the likeliness of water and soil pollution. A low water absorbing capacity of soil due to compaction from grazing animals and regular burning of the site would affect the communities in a negative way. The sensitive clayey soils of the Darien region, that are very susceptive to compactation and erosion as a consequence of overgrazing. Threats to humans and communities could be an expected increase of environment temperature due to destruction of forest vegetation and insufficient or poor water supply. An increase of invasive non-native species of plants and animals could take place within the without project scenario. This will alter biodiversity composition and slows the regeneration, growth and reproduction of different endemic species. The above mentioned grassland fires lead to hamper the ecological succession and will thereby minimize the growth of species diversity in the project area.

G2.5. Describe how the ‘without project’ reference scenario would affect biodiversity in the project zone.

As described in the CarbonFIX document „Additionality“, for the without-project scenario, the landuse will be cattle grazing and pasture or a teak monoculture plantation. This common landuse has no positive effect to the biodiversity in the project area and also in the project zone.

G3. Project Design and Goals

G3.1. Provide a summary of the project’s major climate, community and biodiversity objectives. See CarbonFIX documents „Environmental Aspects“ and „Socioeconomic Aspects“.

Additional Information for former CCBA Native Tree Species Project you could find below

Climate objectives:
26.6°C - Panama is a country along a latitude, the distance between the northernmost and southernmost point is not 200 km, so there is no big difference in the average annual temperature.
Community objectives:
Chiriqui: numbers of workers - and see also CarbonFIX documents "Environmental Aspects" and "Socioeconomic Aspects".

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<th>Amount of people (long-term)</th>
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<tr>
<td>Workers</td>
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Biodiversity objectives:
ForestFinance is looking for pasture and former grassland to set up biodiverse mixed forests as reforestation projects. Since its beginnings in 1995 this requirement has not been changed. The current described ecosystems grassland, shrubland and forestland can be found in all provinces where the ForestFinance project activities take place.
There is no significant change between the different provinces, ForestFinance is developing projects, in the forest management and the percentage of conservation area is more than 15% and 60% of the species planted are native, there are no further impacts on the biodiversity

G3.2. Describe each project activity with expected climate, community and biodiversity impacts and its relevance to achieving the project’s objectives.
See CarbonFIX documents „Environmental Aspects” and „Socioeconomic Aspects”.

G3.3. Provide a map identifying the project location and boundaries of the project area(s), where the project activities will occur, of the project zone and of additional surrounding locations that are predicted to be impacted by project activities (e.g. through leakage).
See maps in G1.3.

These maps show the different Management Units of the project. Additional each of this MU is labelled with an ID, according to the CarbonFIX Standard. An internal ID shows the project province and country, the name of the Farm (Finca) and the date of the first reforestation. E.g.: ALAB-08-3742-PA-DAR-MET. The numbers 3742 are the specific code of the titled property, used in the land registry in Panama in combination with an area code that is not used in this context.

G3.4. Define the project lifetime and GHG accounting period and explain and justify any differences between them. Define an implementation schedule, indicating key dates and milestones in the project’s development.
See CarbonFIX documents “Future CO₂-Fixation” and “Forest Management”.

See document “06-12 - CO2_scientific_growthmodel_COI_20120214.xls” and the (Vegetation-)maps in the supporting documents!
G3.5. Identify likely natural and human-induced risks to the expected climate, community and biodiversity benefits during the project lifetime and outline measures adopted to mitigate these risks.

**Risk to climate benefits of the project:**
The major potential risk to the climate benefits of the project would be scenarios in which the trees planted under the project scheme do not exist permanently. This risk is mitigated because the project developer has pledged first to reforest after harvest and also to replant in case of losses (such as fire or drought).

If the worst scenario takes place and the project developer would not be able to compensate any shortfalls, the buffer fund (30% of all CFS projects) of CarbonFix would be used to compensate the respective losses.

For areas not included within the CFS certification, ForestFinance will compensate any “losses” with new areas, which will be added year by year to the existing project.

**Risks to communities:**
- Intensive management on our relatively complex plantations require considerable workforce and create alternative labour options for local peasants. Furthermore guaranteed regulation-conform labour conditions are an improvement for rural areas where laws are often difficult to enforce. The higher demand for local labour may affect other farmers seeking workers. We consider this effect to be overall positive as it will result in a higher wage level and thus better well-being in the local community.
- The establishment of most of the native species is a benefit as much in biodiversity as socio-economically. The species used are rarely cultivated and have been vastly overused in natural forest and thus are hardly to obtain on the regional/national markets. Forest Finance creates future supply on fine timber for local industries and consumers.
- Establishment of mixed and diverse plantations may raise the propagation of undesired plants in adjacent cow pastures. Hence our experience of 15 years this has never raised any problem.
- As population in the project zone is very limited and the spatial structure of the project zone is dispersed we consider risk to the communities negligible.

**Risks for biodiversity:**
- Teak is an exotic species that can be critical to biodiversity when propagating throughout the area of the plantation, but the national ambient regulations enforce each reforestation projects to present plans and strategies to combat the spreading of these species. This is being done by the project developer.
- The chance of land use exposes soils to erosion during the phase of establishment, especially the planting. Special planting techniques are used to meet these problems, e.g. opening alleys in brush vegetation and leaving lateral vegetation in order to protect soils (can be seen in Metetí 1 to the north of the secondary forest patch). Execute planting
principally during the mornings when it generally doesn't rain too much. Limit planting to the parts of the rainy season where rainfalls are not excessive (like October, November).

- Due to small project size risks can be considered negligible. Change in land use may drive out species adapted to cow pasture, but these will find abundant alternatives in the remainder project zone and further surroundings.

The total project stands on solid financial ground. Additional, the project is also managed under FSC requirements which ensure also the financial health of the project. For further information see CFS-documents Forest Management, Protective capacity, Socioeconomic Aspects and Environmental Aspects.

G3.6. Demonstrate that the project design includes specific measures to ensure the maintenance or enhancement of the high conservation value attributes identified in G1 consistent with the precautionary principle.

On preparing the project operation a preliminary operative plan is established which is refined by our forest engineers through various site visits evaluating site conditions and need for special protective areas.

These preparations are documented in digital maps that demonstrate the cumulative development of the protection zones. Additionally as indicated with the above mentioned study new insights about conservation needs will be adapted to the operative and management plans and schedules.

See for reference operative maps of the farm Punuloso, MU 0006 and 0008 (see attachment “Attachment_G3.6_Tropical_Mix”).

The map of 2008 shown in the document, “Mapa_OPERATIVO_PUNULOSO_06-11-08”, is the map which have been developed before planting takes place (created in 2008), where the document “Mapa_Dist_Esp_PUNULOSO_14-07-09_vf.pdf” shows the map of the distributed land use, into reforestation area (with different tree species), protection area, wetlands and drainages (created in 2009) as a result of the map out of the year 2008.

These examples show maps of the farm Punuloso (MU 0006 & 0008).

For further detail see also attachment “Attachment_G1.8_Tropical_Mix”, where the high conservation values study is provided.

G3.7. Describe the measures that will be taken to maintain and enhance the climate, community and biodiversity benefits beyond the project lifetime.

The CO2OL Native Tree Species project consists of two forest management systems. A rotation forest management system with common forestry practices and a conservation forest management where the trees are solely planted to sequester CO₂.

The terms and reference of this areas state, that it is not allowed to resale the areas to third parties without an agreement of ForestFinance, see below an extract out of the terms and reference.

