The Purus Project Implementation Report

A Tropical Forest Conservation Project in Acre, Brazil

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D E D I C A T Ó R I A

"A voz é a única arma que atinge a alma." (Chico Mendes)

Ao iniciar sua luta mostrando ao mundo uma nova forma de impedir a devastação da floresta, com seus "*empates*", surgia um novo líder, questionado e combatido por muitos, compreendido por poucos.

Passados trinta anos, verifica-se que aqueles empates não foram em vão.

Hoje estamos cientes da necessidade de preservarmos mais e melhor, valorizando os Povos da Floresta, verdadeiros guardiões da mata e sua biodiversidade, estes, verdadeiros tesouros passíveis de remuneração e compensação, em busca de um mundo melhor para enfrentar a necessidade de conter o aquecimento global.

Parabéns Chico, você não era um visionário: o Projeto Purus é a materialização deste sonho.

A Climate, Community and Biodiversity Standard
Project Implementation Report

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INTRODUCTION

The Purus Project ("Project") is a payment for ecosystem services forest conservation project, otherwise known as a Reduced Emissions from Deforestation and Degradation (REDD+) project, on 34,702 hectares (i.e., approximately 85,714 acres) of privately-owned land in Acre, Brazil.[1]

The Purus Project was successfully validated by SCS Global Services in January 2013 to the Verified Carbon Standard (VCS, Version 3.3) and to the Climate, Community and Biodiversity Standard (CCBS, Second Edition) with Gold Distinction. This initial Project Implementation Report (PIR) covers the monitoring and reporting period from May 23, 2011 (i.e., the Project State Date) to December 31, 2012.

The three main Project Proponents are CarbonCo, LLC ("CarbonCo"), Freitas International Group, LLC ("Freitas International Group" or "Carbon Securities"), and Moura e Rosa Empreendimentos Imobiliários LTDA ("Moura & Rosa" or "M&R"). CarbonCo, the wholly-owned subsidiary of Carbonfund.org, is responsible for getting the Project certified and for early-stage Project finance. Carbon Securities acts as a liaison between CarbonCo and Moura & Rosa, along with acting as a translator and assisting with logistics for site visits. Moura & Rosa is an Acre, Brazil-based organization created by the Landowners and is primarily responsible for day-to-day management of the Project and the implementation of activities to mitigate deforestation.

The ultimate project activities are to undertake a forest carbon inventory, model regional deforestation and land-use patterns, and mitigate deforestation pressures by utilizing payments for the Project's ecosystem services, along with ongoing monitoring of the climate, community and biodiversity impacts of the Project. Social projects and activities to mitigate deforestation pressures range from engaging EMBRAPA (i.e., the Brazilian Agricultural Research Corporation) and SENAR (Servico Nacional de Aprendizagem Rural) for agricultural extension training, to beginning patrols of potential deforestation sites in the early stages of the Project, to eventually building better houses and installing solar photovoltaic panels for the local communities to improve their livelihoods.

Net climate, community and biodiversity benefits between May 23, 2011 and December 31, 2012 include, but are not limited to: a reduction in the Project Area's deforestation; preservation of biologically diverse habitats; local hires and transfer of technical knowledge; and the overall development of the first-ever, VCS-CCBS validated REDD+ project in the State of Acre, Brazil.

Please contact Brian McFarland of CarbonCo, LLC with any questions, comments or concerns regarding the Purus Project at 1-240-595-6883 or via email at BMcFarland@CarbonCoLLC.com.

[1] The Term REDD and REDD+ will be used interchangeably. REDD+ includes REDD along with forest conservation, sustainable forest management and the enhancement of carbon stocks. Thus, the Purus Project includes elements of forest conservation, sustainable forest management and reforestation.

GENERAL SECTION

G1. Original Conditions in the Project Area

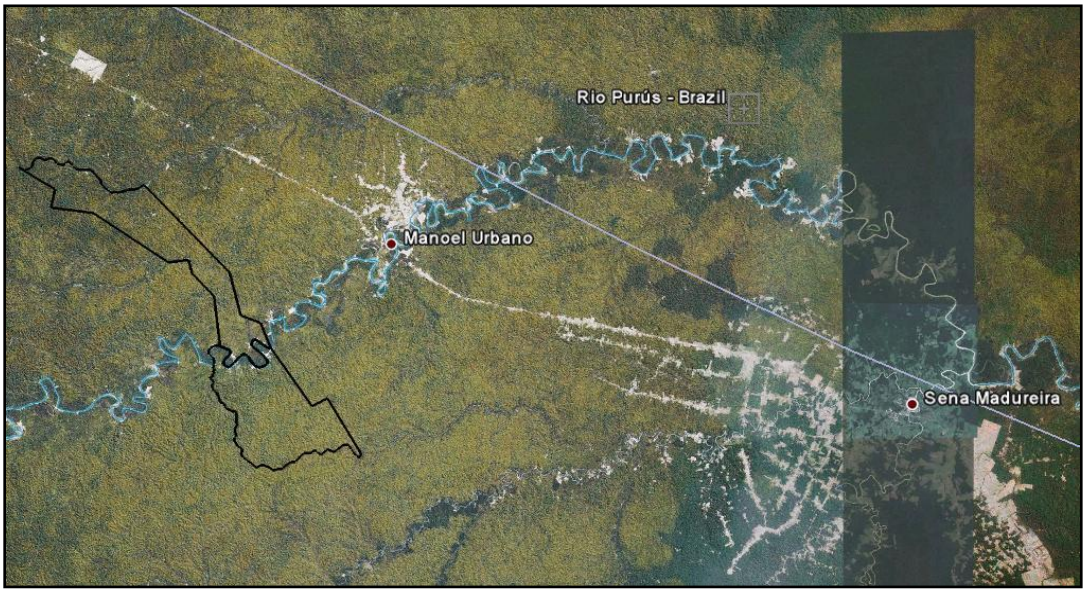
The following section will provide general background information, as well as briefly describe the Project's climate, community and biodiversity characteristics. For more details, please see the validated CCBS Project Design Document (PDD).