„The Principal buys/leases the lots indicated in the contract. These lots are clearly defined by a land survey and if applicable through notary authentication and following registration of the
property in the land register. Together with the land purchase/leasehold the investor acquires approx. 1,100 seedlings per hectare for reforestation as a mixed forest with up to 5 commercial tree species and including forestry services according to the following agreements. Resale of the lots/leasing to third parties is only allowed under the limitations of use as described in 1. and only upon agreement of ForestFinance, which will be given upon abiding to the limitations of usage. Forest-Finance will support the Principal in the resale/leasehold of the lots.” See complete document terms and reference you will find in the attachment „attachment_G3.7_Tropical_Mix“.

The conservation areas (MU 0007, 0008 & 0009) will be passed to the CO₂OL Rainforest Foundation after 50 years. This foundation was especially founded to ensure the permanence of the planted forests.
The forests are under permanent surveillance. ForestFinance is the land owner and ensures the implementation of the forest management plan.
Documents concerning this foundation will be available in the office of ForestFinance in Panama City.

The reforestation projects offer opportunities for the local economy. The infrastructure set up for planting and the long term projects will create jobs and ensure the permanence of the project.

ForestFinance is planning to add continuously new Management Units to the project Tropical Mix. This assures long term employment effects for the local and surrounding communities.

G3.8. Document and defend how communities and other stakeholders potentially affected by the project activities have been identified and have been involved in project design through effective consultation, particularly with a view to optimizing community and stakeholder benefits, respecting local customs and values and maintaining high conservation values. Project developers must document stakeholder dialogues and indicate if and how the project proposal was revised based on such input. A plan must be developed to continue communication and consultation between project managers and all community groups about the project and its impacts to facilitate adaptive management throughout the life of the project.

The general impact on communities through the project is limited due to its little overall extent, its spatial disperse structure and also that very few people live in the project area. The most important impact which is significant for other stakeholder in the area although is the access and maintenance of the roads the lead to the different management units, which may server here as an example for stakeholder involvement. The main communication axis, the interamerican Highway is maintained by governmental authorities. For the secondary roads generally, there needs rehabilitation work to be done, which is budgeted during the project planning.
The engineers of our project then involve the local community which has an interest in road improvements that improves overall living and working conditions. They organise meetings of the local communities where the envisaged work is presented and discussed. Generally other stakeholder come to contribute to the measure be it with money or with working power.

Equally in other occasions local staff organizes meetings with the local communities in order to discuss issues and find consensual solutions.
In the “Socioeconomic Aspects” CarbonFix document the mechanism for neighbours, via contact with workers to express any concerns, is stated. An example of conflict documentation can be found in the attachment „attachment_G3.8_Tropical_Mix“. Also, like stated in G3.11 the conflict solving process will be made public to the stakeholders within a meeting in the project region.

See also BARCA document “Informe programas comunitarios 2009” with the community programs of the year 2009 in the Darien region (See attachment „attachment_G3.8_Tropical_Mix“).
All meetings will be documented with a report and will be made public available for all stakeholders.

For the areas in the project region of the province Chiriqui (which have been already CCBA gold rated since 2007) the circumstances are a bit different, as ForestFinance is working since 1994 in Las Lajas and is the biggest employee of the village. As all areas of ForestFinance are managed under the same conditions, the treatment and stakeholder involvement are similar. In Las Lajas ForestFinance is running various social and ecological projects. Information about our school programme with the “Grupo alpha” and the “Sendero didactico” could be got in the office in Las Lajas.
Also see attachment_G3.9_1_Resumen_Publico_FoFi_2011.pdf, attachment_G3.9_2_Capacitaciòn 2011.pdf and attachment_G4.5_2_PROGRAMA DE SEGURIDAD OCUPACIONAL PARA TRABAJADORES DE FOREST FINANCE PANAMA.pdf

G3.9. Describe what specific steps have been taken, and communications methods used, to publicize the CCBA public comment period to communities and other stakeholders and to facilitate their submission of comments to CCBA. Project proponents must play an active role in distributing key project documents to affected communities and stakeholders and hold widely publicized information meetings in relevant local or regional languages.

ForestFinance will publish the public comment period on their website. Also a comment will be stated on the CarbonFIX project website www.climateprojects.info/COI, where all project documents can be accessed.

Local stakeholders will be informed verbally at regular meetings about the current state of the project and could state all their concerns to BARCA, our forest service provider in the provinces Panama, Darien and Veragaus or to the management team of ForestFinance.

Also the CCBA is making it public, that the PDD is available for the public comment period.

In capacity meetings the employees in the project have been informed about carbon forestry projects especially CO2OL Native Tree Species. The project description (see attachment „attachment_G3.9_Tropical_Mix“) was presented to the workers to get an understanding of the project. Any concerns and questions could be stated to the supervisor (Ariel Chavez, BARCA), the management team of BARCA and of ForestFinance.
Through group meetings, community assemblies and information dissemination campaign, all the identified local stakeholders will be informed and will continuously being encouraged to actively participate in project planning, implementation and providing feedback. For new or additional local stakeholders that may emerge as the project develops, they will likewise be informed and their participation sought.

All documents (project description is also available in the office of BARCA in Torti) are available in the office of ForestFinance in Panama City. A description, how to get to the regional office, you could find in the CarbonFIX document „visit the project“.

G3.10. Formalize a clear process for handling unresolved conflicts and grievances that arise during project planning and implementation. The project design must include a process for hearing, responding to and resolving community and other stakeholder grievances within a reasonable time period. This grievance process must be publicized to communities and other stakeholders and must be managed by a third party or mediator to prevent any conflict of interest. Project management must attempt to resolve all reasonable grievances raised, and provide a written response to grievances within 30 days. Grievances and project responses must be documented.

The company has a local offices within the different provinces where stakeholder can come to communicate their grievances. As the total scope of the project area is limited generally all grievances are discussed and cleared through personal conversations or meetings on site between the stakeholders and our staff.

If this fails to resolve conflicts there are regional ombudsman (corregidores) that can be acclaimed in order to resolve such a situation before jurisdiction needs to be involved. Generally they are highly respected and can provide solutions before jurisdiction needs to be consulted.

For publishing any responses the local company office hold respective informative material at hand and is able to spread through its employees such information as most of the communication in this remote area is spread out orally.

- A document that contains the conflict solving process, is also available in Spanish (see attachment “attachment_G3.10_1_Tropical_Mix”). It describes the procedures for solving conflicts, which will be presented to the workers and will be held available for involved stakeholders. This document will be presented to the workers and also to the involved stakeholders (like finca neighbours etc.). Any conflict in the future will be documented. All reports are available in the regional office of BARCA in Darien (see “attachment_G3.10_2_Tropical_Mix”) or in the office of ForstFinance in Las Lajas / Panama City.

See attachment „attachment_G3.10_Tropical_Mix“. This attachment describes the conflict solving process of ForestFinance.
**G3.11.** Demonstrate that financial mechanisms adopted, including projected revenues from emissions reductions and other sources, are likely to provide an adequate flow of funds for project implementation and to achieve the anticipated climate, community and biodiversity benefits.

See CarbonFIX document „Additionality“.

Within the Terms of Reference and the marketing material of ForestFinance the production of sellable CO\textsubscript{2} is communicated since the early beginning of the reforestation activities in Panama.