1. General Information

The Location of the Project and Basic Physical Parameters

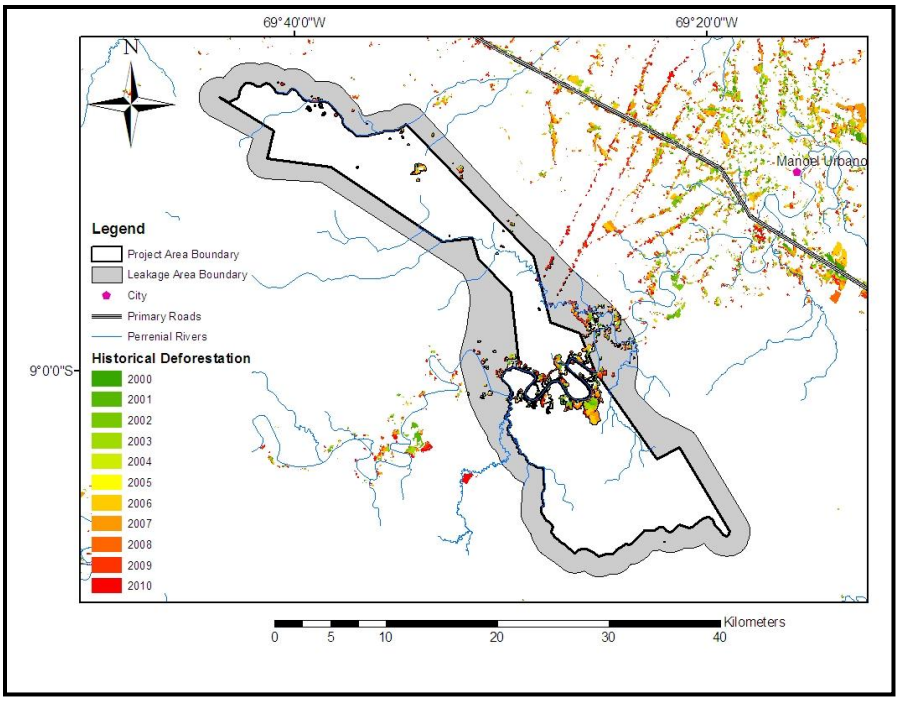
The Purus Project is located in Acre, Brazil alongside the Purus River and approximately 60 kilometers (i.e., approximately 37 miles – along the curves of the river, this distance is about 20 kilometers or 12 miles "as the crow flies") from the nearest city of Manoel Urbano.

The overall Purus Project is 34,702 hectares (i.e., approximately 85,714 acres) and is divided amongst the two contiguous parcels named Seringal Itatinga and Seringal Porto Central.



Map 1: Map of the Purus Project Area (Credit: TerraCarbon and Google Earth, 2011)

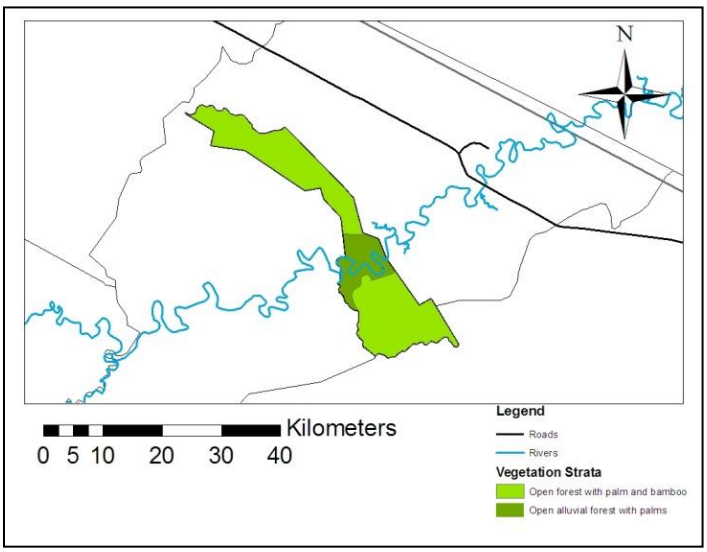
The geographic coordinates of these two contiguous properties are located below. The following map also identifies the Project Area and the Project Zone (i.e., the Project Area and the Leakage Area):



Map 2: Purus Project Area and Project Zone (Credit: Professor Antonio Flores)

Project activities between May 23, 2011 and December 31, 2012 – for example, hiring of local project managers, establishing Project headquarters, and monitoring of deforestation – took place throughout the Project Area and Project Zone, with a particular emphasis on locations experiencing the greatest deforestation pressures (i.e., along the Purus River inside the Project Area). Furthermore, the Leakage Area is the land surrounding the Project Area that is predicted to be most impacted by the Purus Project activities.

The two main types of vegetation strata identified within the Purus Project were open forest with palm and bamboo, along with open alluvial forest with palm; both of which are intact, primary forest:



Map 3: Stratification of Project Area (Credit: TerraCarbon and TECMAN)

The basic physical parameters of the Purus Project, including the soil, elevation and climate, remain unchanged from the validated Project Design Document (PDD). For this additional information on the Purus Project's basic physical parameters, please see the CCBS PDD.

2. Climate Information

Current Carbon Stocks within the Project Area

The Purus Project's carbon stocks were determined via an onsite forest carbon inventory that was conducted by TECMAN, LTDA between August and November 2011. TECMAN's work was overseen by TerraCarbon and CarbonCo.

The forest carbon inventory was designed to produce biomass stock estimates with a precision level not exceeding +/-15% of the mean with 95% confidence to meet the requirements of both the Verified Carbon Standard (VCS) and the VCS methodology, VM0007: REDD Methodology Modules (REDD-MF), v1.3.[2]

The inventory targeted live aboveground biomass and belowground biomass, standing dead wood, and lying dead wood within the Project Area. Bamboo and lianas were not measured and conservatively excluded from estimation of biomass stocks. The minimum diameter at breast height (DBH) for all live trees and the minimum diameter of all dead trees included in the inventory were ten centimeters. In addition to collecting diameter data for live trees, the total height (i.e., height to the top of the crown) of the tallest trees in each plot was measured.

Stratification of the Purus Project resulted in two strata, including "Open forest with bamboo and palm" and "Open alluvial forest with palm." Stratification of the Project Area reduces overall variability and improves sampling efficiency. The Project Area was stratified using a vegetation map from the Acre State[3] publication "Ecological and Economical Zoning" where land cover is classified using the Brazilian Forest Classification System[4].

The total carbon stock for aboveground biomass, belowground biomass and deadwood (i.e., the carbon pools) in the open forest with bamboo and palm strata is estimated to be 325.5 metric tonnes of carbon dioxide equivalent ($mtCO_2e$) per hectare, while the total carbon stock for the same carbon pools in the open alluvial forest with palm strata is estimated to be 411.3 $mtCO_2e$ per hectare.

For more information on the forest carbon inventory, please refer to the VCS Project Description, particularly section 3.1.4.2 *Estimation of Carbon Stocks and Carbon Stock Changes per Stratum*, section 2.6 *Methodology Deviations* and Appendix B of the VCS Project Description, entitled, *Forest Carbon Inventory Standard Operating Procedures.*

[2] Verified Carbon Standard, "VM0007: REDD Methodology Modules (REDD-MF), v1.3," Available: http://v-c-s.org/methodologies/VM0007

[3] State of Acre, 2006. Zoneamento Ecológico-Econômico do Estado do Acre–Fase II Documentos Síntese. Rio Branco, Acre.

[4] Veloso, H.P., Rangel FO, A.L.R., Lima, J.C.A., 1991. Classificação da vegetação brasileira, adaptada a um Sistema Universal. IBGE, Rio de Janeiro.

3. Community Information

Description of Communities Located in the Project Zone

In 2010, there were an estimated 733,559 residents in Acre, with approximately 7,981 residents in the municipality of Manoel Urbano where the Purus Project is primarily located along with approximately 38,029 residents in the municipality of Sena Madureira where a small portion of the Purus Project is located.

Regarding wealth, gender, age, ethnicity and literacy rates of residents in the municipality of Manoel Urbano, the following statistics were compiled from Brazil's 2010 Census:[5]

Manoel Urbano's Census		
Description	**Value**	**Unit**
Resident population - total	7,981	people
Resident population - housing unit situation - urban	66.1	%
Resident population - housing unit situation - rural	33.9	%
Resident population - sex - male	53.3	%
Resident population - sex - female	46.7	%
Resident population - total - age groups - from 0 to 5	15.9	%
Resident population - total - age groups - from 6 to 14	24.3	%
Resident population - total - age groups - from 15 to 24	19.7	%
Resident population - total - age groups - from 25 to 39	21.2	%
Resident population - total - age groups - from 40 to 59	13.3	%
Resident population - total - age groups - aged 60 or over	5.6	%
Resident population - total - urban	5,278	people
Resident population - total - rural	2,703	people
People aged 15 or over who do not know to read or write - total - age groups - aged 15 or over	1,551	people
People aged 15 or over who do not know to read or write - rate - age groups - aged 15 or over	32.5	%
Permanent private housing units - total	1,858	housing units
Permanent private housing units - type of sanitation - total - adequate	9.4	%
Permanent private housing units - type of sanitation - total - semi-adequate	55.6	%
Permanent private housing units - type of sanitation - total - inadequate	35	%
Permanent private housing units - urban - type of sanitation - total	1,285	housing units
Permanent private housing units - urban - type of sanitation - adequate	13.5	%
Permanent private housing units - urban - type of sanitation - semi-adequate	80	%
Permanent private housing units - urban - type of sanitation - inadequate	6.5	%
Permanent private housing units - rural - type of sanitation - total	573	housing units
Permanent private housing units - rural - type of sanitation - adequate	0.4	%
Permanent private housing units - rural - type of sanitation - semi-adequate	0.9	%
Permanent private housing units - rural - type of sanitation - inadequate	98.8	%
Nominal monthly per capita household income -average value - total	296	R$
Nominal monthly per capita household income -average value - total - urban	363	R$
Nominal monthly per capita household income -average value - total - rural	144	R$

[5] IBGE, "Click here to get information about municipalities at Cities@," Available: http://www.ibge.gov.br/estadosat/perfil.php?sigla=ac#

One can observe from this 2010 Census that rural communities in Manoel Urbano have significantly lower household incomes and a higher percentage of inadequate sanitation. While this 2010 Census is an accurate representation of rural communities living within the Project Zone, firsthand observations and a Participatory Rural Assessment (PRA) in March 2012 were also utilized to describe communities living within the Project Zone.

Communities within the Project Zone include a balance of men and women, with generations of children, parents, and grandparents. Most of the communities within the Project Zone practice subsistence agriculture and raise cattle with housing located close to the Purus River. While no communities reported selling timber, many communities utilize charcoal or fuelwood for cooking. Many of the communities fish in the Purus River and hunt within the forests of the Project Zone. Boats, and especially wooden canoes, are a very important mode of transportation for communities living throughout the Project Zone. Although there are no indigenous communities living within the Project Zone, many of the communities are former extractivists (i.e., rubber tappers).

The aggregated results of the participatory rural assessment (PRA), which was conducted in March 2012 throughout the Project Zone, are as follows:

Grand Totals (Inside Project and Outside Project)	How Many Years Have You Lived Here?	Do You Participate in Agriculture?	Do You Participate in Cattle Ranching?	Do You Participate in Fuel Wood Collection?	Do You Participate in Charcoal Production?	Do You Participate in Timber Extraction / Logging?	
Total of Yes Responses	N/A	16	10	5	14	12	
Total of No Responses	N/A	0	6	11	2	4	
Percentage of Yes Responses	N/A	100.00%	62.50%	31.25%	87.50%	75.00%	
Percentage of No Responses	N/A	0.00%	37.50%	68.75%	12.50%	25.00%	
Average	17.83	N/A	N/A	N/A	N/A	N/A	
Number Over 5 Years	13	N/A	N/A	N/A	N/A	N/A	
Percentage Over 5 Years	81.25%	N/A	N/A	N/A	N/A	N/A	
Grand Totals (Inside Project and Outside Project)	Do You Sell Crops or Cattle Outside Property?	Do You Use Fuel Wood for Cooking?	Do You Have a Sustainable Fuel Wood Lot?	Do You Make Charcoal?	Do You Sell Charcoal?	Do You Sell Timber?	How Far into Forest to Collect Wood (In Meters)
Total of Yes Responses	14	4	0	14	0	0	N/A
Total of No Responses	2	12	16	2	16	16	N/A
Percentage of Yes Responses	87.50%	25.00%	0.00%	87.50%	0.00%	0.00%	N/A
Percentage of No Responses	12.50%	75.00%	100.00%	12.50%	100.00%	100.00%	N/A
Average	N/A	N/A	N/A	N/A	N/A	N/A	631.33
Number Over 5 Years	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Percentage Over 5 Years	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Figure 1: Aggregated Results of Participatory Rural Assessment (Credit: Brian McFarland)

More specific to the Purus Project, there were18 communities living within the Project Area and many of these community members had been at their location for close to twenty years.

Description of Current Land Use and Customary and Legal Property Rights
With respect to the Project Zone, there are communities settled onto what were originally privately-owned lands and these communities have cleared the land primarily for subsistence agriculture, cattle-ranching and housing.

Community members that have been living on the land and who made the land productive (e.g., by growing agriculture or raising animals) for ten years, have the right to be titled. To resolve this ongoing conflict or dispute, Moura & Rosa will voluntarily recognize whatever area is currently deforested and under productive use by each family living on the Seringal Porto Central and Seringal Itatinga parcels. The minimum area to be titled to each family will be one hundred hectares which is the minimum size that INCRA (Instituto Nacional de Colonização e Reforma Agrária) says a family in the State of Acre needs for a sustainable livelihood. Those communities who have deforested and put under productive use over one hundred hectares will receive the full area that has been deforested. All communities - whether they voluntarily join the Purus Project or not - will be titled the land they have put under productive use. This process will be facilitated by an independent group including the Public Ministry of Acre. See page 28 for the actions taken to date to facilitate the titling of land to local communities.

Current land use practices among communities living throughout the Project Zone include mainly subsistence agriculture and cattle-ranching.

Pictures of Land Use on Purus Project (Photo Credit: Brian McFarland)

Most cattle are beef-cattle and the main subsistence crops are beans, cassava (i.e., otherwise known as yucca or manioc), corn, and rice. Additional subsistence crops and fruit trees which are planted throughout the Project Zone include, but are not limited to: bananas, lemons, oranges, pineapples and potatoes.

4. Biodiversity Information

Description of Current Biodiversity within the Project Zone and Threats to that Biodiversity

The Amazon Rainforest is the largest contiguous rainforest in the world and home to an extraordinary diversity of life. The Amazon River, and its many tributaries, contain one-fifth of the world's freshwater while stretching nearly 4,000 miles (approximately 6,437 kilometers) from the Andes Mountains to the Atlantic Ocean port city of Macapá.

There are also an estimated one to two million animal species including howler monkeys, freshwater dolphins, scarlet macaws, and jaguars. With nearly one-third of all known species and the largest network of freshwater, the Amazon Rainforest - and specifically Acre's remaining forests and biodiversity - is in a delicate balance.