### G4. Management Capacity and Best Practices

**G4.1.** Identify a single project proponent which is responsible for the project’s design and implementation. If multiple organizations or individuals are involved in the project’s development and implementation the governance structure, roles and responsibilities of each of the organizations or individuals involved must also be described.

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</tr>
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<tbody>
<tr>
<td>ForestFinance Service GmbH</td>
</tr>
<tr>
<td>Eifelstraße 14</td>
</tr>
<tr>
<td>53113 Bonn</td>
</tr>
<tr>
<td>Germany</td>
</tr>
<tr>
<td>Email: <a href="mailto:info@forestfinance.de">info@forestfinance.de</a></td>
</tr>
<tr>
<td>Phone: 0049 (0)228 943 778 0</td>
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<table>
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</tr>
<tr>
<td>Edificio #223, piso 3, oficina B</td>
</tr>
<tr>
<td>Calle Jacinto Palacios Cobos</td>
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<td>Clayton – Ciudad del Saber</td>
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<tr>
<td>Email: <a href="mailto:info@forestfinance.com">info@forestfinance.com</a></td>
</tr>
<tr>
<td>Phone: 00507 3171431</td>
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</table>

See also CarbonFIX document „Management Capacity“.

**G4.2.** Document key technical skills that will be required to implement the project successfully, including community engagement, biodiversity assessment and carbon measurement and monitoring skills. Document the management team’s expertise and prior experience implementing land management projects at the scale of this project. If relevant experience is lacking, the proponents must either demonstrate how other organizations will be partnered with to support the project or have a recruitment strategy to fill the gaps.

The management team covers all the necessary skills needed to implement this project, starting from community mobilization, site delineation/surveying, species-site suitability assessment, to seedling production until plantation establishment, development, maintenance and protection,
and project monitoring and impact assessment. The reforestation concept of ForestFinance has been evolving for over 15 years. In the province Chiriquí where the first reforestations were established we are also managing more than 400 hectares mixed forest plantations. In the nursery in Las Lajas, we are producing our own saplings with seeds these older plantations.

Also BARCA is working for 30 years with management of tropical reforestation projects. The project developer and its partners have been involved in related activities for many years, own related techniques and accumulated rich experiences over more than 15 years. Our management team and also the team of BARCA consist of experienced forest engineers. They train the field workers to fulfil the theory in the field in the best as possible way. Our Foreworkers have the technical skills and social capacity to lead a group of workers treat neighbours that they deal with throughout their work.

Monitoring and mapping of project areas which is done partly by our own specialists and consultants. Therefore we use technical equipment like toughbook, GPS and different GIS Software. Carbon measurement will be done together with forest monitoring. For our mixed plantations we have established a special monitoring system to measure each tree species on the planting area in a representative way. For each reforestation area we also conduct a soil analysis to ensure that the trees will grow in the best way.

The team of ForestFinance is a mix of engineers (forestry, geography), lawyers, bookkeepers etc. this mix of different knowledge is the base for the quality of the reforestation projects of ForestFinance. In order to increase capacity regular training is undertaken, especially with regular field workers that have no access to professional courses in Panama. Our technicians have been trained on recognized universities and technical schools and refined their abilities working in scientific institutions and governmental agencies.

The FSC certificate is also a label for quality. ForestFinance is holding the FSC label for several years.

See also CarbonFIX document “Capacities” where the skills of each project proponent are described.

G4.3. Include a plan to provide orientation and training for the project’s employees and relevant people from the communities with an objective of building locally useful skills and knowledge to increase local participation in project implementation. These capacity building efforts should target a wide range of people in the communities, including minority and underrepresented groups. Identify how training will be passed on to new workers when there is staff turnover, so that local capacity will not be lost.

In the „Occupational Health and Safety program“, of our forest service provider BARCA, are the points like capacity building on the local communities, covered. This document is available in the main office of BARCA in Panama City and see attachment „attachment_G4.3_Tropical_Mix“.
We strive to provide equal opportunity for everyone who is qualified irrespective of gender, religion or nationality.

In general, residents within the project region are the target beneficiaries except for highly technical positions that can’t be provided mostly from the local communities.

More than 90% of our field workers are from the local indigenous groups and especially the work in nurseries and the planting activities are done by women. Also the management of the ForestFinance S.A. is nearly in women hand and the boss of the forest department in Panama is also a woman, Yaels Camacho. This shows very clear that we provide equal opportunities to each gender, religion and nationality.

For the work in the field, BARCA is hiring locals or hires workers from other provinces like Chiriquí, Panama or Bocas del Toro where other projects of ForestFinance are based. Local workers offer various advantages, on the one hand they are „cheaper“, because it is not necessary to provide them accommodation opportunities, because they could live in their common surrounding with their families what also give them a very high living quality. On the other hand, they normally know the region they are working in very well. This helps us to do the projects in a high quality way. For the field workers and all other employees will be the necessary training provided they need.

It is in the desire of the project to give employment opportunity to everyone who is interested to work, job rotation is adopted.

For all people we plan to employ, we try to get information about their former jobs. Higher qualified personal will be selected with two steps. First desk check of the CVs and second step is a talk with the people to get know if they will be a good part of team. Teamwork is one of our main aims to do a good job.

ForestFinance and BARCA are complying totally the laws and regulations for workers. These laws and regulations are fixed in the “codigo de trabajo” of Panama (Codigo de Trabajo is available in the office of ForestFinance in Panama and see attachment „attachment_G4.5_Tropical_Mix” los main principles of the codigo de trabajo).
BARCA is informing new workers with a welcome letter, called „Carta induccion de BARCA“. This letter has to be signed from parties, BARCA and the employee. See attachment_G4.5_1_Tropical_Mix“.

Also see attachment_G4.5_2_PROGRAMA DE SEGURIDAD OCUPACIONAL PARA TRABAJADORES DE FOREST FINANCE PANAMA.pdf. (used for the areas in Chiriqui).

G4.6. Comprehensively assess situations and occupations that pose a substantial risk to worker safety. A plan must be in place to inform workers of risks and to explain how to minimize such risks. Where worker safety cannot be guaranteed, project proponents must show how the risks will be minimized using best work practices.

See CarbonFIX documents „Technical Capacity“ and „Socioeconomic Aspects“.

All workers will get different trainings to reduce risks within their daily work. As FSC certified company this is one of our main objectives within the sustainable forestry work.

G4.7. Document the financial health of the implementing organization(s) to demonstrate that financial resources budgeted will be adequate to implement the project.

In the attachment „Attachment_G4.7_Tropical_Mix“ you will find the Annual Accounts of 2007 and 2008 of ForestFinance.

For any further questions concerning the financial health you could contact

ForestFinance Service GmbH
Eifelstraße 14
53113 Bonn
Germany
Email: info@forestfinance.de
Phone: 0049 (0)228 943 778 0

G5. Legal Status and Property Rights

G5.1. Submit a list of all relevant national and local laws and regulations in the host country and all applicable international treaties and agreements. Provide assurance that the project will comply with these and, where relevant, demonstrate how compliance is achieved.

As a FSC certified company we have to ensure we comply and know every law and regulation. The project developer acts in accordance to all laws within the country.

See attachment „Attachment_G5.1_Tropical_Mix“. There you will find a list of laws and regulations.

G5.2. Document that the project has approval from the appropriate authorities, including the established formal and/or traditional authorities customarily required by the communities.

An old version of a host country letter of support is provided in the attachment “Attachment_G5.2_Tropical_Mix“. ForestFinance has its operation with all the projects, including
all customer contracts etc. in 2008 from the former management. The purchase which involved confusingly two name changes to the company itself, is documented in the attached “Attachment_G5.2_Tropical_Mix”.