Specific to Acre, the State Government of Acre notes that:

> The majority of the deforestation in Acre occurs along primary and secondary roads as well as rivers. The main deforestation driver in Acre is cattle breeding (70% of deforested area in 1989 and 81% in 2004). Factors such as land speculation, lack of zoning and destination of public lands, profitability of cattle breeding and subsidized credit loans have incentivized deforestation in the Amazon. Deforestation agents were historically mid and large landowners/farmers, although in the last years small household farmers have contributed significantly with the deforested area in Acre. The conclusion of the pavement of BR 317 in 2007 and BR 364 (2011) will connect the southwest Amazon to the Peruvian harbors and will definitely increase business as usual deforestation. The threat will be more intense mainly along BR 364 from Sena Madureira to Cruzeiro do Sol.[6]

The Purus Project, which is located between Sena Madureira and Cruzeiro do Sol, is specifically facing deforestation pressures as a result of subsistence agriculture and cattle breeding within the Project Area and from cattle breeding and the paving of BR-364 near the Project Zone.

Regional studies in the Southwestern Amazon and particularly near the Purus River in Acre have demonstrated some of the highest levels of biodiversity in the world. For example, the World Wildlife Fund (WWF) notes for the Southwestern Amazon region that:

> (…) Tree species variability reaches upwards to 300 species in a single hectare. There are a few exceptions to this high diversity, mainly where stands dominated by one or several species occur. The first are vast areas (more than 180,000 km^2) dominated by the highly competitive arborescent bamboos *Guadua sarcocarpa* and *G. weberbaueri* near Acre, Brazil extending into Peru and Bolivia (Daly and Mitchell 2000). Other monodominant stands include swamp forests of the economically important palms *Mauritia flexuosa* and *Jessenia bataua*.
>
> (…) What is distinctive about this region is the diversity of habitats created by edaphic, topographic and climatic variability. Habitat heterogeneity, along with a complex geological and climatic history has lead to a high cumulative biotic richness. Endemism and overall richness is high in vascular plants, invertebrates and vertebrate animals. This

[6] State of Acre and GCF, "Acre GCF Database," Available: http://www.gcftaskforce.org/documents/Final_db_versions/GCF%20Acre%20Database%20(November%202010).pdf, Page 2

is the Amazon Basin's center of diversity for palms (Henderson 1995). The rare palm *Itaya amicorum* is found on the Upper Javari River. This ecoregion has the highest number of mammals recorded for the Amazonian biogeographic realm: 257 with 11 endemics. Bird richness is also highest here with 782 species and 17 endemics. In the southern part of the Tambopata Reserve, one area that is 50 km^2 holds the record for birds species: 554. On the white sand areas in the north, plants endemic to this soil type include *Jacqueshuberia loretensis*, *Ambelania occidentalis*, *Spathelia terminalioides*, and *Hirtella revillae*.

Many widespread Amazonian mammals and reptiles find a home in this region. These include tapirs (*Tapirus terrestris*), jaguars (*Panthera onca*), the world's largest living rodents, capybaras (*Hydrochoeris hydrochaeris*), kinkajous (*Potos flavus*), and white-lipped peccaries (*Tayassu pecari*). Some of the globally threatened animals found in this region include black caimans (*Melanosuchus niger*) and spectacled caimans (*Caiman crocodilus crocodilus*), woolly monkeys (*Lagothrix lagotricha*), giant otters (*Pteronura brasiliensis*), giant anteaters (*Myrmecophaga tridactyla*), and ocelots (*Leopardus pardalis*).

Pygmy marmosets (*Cebuella pygmaea*), Goeldi marmosets (*Callimico goeldii*), pacaranas (*Dinomys branickii*), and olingos (*Bassaricyon gabbii*) are found here, but not in regions to the east (Peres 1999). Other primates present include tamarins (*Saguinus fuscicollis* and *S. imperator*), brown pale-fronted capuchins (*Cebus albifrons*), squirrel monkeys (*Saimiri sciureus*), white-faced sakis (*Pithecia irrorata*), and black spider monkeys (*Ateles paniscus*) (Ergueta S. and Sarmiento T. 1992). The rare red uakari monkeys (*Cacajao calvus*) are found in the north in swamp forests. Nocturnal two-toed sloths (*Choloepus hoffmanni*) are well distributed throughout this region along with the widespread three-toes sloths (*Bradypus variegatus*). The Amazon River is a barrier to a number of animals such as the tamarins *Saguinus nigricollis*, which occur on the north side, and *Saguinus mystax*, which occurs on the southwest side of the Amazon-Ucayali system.[7]

High Conservation Values

The Purus Project has several qualifying attributes of High Conservation Values (HCV) and this includes threatened species, threatened or rare ecosystems, critical ecosystem services and a direct importance to the local communities living within the Project.

Threatened Species

A rapid assessment of the Purus Project's flora and fauna diversity was conducted by Maria José Miranda de Souza Noquelli of Tenóryo Dias and Alternativa Ambiental from August to September 2009. The vegetation sampling recorded at least two endangered flora species according to the International Union for Conservation of Nature (IUCN) Red List at the Purus Project. These endangered flora species are Car-cara (common name in French, Portuguese name is Canela rosa, English translation is Cinnamon Rose, scientific name is *Aniba rosaeodora*)[8] and Baboonwood (Portuguese name is Virola Branca/Ucuuba Branca, scientific name is *Virola surinamensis*)[9].[10]

[7] World Wildlife Fund, "Upper Amazon basin of Peru, Brazil and Bolivia - Neotropic (NT0166)," Available: http://www.worldwildlife.org/science/wildfinder/profiles//nt0166.html
[8] IUCN, "Aniba rosaeodora," Available: http://www.iucnredlist.org/details/33958/0
[9] IUCN, "Virola surinamensis," Available: http://www.iucnredlist.org/details/33959/0

Endemic Species
Although endemic species have not yet been identified in the Purus Project as a qualifying High Conservation Value, it is important to note that the Southwestern Amazon (i.e., which includes Acre, Brazil and the Purus Project) is home to many endemic species.[11]

Threatened and Rare Ecosystems
The primary forests of the Purus Project are considered tropical rainforests, which are globally considered rate and threatened ecosystems, due to the Köppen classification of Acre as tropical[12] and the Food and Agricultural Organization of the United Nations' (FAO) designation of Acre as being within the tropical rainforest ecological zone.[13] Thus as a payment for ecosystem services forest conservation project, the Purus Project will aim to preserve a rare and threatened tropical rainforest ecosystem within the Amazon Basin.