After the purchase of Forest Finance Panama S.A. we are working on an actualization of this document. Changes in government and administrations at the end of the last year forced us to start over again with this process that is yet going on.

A preliminary certification concerning projects in the Darien region is provided here which in the near future will serve as a base for a more general approval through the countries Climate Change authorities.

A document of Panama’s National Authority for the Environment, ANAM (Autoridad Nacional del Ambiente) which shows the projects “acceptance and recognition” of the reforestation established by ForestFinance.

See also „attachment_G5.2_Tropical_Mix”.

All documentation could be provided in our offices in Panama and Las Lajas.

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**G5.3. Demonstrate with documented consultations and agreements that the project will not encroach uninvited on private property, community property, or government property and has obtained the free, prior, and informed consent of those whose rights will be affected by the project.**

In the CarbonFIX document „Socioeconomic Aspects” it is stated, that no displacement of people has occurred.

A description that land was purchased fairly and with free, prior and informed consent can be found in the attachment „Attachment_G5.3_Tropical_Mix”. A purchase contract is provided in the attachment „Attachment_G5.3_1_Tropical_Mix”.

In the Registro Publico (see http://www.registro-publico.gob.pa/) all farms are registered under the name of ForestFinance (see attachment of the CarbonFIX document, “secured land tenure”, “13-01 COI CFS_-_Attachment_-_Secured_Land_Tenure”).

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**G5.4. Demonstrate that the project does not require the involuntary relocation of people or of the activities important for the livelihoods and culture of the communities. If any relocation of habitation or activities is undertaken within the terms of an agreement, the project proponents must demonstrate that the agreement was made with the free, prior, and informed consent of those concerned and includes provisions for just and fair compensation.**

Like mentioned in G5.3 it is stated in the CarbonFIX document „Socioeconomic Aspects”, that no displacement of people has occurred.

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**G5.5. Identify any illegal activities that could affect the project’s climate, community or biodiversity impacts (e.g., logging) taking place in the project zone and describe how the project will help to reduce these activities so that project benefits are not derived from illegal activities.**

ForestFinance does not allow people to enter protected areas on our farms as well as the whole property which are usually used for non-authorized tree felling close to rivers, chase etc.
Illegal activities being done by local communities or any other person within the project zone include wood extraction for firewood, illegal logging in the later years of the forests and poaching of the living animals within the project. To avoid these activities all our fincas are fenced so that the entrance is clearly shown as prohibited. We are working very close together with the local communities and our workers are out of the nearby settlements, so that any illegal action will get know very soon. The Training of workers and information about the project creates also more conscience towards conservationist aspects

In Map 3 and 4 it is shown that on the roads to our forests are villages so the forest roads are under current observation. Our forest service provider BARCA and his workers are also frequently checking the different forests of our project.

As can be seen in “attachments_G1.3” the farms in the province Chiriqui (Las Lajas) are very close to Las Lajas. Las Lajas is a settlement with about 3000 habitants, where the first plantings of ForestFinance are based. ForestFinance is the largest employer in Las Lajas and very well integrated into the community as well as highly accepted and welcome.

<table>
<thead>
<tr>
<th>G5.6. Demonstrate that the project proponents have clear, uncontested title to the carbon rights, or provide legal documentation demonstrating that the project is undertaken on behalf of the carbon owners with their full consent. Where local or national conditions preclude clear title to the carbon rights at the time of validation against the Standards, the project proponents must provide evidence that their ownership of carbon rights is likely to be established before they enter into any transactions concerning the project’s carbon assets.</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are three types of land ownership on land which includes three different types of carbon rights.</td>
</tr>
<tr>
<td>1. Property on the land is legally registered to a company of the Forest Finance Group and has thus uncontested title to carbon rights see attachment „attachment_G5.6_Tropical_Mix”, terms of reference ForestFinance.</td>
</tr>
<tr>
<td>2. Property is legally registered to an investor that has a contractual agreement with ForestFinance granting the right of generating and trading carbon certificates during the determined project cycle to the latter see attachment „attachment_G5.6_Tropical_Mix”, terms of reference ForestFinance.</td>
</tr>
<tr>
<td>3. Property is legally registered to a company of the ForestFinance Group and ownership is rented to the investor for the project cycle including a contractual agreement with Forest Finance granting the right of generating and trading carbon certificates during the determined project cycle to the latter.</td>
</tr>
</tbody>
</table>

For investors in MU 0004 the contractual agreement on carbon rights has not been agreed on in the original contract. For this reason ForestFinance has established an amendment agreement on carbon rights see attachment of CarbonFIX document secured land tenure „13-COI-secured-land-tenure“.
CLIMATE SECTION

CL1. Net Positive Climate Impacts

CL1.1. Estimate the net change in carbon stocks due to the project activities using the methods of calculation, formulae and default values of the IPCC 2006 GL for AFOLU or using a more robust and detailed methodology. The net change is equal to carbon stock changes with the project minus carbon stock changes without the project (the latter having been estimated in G2). This estimate must be based on clearly defined and defendable assumptions about how project activities will alter GHG emissions or carbon stocks over the duration of the project or the project GHG accounting period.

For the long-term net carbon stock generated by the project see the CarbonFIX projects website. The CarbonFIX method of calculation is based on CDM-EB accepted formulas and a conservative approach. In this project two different calculations systems have been used. MU 0001 to 0006, 0010 to 0023 and the MUs listed in table 1 are calculated on a 25 year forest rotation system. In average are 260tCO₂ stored on this MUs. On the website www.climateprojects.info the calculation could be seen in detail. The amount of ex-ante carbon credits will be realized after 12.5 years, which represent half of the time of the first rotation.

MUs 0007 – 0009 are calculated according the conservation forestry formula, see CarbonFIX Standard. The calculation period is 50 years. The conservative approach of the estimated carbon credits will be realized in year 50 but the amount of stored carbon will increase in the following years as well.

CL1.2. Estimate the net change in the emissions of non-CO₂ GHG emissions such as CH₄ and N₂O in the with and without project scenarios if those gases are likely to account for more than a 5% increase or decrease (in terms of CO₂-equivalent) of the project’s overall GHG emissions reductions or removals over each monitoring period.

The following text refers to the CarbonFIX document „Criteria and Methodology“.

To take non-CO₂ gases from fertilization into account a deduction of 0.4 tons of CO₂ per kg N (see chapter “Project emissions”) is accounted. Non-CO₂ Green House Gases which derive from the burning of biomass during land-preparation are accounted by deducting an additional 10% of the baseline amount (see chapter “Baseline”).

Non-CO₂ project emissions are deducted with 0.5% of the projects CO₂-fixation (see chapter “Project emissions”). Non-CO₂ Green House Gases from the soil are not expected to occur as area-wide ploughing is limited, drainage as well as irrigation are forbidden in the eligible area (see 40m wide buffer on each drainage side) and it is not allowed to plant on wetlands, also according to FSC Standard (see chapters “Environmental Aspects” and “Eligibility”).

With the mentioned methods also non-CO₂ GHG are estimated and accounted for.
CL1.3. Estimate any other GHG emissions resulting from project activities. Emissions sources include, but are not limited to, emissions from biomass burning during site preparation, emissions from fossil fuel combustion, direct emissions from the use of synthetic fertilizers, and emissions from the decomposition of N-fixing species.

Any other GHG emissions resulting from the project activities are included in the calculation of the total amount of CO\(_2\) tons. To account project emissions due to the use of fossil energy within the project (e.g. by machines, flights, etc.) 0.5% of the future CO\(_2\)-fixation will be deducted.

In the case baseline biomass has been burned for site preparation an increase of 10% of the baseline calculation must be calculated. In the described project no burning have been conducted.

Also in case of fertilizer is used, 0.4tCO\(_2\) per kg of nitrogen (N) must be deducted. This also has not been conducted in the project.

For the long-term net carbon stock generated by the project see the CFS projects website www.climateprojects.info/COI.

All calculations have been made according to the CarbonFIX Standard v2.1.

CL1.4. Demonstrate that the net climate impact of the project is positive. The net climate impact of the project is the net change in carbon stocks plus net change in non-CO\(_2\) GHGs where appropriate minus any other GHG emissions resulting from project activities minus any likely project-related unmitigated negative offsite climate impacts (see CL2.3).

The net change presented in the CarbonFIX PDD (see documents Baseline, Leakage and Future-CO\(_2\)-Fixation) that shows the project’s net total climate impact of the project is positive.

The detailed calculation also could be found on the CarbonFIX project website www.carbonfix.info/COI and www.climateprojects.info/PA-COI.

And see "06-12 - CO2_scientific_growthmodel_COI_20120214.xls”

CL1.5. Specify how double counting of GHG emissions reductions or removals will be avoided, particularly for offsets sold on the voluntary market and generated in a country with an emissions cap.

MUs 0007 to 0009 are only established with the ex-ante sale of the carbon credits. These Credits have been sold before any planting was done.

MUs 0001 to 0006, 0010 to 0023 and the areas listed in table 1 are planted with the aim of sustainable timber production and the creation of CO\(_2\) credits.

All sales of Carbon Credits are listed in the ForestFinance client database and will be transferred into the Markit registry. Markit is an independent agency providing a registering service that guarantees single counting only of certificates. For more information see http://www.carbonfix.info/ Project/Registry.html, ForestFinance listed as account holder and project developer.

All further Carbon tonne sales are registred within an internal registry of ForestFinance.
CL2. Offsite Climate Impacts (´Leakage´)

CL2.1. Determine the types of leakage that are expected and estimate potential offsite increases in GHGs (increases in emissions or decreases in sequestration) due to project activities. Where relevant, define and justify where leakage is most likely to take place.

In 2009 a survey was conducted of the former land owners of the project. The result of this survey shows that three farmers have moved to a new farm and one has removed existing vegetation. Other former land owners have given up their business and they are now working as taxi driver, living an urban life in the capital Panama City or retired to his region of birth because of their age.

See CarbonFIX document „Leakage“ and “attachments_CL2.1.zip”

CL2.2. Document how any leakage will be mitigated and estimate the extent to which such impacts will be reduced by these mitigation activities.

The following listed categories of potential leakage effects have been evaluated
a. Fuelwood use
b. Charcoal burning
c. Timber harvesting
d. Agricultural farming
e. Resettlement
f. Livestock farming

“Only” category f. is applicable to the CO₂OL Tropical Mix project, see Leakage survey of former land owners (Leakage - Reference, 08-01).

To mitigate these types of leakages, the project is offering jobs especially to people living in surrounding areas. This enhances the effect that cattle keepers (f.) from the region do not always shift their activities with the expansion of the project, but change sometimes their jobs to become part of the tree planting activities.

For more detailed information see also CarbonFIX document “Leakage” and “attachments_CL2.1.zip”

CL2.3. Subtract any likely project-related unmitigated negative offsite climate impacts from the climate benefits being claimed by the project and demonstrate that this has been included in the evaluation of net climate impact of the project (as calculated in CL1.4).

For this point see chapter “Calculation of VERfutures” of the CarbonFix “Criteria & Methodology” document (Doc-Ref: 00-03).

CL2.4. Non-CO₂ gases must be included if they are likely to account for more than a 5% increase or decrease (in terms of CO₂-equivalent) of the net change calculations (above) of the project’s overall offsite GHG emissions reductions or removals over each monitoring period.

There is no evidence that non-CO₂ GHG could exceed 5% of the net change calculations of the project´s overall offsite GHG emissions.
No Non-CO₂ Emission is like to cause out of the project. The Leakage aspect has been estimated with a survey in the early steps of the project (see CarbonFIX document “Leakage”).

As mentioned in CL1.2, displacement of livestock animals will increase offsite methane emission. However, since the reduction of methane emission within the project area is not counted, this increase in offsite emission is completely offset. There is no reason to expect that livestock operation will expand, resulting in increased emission, in the area to which activities are dislocated. See CarbonFIX document “Leakage” where the displacement of the different MUs is stated (Displacement Punuloso 7.5% and Metetí II 141%). As could be seen in this document in two farms a displacement took place.

All calculations are made according the CarbonFIX Standard v.3.1.

**CL3. Climate Impact Monitoring**

<table>
<thead>
<tr>
<th>CL3.1. Develop an initial plan for selecting carbon pools and non-CO₂ GHGs to be monitored, and determine the frequency of monitoring. Potential pools include aboveground biomass, litter, dead wood, belowground biomass, wood products, soil carbon and peat. Pools to monitor must include any pools expected to decrease as a result of project activities, including those in the region outside the project boundaries resulting from all types of leakage identified in CL2. A plan must be in place to continue leakage monitoring for at least five years after all activity displacement or other leakage causing activity has taken place. Individual GHG sources may be considered ‘insignificant’ and do not have to be accounted for if together such omitted decreases in carbon pools and increases in GHG emissions amount to less than 5% of the total CO₂-equivalent benefits generated by the project. Non-CO₂ gases must be included if they are likely to account for more than 5% (in terms of CO₂-equivalent) of the project’s overall GHG impact over each monitoring period. Direct field measurements using scientifically robust sampling must be used to measure more significant elements of the project’s carbon stocks. Other data must be suitable to the project site and specific forest type.</th>
</tr>
</thead>
</table>

The following carbon pools are selected to determine the carbon sequestration of the project:

- **Woody above ground:** stem, branches and bark → selected for Future CO₂-Fixation, Leakage and Baseline calculation
- **Woody below ground:** Tree roots → selected for Baseline calculation
- **Non woody above ground:** Grass → selected for Baseline and Future CO₂-Fixation calculation
- **Non woody below ground:** Grass roots → selected for Baseline calculation

The parameter of ‘Baseline’ as well as ‘Leakage’ are determined once in the beginning of the project and must therefore not be monitored during project life time.

The parameter ‘CO₂-Fixation’, respectively the carbon pool ‘Woody Aboveground Biomass’ will be monitored through the forestry monitoring. Guidelines for these inventories are given by the CarbonFIX Standard and will be adapted for each growth model scenario. The ‘Woody
Belowground Biomass’ is determined by a continuously used expansion factor, called Root-to-Shoot factor.

The forestry monitoring will be conducted every two years for the rotation forestry calculation, MUs 0001 to 0006, 0010 to 0023 and the MUs listed in table 1. For the MUs 0007 to 0009 based on a conservation forestry concept, the frequency of monitoring will be at least before the re-certification according the CarbonFIX Standard.