Critical Ecosystem Services
Acre's remaining tropical rainforests, including within the Purus Project, not only provide climatic benefits such as sequestering carbon dioxide, but also provide a range of additional critically important ecosystem services including:

- Erosion control
- Water cycling, filtration and storage
- Oxygen production
- Nutrient recycling and soil quality enhancement
- Wildlife activities such as pollination and seed dispersal
- Genetic repository for medicinal plants
- Foodstuffs for both local communities and wildlife
- Habitat for an extraordinary diversity of flora and fauna

Hydrological Services
As explained by the State of Acre, "the rivers of the state constitute a very important means of transport. Most cities and towns {in} Acre originated on the banks of rivers. The main watercourse of the river system of the state run toward the northeast and are tributaries {…} of the Solimões River, which from Manaus is called the Amazon. (…} The main watercourses are the Tarauacá, Purus, Gregório, Envira, Acre and Juruá Rivers. They form the state river system, divided between the Acre-Purus Basin and the Juruá Basin."[14]

Fundamental for Meeting Basic Needs of Local Communities
The local communities are also dependent on the Purus Project to meet basic needs as well as for traditional cultural identity. This said, the Purus Project's private landowners have allowed the

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[10] Maria José Miranda de Souza Noquelli, "Diagnóstico Ecológico Rápido da Vegetação dos Seringais Porto Central e Itatinga, no Município Manuel Urbano – AC.," May 2012.
[11] World Wildlife Fund, "Southwest Amazon moist forests: Export Species," Available: http://www.worldwildlife.org/science/wildfinder/
[12] Peel MC, Finlayson BL & McMahon TA (2007), Updated world map of the Köppen-Geiger climate classification, Hydrol. Earth Syst. Sci., 11, 1633-1644.
[13] FAO, "Ecological Zones: Brazil," Available: http://www.fao.org/forestry/country/19971/en/bra/
[14] State Government of Acre Portal, "Geographic Data,"

community members to remain on their property in exchange for participating in the Purus Project and agreeing to eliminate deforestation.

Food
According to one recent study, "the Purus River is currently the main source of fish for human consumption in Manaus, the most populous city in {the} Brazilian Central Amazon with 1.8 million people, which generates a high fishing pressure on its natural stocks. In face of this situation, a better understanding of the diversity and distribution of fishes in the Purus River is urgently needed."[15] Similarly, the communities within the Purus Project are also dependent on the Purus River for fishing. Many of the communities own fishing poles or fishing nets. The communities are also dependent on the Purus River for drinking water, cooking water, bathing, and as the primary mode of transportation.

The communities do not rely too much on the forests of the Purus Project for fruits and nuts because the communities grow their own subsistence crops and plant fruit trees. However, the communities depend on the forests for protein (i.e., to supplement fishing) for hunting.

Fuel and Fodder
The community depends on the forests for both fuel and fodder. The communities mainly use dry wood (i.e., as opposed to freshly cut, wet wood) to make charcoal for cooking purposes. Some of the communities use natural gas (i.e., which comes from the city) for cooking, while a few others use fuelwood. Because of Acre's tropical climate, wood is not used for fuel to warm houses. The communities' free-range cattle, chicken and pigs also utilize the pastures for fodder.

Medicines
Because the local communities do not have reliable access to a medical clinic, the local communities use a variety of medicinal plants found within the Purus Project property.

Building Materials
The building materials used for the communities' older construction were mainly made of wood from the surrounding forests, as opposed to newer building materials (e.g., bricks) which tend to come more from the city. Such older construction using wood included boats, houses, cattle fences, along with pens for chickens and swine.

Traditional Cultural Significance
The communities do not have specific religious beliefs based around the forest or local fauna. Nevertheless, many of the community members within the Purus Project have lived at the current location for almost twenty years on average and some communities as long as fifty years. Thus, there is a strong cultural significance relating to friends, family, place of birth, and familiarity.

G2. Baseline Projections

The following will briefly explain the land-use, project benefits, and carbon stocks, along with community and biodiversity scenarios if the Purus Project was not implemented as an ecosystem services forest conservation project (i.e., REDD+ project).

[15] Helio Daniel Beltrão dos Anjos et al., "Fish, upper Purus River, state of Acre, Brazil," Available: http://www.checklist.org.br/getpdf?SL011-07

1. Land Use without Project

Describe the Most Likely Land-Use Scenario in the Absence of the Project

To develop a defensible and well-documented baseline projection with respect to the 'without-project' reference scenario, the Purus Project utilized the Avoided Deforestation Partners' VCS REDD Methodology, entitled, "VM0007: REDD Methodology Modules (REDD-MF), v1.3." Ultimately, the Purus Project – without the Project – would continue to experience unplanned, frontier deforestation.

For a more detailed explanation of the regional land use and deforestation patterns in the 'without project scenario,' please see the VCS Project Description and particularly section 1.10 *Conditions Prior to Project Initiation* and section 2.4 *Baseline Scenario*.

Document that Project Benefits would not have Occurred in the Absence of the Project

As previously mentioned the predominant land-use among medium-to-large landowners along the BR-364 and BR-317 highways is the conversion of primary forests to cattle pastures. The pressure on the Purus Project is increasing with each passing year as BR-364 is nearing the completion of its paving schedule. The portion of BR-364 nearest the Purus Project is now fully paved and upon BR-364 being fully paved, BR-364 will allow for year-round transportation and most likely increase property values and market access for landowners' cattle.

Similarly, the Purus Project Landowners' initial desire was to deploy a livestock project, which would have involved clear-cutting 20% of the area to accommodate 10,000 to 12,000 head of cattle, and a forest management project for logging. However, these activities would have involved the systematic removal of all local residents (i.e., forcing a rural exodus) and thus increasing the marginalized urban population, without qualification, education, nor employment. This conversion of such land to cattle pastures would have been in full compliance with Brazilian Forest Code.

Without a payment for ecosystem services forest conservation project, the Purus Project Landowners would continue to pay taxes on their property without generating any economic returns unless planned forest conversion took place. If forest conversion took place, the Purus Project's biodiversity would surely be reduced and the communities' might be forced to relocate. This community relocation could have resulted due to expanding economic activities (for example, cattle ranches expand into areas traditionally used as hunting grounds or into areas used for charcoal collection) or at the request of a new landowner.

Even if planned forest conversion by the Landowners did not take place, there would still be increasing pressure on the Purus Project's forests via unplanned, frontier deforestation from the community and neighboring landowners. This is the most likely 'without-project' scenario. Thus, the communities within the Project Area would continue to expand unsustainable subsistence agriculture and cattle-ranching practices, while surrounding communities encroached on the Project Area and in-migration continued.

The lack of economic returns in the 'without project' scenario would result in the Landowners' inability to provide a range of social projects (e.g., establish health clinic) for the communities along with an inability to research the Purus Project's biodiversity. In addition, there are significant financial and institutional resources required to develop a validated and verified

REDD+ project. Furthermore without a REDD+ project, the communities would not receive agricultural extension trainings (i.e., which shall assist with increasing and diversifying incomes) nor a share of the Project's carbon offset revenue.

For a more detailed discussion of the Purus Project's additionality, please also see the VCS Project Description section 2.5 *Additionality*.

2. Carbon Stock Exchanges without Project

Calculate the Estimated Carbon Stock Changes Associated with the 'Without Project' Reference Scenario

For the detailed carbon stock changes associated with the 'without project' reference scenario and specifically the estimation of carbon stocks and the specific carbon pools included in the forest carbon inventory, please see the VCS Project Description. A discussion of the net change in the emissions of non-CO_2 GHG emissions is also included.