As soon as the trees are tall enough, forest inventories must be conducted to adapt growth-models. These inventories must be executed before every certification process and shall follow the ‘Inventory’ guideline. (See CarbonFIX document “Future CO₂-Fixation”)

All monitoring results will be conducted according the inventory guidelines of the CarbonFIX Standard and will be made public available over the CarbonFIX project site. Likewise, such results will be communicated to the local communities and other relevant stakeholders.

COMMUNITY SECTION

CM1. Net Positive Community Impacts

CM1.1. Use appropriate methodologies to estimate the impacts on communities, including all constituent socio-economic or cultural groups such as indigenous peoples (defined in G1), resulting from planned project activities. A credible estimate of impacts must include changes in community wellbeing due to project activities and an evaluation of the impacts by the affected groups. This estimate must be based on clearly defined and defendable assumptions about how project activities will alter social and economic well-being, including potential impacts of changes in natural resources and ecosystem services identified as important by the communities (including water and soil resources), over the duration of the project. The ‘with project’ scenario must then be compared with the ‘without project’ scenario of social and economic well-being in the absence of the project (completed in G2). The difference (i.e., the community benefit) must be positive for all community groups.

It has to be stated first that population in the provinces Darien, Panama and Veraguas in the project zone is very low and thus project impacts are not likely to affect a greater portion of local population.

In the project zone, province Chiriqui, ForestFinance is working for more than 15 years and running different social activities e.g. Sea Turtle protection, forest education trail and a group called grupo alpha has been established in a school in Las Lajas, preparing and working with different ecological and social topics.

Additionally the fragmented structure of the project management units and their overall limited size result in limited effects on local stakeholder but on the other hand in good proliferation of positive effects such as ecological corridors.
To give a full estimate of impacts of the project scenario will be compared with the without project scenario.

In the following the ‘with project’ scenario will be compared with the ‘without project’ scenario.

‘With project’ scenario:
Project impacts to local communities will be described in four ways:

1. Socio-economic benefits – primarily through project employment
2. Infrastructure improvement through project installations
3. Environment awareness through professional training and occasional education offerings
4. Environment enhancement through conservation and habitat enhancement of the project.

It is expected that the described project activities will impact the communities in a number of ways.

Like stated above the most important impact on the communities will be the improvement of the local infrastructure. The roads network to get from the Interamerican Highway to each of the included farms helps also local farmers to reach easily their properties. This will help to increase the land quality of local farmers and will help them to have a better possibility to work with their land.

As can be seen in the Map 3 and 4 our farms are sometimes a few kilometres away from the Interamerican Highway. The roads established for the management of the reforestations in the project zone will give a socio-economic impact. The estimated positive impact of the improvement of the infrastructure will be monitored in the project area with increased focus.

In the “socioeconomic aspects” CarbonFix document it is stated that employment creation will bring community benefits. Up to 300 people are being employed at the current time and 120 long term posts have been created. All the workers are “registered to the National social security system, which offers benefits such as: health care coverage for workers and their family, retirement fund, labour accident coverage, and pregnancy-leave coverage.”

This key aspect of the project relating to community development will be employment opportunities with perspective of capacity building. This will help to provide more job opportunities to the Darien region and teach the workers in new skills, like management of mixed forests in an ecological and sustainable way. Also a knowledge transfer will be conducted in forest management and organization skills. The employment effects are not directly linked to the local scale, that is to say the project area. Many of the local workers come from more distant places including the indigenous Embera communities. As shown previously this group is the economically weakest in the region and for this reason is benefitted significantly through the employment opportunities.

Furthermore the value chain from forests to end use will create employment opportunities in the future post-processing of timber and other forest products like sawmills, timber trade, nurseries, etc.

The project may prove as an economic alternative to the contested cattle ranching which in the long run suffers from site deterioration. The use of native tree species in mixed stands with an ecological and also economic forest management will provide additionally a possibility to
integrate important habitat functions into such a productive system rather than depleting them as is the case for many monocultive non-native-species plantations. The expected growth of the project size will continue to provide employment in the project area. These positive impacts will increase household income and the professional skills from the project the workers can use in their own lands, e.g. in the indigenous Comarcas. Various techniques will be trained. Like mentioned above the forest management in an ecological way is one of the main parts. Also soil and water conservation, mulching, pest and fire control, nursing practices and also cooperative management will be trained. An improvement in health and working conditions of the company employees also will be one of the positive impacts of the project. All working accommodations are well equipped and there is no lack for the workers. Trainings in first aid also help them to ensure the healthy grow up of their children’s, while teaching other family members in the learned skills. The forest concept with native tree species in mixed stands will bring back parts of the local fauna and flora. A result out of the establishment of a forest ecosystem will be water security. Also local scientists use the areas for research on ecosystem performance. In our projects in Chiriquí we have a project of the Smithsonian Tropical Research Institute on our farms; ForestFinance cooperates with the University of Panama in scientific investigations oriented to gain more insight into forest and native species management in the tropics. Also staff of the University of Yale has done different scientific work in our reforestations. Another economic impulse that positively affects the communities is Ecotourism. Yearly investors of ForestFinance are visiting their projects. In 2010 six ForestFinance clients have visited the farms in the Darien region, which includes the project CO2OL Native Tree Species. Furthermore other people like bird watcher come to visit our reforestations. For their diverse structure, that offers more habitat space than only the planted tree-storey, the forests are rich habitats for a broad a variety of bird life.

In harvesting periods a higher frequentation of timber trucks could affect the surrounding communities. For this reason Forest Finance establishes appropriate access roads right from the start of the project which yield better access to the nearby cities for the local stakeholders simultaneously.

As is clearly to be seen in areas with a longer history of colonization in Panama – like the Central Provinces or the Chiriquí Province, there are clear negative environmental impacts resulting from the spread of cattle farming. Beside a huge loss of biodiversity that impacts communities e.g. through the loss of medical plants the most outstanding problem is the depleting of water reserves and the sharpening of drought impacts. Forest plantations contribute to mitigate these negative impacts.

See CarbonFIX document Leakage and the Leakage determination.

‘Without project’ scenario:
The absence of the project will result in a continuation of low productive and environment critical cattle farming practices in the region which create few employment opportunities and have limited effects to regional economic growth. Also a less income for the project region will cause out of the ‘without project’ scenario.
The infrastructure of the without project scenario would be of low quality. A few farms of surrounding stakeholders have only been possible to pass with horse power. During rainy season it was sometimes a few hours long ride to get to the farms.

Possible trainings and capacity building are not a likely to cause possibility for project stakeholders without the reforestation project taking place (See attachment „attachment_G3.8_Tropical_Mix“ and “attachment_G3.9_2_Capacitaciòn 2011.pdf”).

Conclusion of difference between ‘with project’ and ‘without project’ scenario: The project expects to bring net positive benefits to the communities in the surrounding area. A few of these project benefits will happen outside the project borders, but strongly linked to the reforestation activities.

As can be seen in the CarbonFIX document „Leakage“ the former land owners have moved in most cases to another option of income or retired to his region of birth because of their age. The survey shows also that three farmers have moved to a new farm and one has removed existing vegetation. Other former land owners have given up their business and they are now working as taxi driver or living a urban live in the capital Panama City. A farm live is a very hard an intensive work. The additional income out of the sale of the farm to ForestFinance allows the former land owners to improve their living quality. The different improvements e.g. own flat, house, small company (taxi) will be monitored with an additional survey in the near future.


**CM1.2. Demonstrate that no High Conservation Values identified in G1.8.4-6 will be negatively affected by the project.**

Like stated in G1.8 is the result of the evaluation of High Conservation Values the following: After analyzing each of the management units and compare them with methodological guidance developed by ProForest, was found to have mostly no attributes of high conservation value to declare it as High Value Forest Conservation.

As result no high conservation values will be negatively affected by the project. As a FSC certified company we are maintaining the high conservation value zones accompanied with the FSC certifications.

For more detailed information see attachment “Attachment_G1.8_Tropical_Mix”.

**CM2. Offsite Stakeholder Impacts**

**CM2.1. Identify any potential negative offsite stakeholder impacts that the project activities are likely to cause.**

The CO2OL Native Tree Species project is not expected to have substantial net negative offsite impacts on the communities outside of the project area. The forests are planted close to nature
forests, so they will be a part of the existing nature in the project region. This will provide positive impacts for the communities like better water quality, soil protection and the resettlement of the „normal“ biodiversity. Also the project will provide job opportunities, enforce the economic sector in the project region and will give the locals ideas how to use their land in a social and economic friendly way.

The only potential and identified negative impact of the project is the displacement of animal grazing by local people. Before the project started more than 500 animals, cows, have been grazing in the project area. The number of displaced animals of less than 100 cows shows the relative unlikely scenario, that former land owners are changing their agricultural workplace to a new farm. Also it has to be mentioned, that these negative impact is not in the hand of the project developer. These impacts have been considered and included in our carbon projections as leakage.

The use of the non-native species Teak may lead to an invasive spread of its seeds in to neighbouring farmland. These effects are monitored in the plantation management and are controlled externally by the environmental authorities too.

Other, unlikely to cause, possible negative impacts on the communities have been mentioned in CM1.1.

See CarbonFIX document “Leakage” and “attachments_CL2.1.zip”

CM2.2. Describe how the project plans to mitigate these negative offsite social and economic impacts.

As can be seen in the Leakage determination and also in the Baseline description in the CarbonFix documents „Baseline“ and „Leakage“ ForestFinance has bought former grazing land or pasture land. The former owners have moved to other places or have changed their source of income into others.

The former landowners have sold their former property voluntarily and on their own interest to Forest Finance, as they abandoned the livestock keeping for various reasons, or in two cases continued in a different place.

The possibility of pollution of water resources is minimal because trained workers make appropriate use of chemicals only approved by FSC. As a FSC certified company we are working according to highest forest standards to create a sustainable forest.

Potential pests and diseases, a very unlikely case because of the mixed concept of the reforestation with native tree species, outbreaks will be monitored and appropriate methods to fight against such a problem are already well known. The well established road system within our project also helps to minimize environmental degradation. A well established fire protecting system helps to reduce the fire risk to a minimum (see CarbonFIX document “Capacities” where the fire management plan of the Tropical Mix project is provided).

Also the farms are monitored for pests and diseases affecting the planted trees.
Positive impacts of the Tropical Mix project help to reduce negative impacts. The protection of soil, with the planted trees and their root system, reduce in the same way the negative impact of the ‘without’ project scenario, erosion. The planted mixed forests also help to create new habitats of the local fauna and flora species. The created job possibilities help to create an acceptance of the project activities in the local communities otherwise the local communities’ benefit of the capacity building possibilities which are provided through the project activity (see attachment “Attachment_G3.8_Tropical_Mix”).

<table>
<thead>
<tr>
<th>CM2.3. Demonstrate that the project is not likely to result in net negative impacts on the well-being of other stakeholder groups.</th>
</tr>
</thead>
<tbody>
<tr>
<td>As stated in CM.2.1 and CM.2.2 it is expected, that the project will not have any negative offsite stakeholder impact. First there are almost no people affected, as the project zone has nearly no population, second most of the impacts identified can be considered as positive or neutral to surrounding communities. Potentially Negative impacts like intensive use of roads and use of chemicals have been identified and are handled through appropriate management. The project is therefore not likely to result in net negative impacts on the well-being of other stakeholder groups.</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>CM3.1. Develop an initial plan for selecting community variables to be monitored and the frequency of monitoring and reporting to ensure that monitoring variables are directly linked to the project’s community development objectives and to anticipated impacts (positive and negative).</th>
</tr>
</thead>
<tbody>
<tr>
<td>ForestFinance is currently in the process of developing a community monitoring plan, which will be applicable in each of its individual forestry projects, or with some specific changes for different countries. Our experience of more than 15 years in reforestation projects in Panama will help us to create a method which is easy and effective. To select community variables for the community impact monitoring we will monitor a selection out of the following variables. Within the years the variables could change out of the results of the monitoring data analysis. The Frequency of monitoring and reporting of the results will be at least all 5 years.</td>
</tr>
</tbody>
</table>

1. Annual employment of local communities (compared to other companies, to measure the difference of ‘with’ and ‘without’ project scenario. This will be done by an independent survey.)
2. Income
3. Infrastructure / road access (Improvements in physical infrastructure and facilities for small scale agriculture in the surrounding area)
4. Health aspect (improvement of health conditions and health care)
5. Education (of different family members)
6. Capacity building (improvement in different forest management techniques with training and courses in e.g. soil and water conservation, mulching, pest control, enterprise)
7. House condition (floor with soil, timber or other materials/ water connection etc.)
8. Food supply and diversity

At project start, several priority variables will be established in the benchmark as being important for periodic monitoring, assessment and evaluation at both the community and household levels. It also will be compared the community level with the household level. Variables include changes in household/farm level income from various sources, population change from in- or out-migration, quality of housing, access to health and social services, and improvement in eco-land use (also see above mentioned points).

As a project with ~2000ha the CO2OL Native Tree Species Project is a small-scale project which will have community impacts also in a comparably small scale like projects with more than 10.000 has.

The monitoring plan will be established with appropriate methods for analysis, quantification and interpretation of the collected data. Sampling techniques will be used, to reduce costs. Appropriate indicators of the livelihoods of the communities will be monitored. They could be used to compare the conditions inside and outside the project area.

| CM3.2. Develop an initial plan for how they will assess the effectiveness of measures used to maintain or enhance High Conservation Values related to community well-being (G1.8.4-6) present in the project zone. |
| Conservation values will be protected through management measures that are designed to maintain and enhance existing old grown vegetation in the project area. A second tool for protection is the tenancy right that Forest Finance executes over the project area. All farms are fenced and any invasion to the project area is prosecuted immediately. Through constant surveillance of the project area and our biodiversity monitoring we will be able to observe any changes in identified High Conservation Values if present in a project. Like stated in G1.8 the result of the evaluation of High Conservation Values is the following: After analyzing each of the management units and compare them with methodological guidance developed by ProForest, was found to have no attributes of high conservation value to declare it as High Value Forest Conservation. Enhancement of areas with high conservation values related to community well-being (G1.8.4-6) present in the project zone. 1.8.4. Areas that provide critical ecosystem services (e.g., hydrological services, erosion control, fire control) Areas which are providing services like erosion control, hydrological services or fire control will be managed as conservation and protection areas. As a stated in the CarbonFIX Standard it is not allowed to plant next to temporary or permanent water sources. Also the FSC Standard has strict rules concerning these ecosystems. |

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Existing forests and also older single trees have not been removed on the farms when the planting started. The single trees are protecting the soil against strong rainfalls and resulting erosion. Also these trees are used as shade trees for native tree species, like Zapatero (Hieronima alchernoides).