The specific carbon pools included in the forest carbon inventory was aboveground biomass, belowground biomass and deadwood. The carbon stocks in the open forest with bamboo and palm strata is estimated to be 325.5 metric tonnes of carbon dioxide equivalent ($mtCO_2e$) per hectare, while the total carbon stock for the open alluvial forest with palm strata is estimated to be 411.3 $mtCO_2e$ per hectare.

The Project Proponents used the Clean Development Mechanism "Tool for testing significance of GHG emissions in A/R CDM project activities"[16] which can be used to test the significance of non-CO_2 emission sources and tested the significance of emissions of CH_4 and N_2O from the following sources: fossil fuel combustion and biomass burning. As the relative contributions of emissions from biomass burning and fossil fuel combustion are less than 5% of the Project's GHG emissions reductions and removals, these sources can be considered insignificant and are excluded from the project boundary.

A summary of the GHG emission calculations are provided below:

Pool/Emission Source	Without Project (mtCO2e)	With Project (mtCO2e)	Leakage (mtCO2e)	Net Emissions Reductions (mtCO2e)	Percent Contribution to 10-year Total GHG Benefits (%, Relative Contribution Parameter from CDM A/R Significance Tool)
Forest Biomass	1,709,253	368,048	308,406	1,032,799	96.4%
Fossil Fuel Combustion	0	168		(168)	0.0%
Biomass Burning	58,182	10,321	8,907	38,954	3.6%
Sum	-	-	-	1,071,585	-

[16] Clean Development Mechanism, "Tool for testing significance of GHG emissions in A/R CDM project activities" (Version 01)," Available: http://cdm.unfccc.int/EB/031/eb31_repan16.pdf

These carbon stock exchanges in the 'without project' reference scenario were assessed between May 23, 2011 and December 31, 2012.

3. Local Communities without Project

Describe how the 'Without Project' Reference Scenario would affect Communities in the Project Zone

As documented in section *G1. Original Conditions in the Project Area*, the local communities obtain a variety of benefits from the Purus Project and as explained in section *G3. Project Design and Goals*, subsection *2. Major Activities*, there are numerous social projects being planned as result of payments for ecosystem services.

The 'without project' scenario would be the continued unplanned, frontier deforestation activities of subsistence agriculture and cattle pastures by the local communities. The communities undoubtedly receive benefits from these activities such as locally-produced food and income generation through the sale of their crops and cattle.

However in the 'without project' scenario the communities, without a secure and legal title to land, are marginalized and vulnerable. Thus, the communities could legally be removed from the Purus Project and the communities would either need to relocate to a new patch of forest (i.e., most likely alongside the Purus River) or move to a city such as Manoel Urbano or Rio Branco.

Water and Soil

If the Landowners, instead of undertaking a forest conservation project, allowed unplanned deforestation to continue from communities, there would be significant impacts on the local water cycle and soil quality – both of which would have negative impacts on the community. Such impacts include, but are not limited to less trees to store water, resulting in potential localized flooding and additional debris from clear-cut could be swept into the river causing increased challenges of boat transportation.

Trees Impeding River Transport and Erosion of Purus River Banks
(Photo Credit: Brian McFarland)

Other Locally Important Ecosystem Services

In addition to an impact on water and soil, other locally important ecosystem services that could be impacted without the Purus Project include a loss of wildlife habitat. This wildlife habitat loss, which would also reduce the availability of game for the local community, will be discussed in greater detail in the next section.

4. Biodiversity without Project

Describe how the 'Without Project' Reference Scenario would affect Biodiversity in the Project Zone

As documented in section *G1. Original Conditions in the Project Area*, there is a high-level of biodiversity in and around the Purus Project. If unplanned deforestation by the communities was allowed to continue, there would be reduced availability of habitat, a fragmented landscape, and potentially more threatened species.

Habitat Availability

If the Landowners allowed for the continuation of unplanned, frontier deforestation, the resulting open cattle pastures would provide a poor habitat for the region's biodiversity except for domesticated animals and wild species that exist in transitional forests and open grasslands. Thus, forest dependent species and especially flora would have less available habitat.

Landscape Connectivity

If the 'without project," unplanned frontier deforestation scenario continued, there would be a negative impact on landscape connectivity due to increased pressure on surrounding intact forests to the South of the Purus Project.

Threatened Species

As documented in section *G1. Original Conditions in the Project Area*, there are several threatened flora and fauna species in the Project Area. If the Purus Project were converted to cattle pasture via unplanned frontier deforestation, these particular threatened species would likely disappear from the Purus Project due to a reduction in habitat. These threatened species could move to a higher level of extinction risk according to the International Union for Conservation of Nature. In addition, species currently considered to be at a low level of risk could move into a threatened category if the additional deforestation pressures were placed on the surrounding landscape.

G3. Project Design and Goal

The Purus Project was described in sufficient detail for independent validation and ongoing verification to the CCBS and VCS, as well as for all stakeholders to adequately evaluate and participate in the Purus Project. The Purus Project has been designed to minimize risks, engage local participation, and promote the highest level of transparency.

1. Scope and Project Goals

Provide a Summary of the Project's Major Climate, Community and Biodiversity Objectives

The overarching objective of the Purus Project is to generate sustainable economic opportunities for the local communities and to implement social projects, while mitigating deforestation (i.e., which results in less greenhouse gas emissions) and preserving the Project's rich biodiversity.

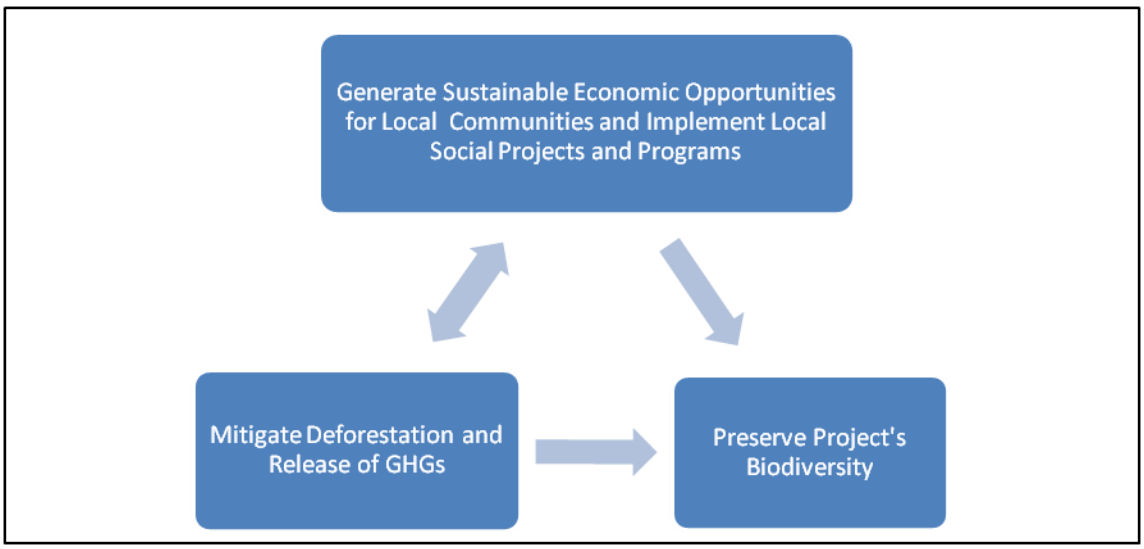

Figure 2: Model of Relationships between Major Climate, Community and Biodiversity Objectives

By mitigating deforestation, payments for ecosystem services will be generated which will enable the continued implementation of local social projects and the creation of economic opportunities for the communities. Similarly by improving local livelihoods and creating alternative economic opportunities, there will be less pressure on the forests and a reduction in deforestation. Improving local livelihoods and reducing deforestation are key mechanisms to preserve the Project's biodiversity.

To achieve these overarching objectives, the following climate, community and biodiversity project activities were undertaken by the Project Proponents from May 2011 to December 2012.

Major Climate Objective
To mitigate deforestation and reduce the amount of greenhouse gas (GHG) emissions, the Project Proponents undertook the following project activities:

- Forest Carbon Inventory
- Regional Land-use and Deforestation Modeling
- Address Underlying Deforestation Drivers to Mitigate Release of GHGs
- Develop Climate Monitoring Plan
- Monitor Deforestation

Major Community Objective
To generate sustainable economic opportunities for the local communities living in and around the Purus Project and to implement local social projects, the Project Proponents have undertaken, or began to plan for, the following project activities:

- Project Awareness, Meet Community, and Discuss Project
- Design Social Projects and Programs for Community
- Implement Social Projects and Programs for Community
- Develop Community Monitoring Plan
- Monitor Community Impacts

Major Biodiversity Objective
To preserve the Purus Project's rich biodiversity, the Project Proponents will generate sustainable economic opportunities for the local communities, implement social projects, and mitigate the release of GHGs from deforestation. Furthermore, to achieve this biodiversity objective, the Project Proponents have undertaken, or will undertake in the future, the following project activities:

- Rapidly Assess Biodiversity on Project
- Develop Biodiversity Monitoring Plan
- Monitor Biodiversity Impacts

2. Major Activities
Describe Each Project Activity and its Relevance to Achieving the Project's Objectives
The following section will further describe each major climate, community and biodiversity project activity between May 2011 and December 2012 and how it is relevant to achieving the overarching climate, community and biodiversity objectives.

Major Climate Objective
To achieve the major climate objective of mitigating deforestation and the subsequent release of GHG emissions, the Project Proponents undertook a forest carbon inventory, developed a regional land-use and deforestation model, and are continuing to address the underlying deforestation drivers to mitigate the release of GHGs with a plan for ongoing monitoring.

Forest Carbon Inventory
The forest carbon inventory was an important project activity to undertake because it is difficult to manage an objective that is not measured. The forest carbon inventory generated a scientifically robust and statistically accurate representation of the Purus Project's carbon stocks.

The forest carbon inventory was conducted by the renowned local forestry company TECMAN and was overseen by both CarbonCo and the international experts at TerraCarbon. TECMAN was contracted by CarbonCo in July 2011, participated in classroom and field training provided by TerraCarbon in August 2011, and then TECMAN conducted the Purus Project's forest carbon inventory from August to November 2011.

TECMAN is an example of a local hire; TECMAN received a transfer of technical knowledge and know-how from TerraCarbon; and TECMAN's employees also received certificates of completion to demonstrate their knowledge of conducting a forest carbon inventory.

For a more detailed discussion, please see the VCS Project Description's Appendix B entitled, *Forest Carbon Inventory Standard Operating Procedures*.

Regional Land-use and Deforestation Modeling
Similar to the need for a measurement of carbon stocks, there was a need to develop a regional land-use and deforestation model to determine a performance baseline for the Project Proponents. Such models now allow the Project Proponents to predict where (i.e., location), when, from what (i.e., drivers and agents) and how much deforestation is expected, along with where to assist with leakage mitigation and primarily where to monitor.

The Purus Project's regional land-use and deforestation modeling was conducted by Professor Flores from the Federal University of Acre and was overseen by CarbonCo and TerraCarbon.

Professor Flores was contracted by CarbonCo in October 2011 and assisted with the Purus Project's modeling from approximately August 2011 to September 2012.

Professor Flores is another example of a local hire; Professor Flores received a transfer of technical knowledge and know-how from TerraCarbon; and Professor Flores also received a certificate of completion demonstrating his knowledge of deforestation modeling for a validated REDD+ project.

For a more detailed discussion, please see the VCS Project Description section 2 *Application of Methodology* and section 3 *Quantification of GHG Emission Reductions and Removals*.

Address Underlying Deforestation Drivers to Mitigate Release of GHGs
While understanding the Purus Project's carbon stocks and deforestation scenario, the Project Proponents began to address the underlying deforestation drivers to mitigate the release of GHGs (See *Social Projects and Programs* within this section).

Addressing the underlying deforestation drivers - for example, providing agricultural extension trainings – is relevant to achieving the climate objective of reducing net GHG reductions by reducing the communities' dependence on forest resources through intensification of agricultural and livestock practices, by providing alternative income, along with providing education about the affects of deforestation and benefits of protecting forest resources.

Develop Climate Monitoring Plan and Monitor Deforestation
The Project Proponents will constantly monitor deforestation by aerial surveillance using a trike, via on-the-ground monitors, as well as from the State of Acre's Landsat satellite imagery (See *Social Projects and Programs* within this section). This climate monitoring plan was devised between May 23, 2011 and December 31, 2012.

Developing a climate monitoring plan and monitoring deforestation will assist the Project Proponents with achieving the climate objective. Thus, the climate monitoring plan and monitoring of deforestation will result in net GHG emission reductions because such activities will provide an early detection of deforestation, while enabling the Project Proponents to identify the specific drivers and agents of deforestation and to implement the appropriate actions to mitigate such deforestation and subsequent release of GHG emissions.

Major Community Objective
To generate sustainable economic opportunities and to implement local social projects for communities living in and around the Purus Project, the Project Proponents have undertaken, or began to plan for, the following project activities: Project Awareness, Meet Community, and Discuss Project; Design Social Projects and Programs for Community; Implement Social Projects and Programs for Community; Develop Community Monitoring Plan and Monitor Community Impacts.

Project Awareness, Meet Community and Discuss Project
Between May 23, 2011 and December 31, 2012 the Project Proponents visited the Purus Project together and met with the local communities in March 2011, August 2011, March 2012 and June 2012. In addition, CarbonCo hired the independent group PAV Comércio e Serviços Ltda ("PAV") to visit the communities in October 2012.

The communities are an essential component of the Purus Project and likewise, it has been absolutely necessary to openly and frequently discuss the Project with the communities.

Through meeting with the communities, the Project Proponents have been able to gain the communities' insights about project design and to better incorporate the communities into the Project. As a result, the community objective of generating sustainable economic opportunities and implementing social projects and programs will be best achieved with active, on-going participation and input from the local communities.

Moura & Rosa met with the communities about implementing a forest conservation project for over five years. Throughout 2011 and 2012, the Purus Project was discussed in greater detail with the communities and community members who wanted to join the Purus Project signed a Memorandum of Understanding (MOU). As of June 2013, the majority of community members residing within the Purus Project had either signed the MOU or verbally agreed to join the project, with the first community members signing an initial Declaration on May 23, 2011, the Project Start Date.