1.8.5. Areas that are fundamental for meeting the basic needs of local communities (e.g., for essential food, fuel, fodder, medicines or building materials without readily available alternatives)
→ The areas have not been used for any of the above stated use. The former land use, have been pasture and cattle grazing (see detailed information `CarbonFIX document Leakage`). This kind of food production was not „necessary“ for the basic needs of local communities. The produced meat was sold in the cities in the surrounding of the project. The amount of this produced meat is not affecting the local food market.

1.8.6. Areas that are critical for the traditional cultural identity of communities (e.g., areas of cultural, ecological, economic or religious significance identified in collaboration with the communities).
→ Within the project area no areas with these characters could be found.

Like stated in the PDD various times, the project size of the CO2OL Native Tree Species project is a small scale project. Therefore the above listed concerns are not likely to cause.

For further more information see attachment “Attachment_G1.8_Tropical_Mix”.

As a FSC certified company we are maintaining the high conservation value zones accompanied with the FSC certifications. FSC audits will be taking place annually at the project site.

CM3.3. Commit to developing a full monitoring plan within six months of the project start date or within twelve months of validation against the Standards and to disseminate this plan and the results of monitoring, ensuring that they are made publicly available on the internet and are communicated to the communities and other stakeholders.

The project developer commit to develop a full monitoring plan within twelve months of validation against the CCB Standard and to disseminate this plan and the results of monitoring, ensuring that they are made publically available on the internet and are communicated to the communities and other stakeholders.

Will be made public on the CCBA Homepage and also over the CarbonFIX Project Website.
BIODIVERSITY SECTION

B1. Net Positive Biodiversity Impacts

B1.1. Use appropriate methodologies to estimate changes in biodiversity as a result of the project in the project zone and in the project lifetime. This estimate must be based on clearly defined and defendable assumptions. The ‘with project’ scenario should then be compared with the baseline ‘without project’ biodiversity scenario completed in G2. The difference (i.e., the net biodiversity benefit) must be positive.

As described in the biodiversity monitoring plan, see attachment "Attachment_B1.1_Tropical_Mix”, as a reference and evaluation of the project, monitoring will be carried out simultaneously in a protected area to maintain ecosystems similar to those found within the project (e.g. Filo del Tallo Forest Reserve) and in open areas or grasslands similar to those of the project before there have been any planting.

B1.2. Demonstrate that no High Conservation Values identified in G1.8.1-3 will be negatively affected by the project.

Like stated in G1.8 is the result of the evaluation of High Conservation Values the following: After analyzing each of the management units and compare them with methodological guidance developed by ProForest, was found to have no attributes of high conservation value to declare it as High Value Forest Conservation.

As result no high conservation values will be negatively affected by the project. As a FSC certified company we are maintaining the high conservation value zones accompanied with the FSC certifications.

For more detailed information see attachment "Attachment_G1.8_Tropical_Mix”.

B1.3. Identify all species to be used by the project and show that no known invasive species will be introduced into any area affected by the project and that the population of any invasive species will not increase as a result of the project.

See CarbonFIX document „environmental aspects“ and „forest management“. This documentation could be seen as reference for all ForestFinance areas in Panama.

B1.4. Describe possible adverse effects of non-native species used by the project on the region’s environment, including impacts on native species and disease introduction or facilitation. Project proponents must justify any use of non-native species over native species.

See CarbonFIX document „environmental aspects“ and „forest management“. This documentation could be seen as reference for all ForestFinance areas in Panama.

B1.5. Guarantee that no GMOs will be used to generate GHG emissions reductions or removals.

No GMOs will be used by the project to generate GHG emissions reductions or removals.

See also CarbonFIX document „environmental aspects“. This documentation could be seen as reference for all ForestFinance areas in Panama.
**B2. Offsite Biodiversity Impacts**

<table>
<thead>
<tr>
<th><strong>B2.1. Identify potential negative offsite biodiversity impacts that the project is likely to cause.</strong></th>
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<tbody>
<tr>
<td>The most likely potential negative offsite biodiversity impacts have been conducted with a survey of former land owners. It consists in the displacement of cattle grazing from the project area to other farms with forest vegetation, which they have to remove to get sufficient pasture for their animals. As can be seen in the CarbonFIX document “Leakage” only one former land owner moved to a new farm where he has removed 11.4 ha of forest vegetation. The other former land owners have not removed any biomass. The planting of native tree species will have positive impacts in the biodiversity. Instead of the ‘without project’ scenario, most likely pasture but also Teak monocultures will be possible, a reforestation with a close to nature ecosystem will increase the regrowth of a stable and “normal” ecosystem with new habitats for the common fauna and flora.</td>
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<tr>
<th><strong>B2.2. Document how the project plans to mitigate these negative offsite biodiversity impacts.</strong></th>
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<tr>
<td>The identified negative offsite impact is very difficult to mitigate due to property rights that the involved parties execute over their new lands. As an compensatory measure the enhanced management of the projects protected areas can be considered. Furthermore it is expected that in the long run working opportunities created through intensive forest management on a broader scale will open alternatives for local stakeholders that make environmentally critical land uses as cattle grazing less attractive as a source of income.</td>
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<tr>
<th><strong>B2.3. Evaluate likely unmitigated negative offsite biodiversity impacts against the biodiversity benefits of the project within the project boundaries. Justify and demonstrate that the net effect of the project on biodiversity is positive.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The project is seen to generate net positive impact to biodiversity. Using up to 60% indigenous and non-invasive species of plants for reforestation, the project promotes better biodiversity than planting for example teak monocultures. In addition, the project also provides additional protection to the area allowing the natural succession and regeneration process to occur and eventually provides refuge to wildlife species. Furthermore, connecting forest fragments through reforestation will also help hasten the regeneration process as local wildlife species such as frugivorous birds and bats that help in seed dispersal will be able to move from one fragment to the other thus restoring the natural habitat of the endemic species. By providing the favoured habitat for a diverse species of insectivorous birds and bats, these species will serve as biological control for many insect pests by helping control insect population in the area and prevent them from becoming pest to fruit trees. On the project area there are generally about 20-30% of the total area that needs to be put into protection in order to protect streams and creeks from erosion effects. These areas have generally not been respected in an appropriate way by cattle farmer (the former landowners).</td>
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</tbody>
</table>
Thus the project is adding additional protected area during implementation that contributes to mitigate negative outside impacts.

**B3. Biodiversity Impact Monitoring**

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<td>See attachment “Attachment_B.1.1_Tropical_Mix”.</td>
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<table>
<thead>
<tr>
<th>B3.2. Develop an initial plan for assessing the effectiveness of measures used to maintain or enhance High Conservation Values related to globally, regionally or nationally significant biodiversity (G1.8.1-3) present in the project zone.</th>
</tr>
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<tbody>
<tr>
<td>See CM 3.2</td>
</tr>
<tr>
<td>No HCV areas have been identified in the project zone and therefore no specific plan will be in place to assess the effectiveness of such measures.</td>
</tr>
<tr>
<td>Like stated in G1.8 is the result of the evaluation of High Conservation Values the following: After analyzing each of the management units and comparing them with methodological guidance developed by ProForest, was found to have no attributes of high conservation value to declare it as High Value Forest Conservation.</td>
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<td>For more detailed information see attachment “Attachment_G1.8_Tropical_Mix”.</td>
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<th>B3.3. Commit to developing a full monitoring plan within six months of the project start date or within twelve months of validation against the Standards and to disseminate this plan and the results of monitoring, ensuring that they are made publicly available on the internet and are communicated to the communities and other stakeholders.</th>
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