In addition, community members joining the Project were given a sign of recognition.

Purus Project Sign, Fall 2011 (Photo Credit: Moura & Rosa)

To ensure the local communities were fully aware of the Purus Project, were able to contribute to the Project design, able to openly express desired outcomes and concerns, understood the third-party grievance procedure, and were able to voluntarily give free, prior and informed consent (i.e., for example, a written MOU is not always culturally appropriate because some community members are illiterate), CarbonCo hired the independent group PAV Comércio e Serviços Ltda ("PAV") to visit the communities in October 2012.

Design and Implementation of Social Projects and Programs for Community
Social projects and programs for the local communities, which not only generate sustainable economic opportunities, will also result in: less pressure on the local forests; a reduction in deforestation; mitigation of greenhouse gas emissions; and the preservation of biodiversity.

Over the Project Lifetime, Moura & Rosa would like to further design and implement the following project activities:

- Hire Project Manager
- Initiate Forest Patrols of Deforestation
- Initial Training Courses for Communities and Agricultural Extension Trainings
- Help Communities Obtain Land Rights / Delineate Family Areas
- Social Assistance
- Profit-Sharing of Carbon Credits
- Reforestation Activities of Areas of Permanent Preserve near Purus River
- Build an Office
- Improve School and Create a School Bus Boat
- Build a Health Center and Dental Clinic
- Build New Houses for Families that Have Joined Project
- Ecotourism

Hire Project Manager
In the earlier stages of the Project, there were four community members informally considered "the eyes and ears" of the Purus Project property and these community members were:

- Sebastião (nickname Miguel) Marques da Silva, one of eldest residents on the property
- Antonio (Miguel's brother)
- Francimar (lives on property), son of Dona Celina who lives in Manoel Urbano
- Francisco (nickname Brabo Chico) Marques Vieira

During the initial monitoring and reporting period of May 2011 to December 2012, Moura & Rosa hired two initial full-time, onsite project managers from the local communities at the Purus Project. More specifically in March 2012, Moura & Rosa hired Sebastião Marques da Silva (Miguel) and Miguel's spouse Maria Souza de Moura (Socorro). In April 2012, Miguel and Socorro were officially registered as the initial full-time, onsite project managers for the Purus Project.

Miguel and Socorro were contracted for maintenance of the Purus Project headquarters and to assist the Project Proponents during site visits. Socorro worked more on hospitality such as cooking for visitors and cleaning the headquarters' facilities. Miguel's primary role was to maintain the headquarters' security by providing a presence and protecting the local infrastructure.

Communication between Miguel and Moura & Rosa took place every fifteen days. Such discussions were mainly focused on the management of the local area. For example, discussions included: cutting the pasture grass; preparing for site visits (i.e., in addition to frequent visits by

the Project Proponents and TECMAN, S.O.S. Amazônia and the Climate Change Institute also visited the Purus Project); general updates about the local community; and results of informal monitoring for deforestation. Miguel also spoke with community members who Miguel was close to about reducing and stopping deforestation.

Kidney da Cunha Aires ("Kidney"), who lives in Rio Branco, was contracted by Moura & Rosa under a six month probationary training period which we be formalized in April 2013. This probationary training period began in November 2012 and Kidney received the worker rights explanation letter. Kidney's official title is "Onsite Project Manager." Kidney will be responsible for onsite logistics, transportation to and from the Purus Project, local communication with the communities about the Project, assist with the community and biodiversity monitoring plans, and monitoring for deforestation along the Purus River.

Kidney was contracted to work a revolving schedule which includes working onsite at the Purus Project for fifteen days and then returning to Rio Branco for fifteen days. Kidney visited the Purus Project once in November 2012 during an initial visit to see the Project and visit the local communities. Kidney also visited the Purus Project twice in December 2012.

Initiate Patrols of Deforestation

Between May 2011 and December 2012, the Project Proponents designed a monitoring plan, purchased a trike for aerial monitoring, participated in training on how to fly the trike, and initiated the patrols of deforestation.

Wanderley Cesario Rosa, a Managing Director of Moura & Rosa, participated in training classes in São Paulo on how to operate a trike in April 2012. Moura & Rosa then purchased a trike in May 2012 and in June 2012, the trike was delivered to Rio Branco.

Aerial monitoring of deforestation began in August 2012 with Wanderley and the instructor flying the trike over the Purus Project. In September 2012, another flight of the trike with Wanderley and the instructor took place over the Purus Project. In October 2012, Wanderley did his first solo flight of the trike but was unable to fly over the Purus Project due to inclement weather. The last trike flight of 2012 took place in November 2012.

The peak rainy season in Acre, which is the time period of the least threat of deforestation, is from November to April and Moura & Rosa will attempt to conduct aerial monitoring once per month depending on weather conditions and the resulting safety situation. The dry season in Acre, which is when the risk of deforestation is highest, is from May to November and Moura & Rosa will fly over the Purus Project at least once per month.

To complement this aerial monitoring via trike, climate impact monitoring will also be conducted by boat and by ground. Such terrestrial monitoring will takes place approximately every two weeks.

If and when deforestation is identified, Moura & Rosa will immediately document and transfer this information to Carbon Securities and CarbonCo. Collectively, CarbonCo and Moura & Rosa will discuss the appropriate actions to undertake to counteract any reported deforestation.

Moura & Rosa purchased a phone tower for the Project headquarters in November 2012 to enable cellular phone communication with Miguel and Kidney at the Project headquarters. Moura & Rosa plan to install the phone tower in 2013.

The monitors will write down observations in a notebook, document the community meetings, input this data into the monitoring template, and upload the document onto a shared DropBox account among the Project Proponents. The monitoring template includes:

- Name of Monitor
- Date of Monitor
- Communities Visited
- Meeting Notes with Community
- Grievances and Concerns of Community
- Location and Date of Deforestation
- Responsible Actor for Deforestation
- Observations Pertaining to Deforestation
- Biodiversity Observed
- Other Notes Related to the Project

A total of eleven official monitoring templates were completed between May 23, 2011 and December 23, 2012.

Moura & Rosa also purchased a fast boat in June 2012 which will provide transportation for the Project Proponents and allow for deforestation monitoring by the Purus River.

The monitoring of deforestation will help the Project Proponents achieve both the climate and community objective. Thus monitoring will result in net GHG emission reductions because such activities will provide an early detection of deforestation, while enabling the Project Proponents to identify the specific drivers and agents of deforestation and to implement the appropriate actions to mitigate such deforestation and the subsequent release of GHG emissions. Furthermore, the reduction in deforestation will provide diversified and alternative incomes to local communities via sharing of carbon credit revenue, and enable Moura & Rosa to implement a variety of social projects and programs (i.e., for example, to build a local health clinic).

Agricultural Extension Trainings

The communities in and around the Purus Project were surveyed from March 10-12, 2012 to better understand which agricultural extension training courses would be of the most interest. A total of 32 courses, ranging from rotational pasture management to organic coconuts, were offered. The following are the results, which the top ten courses highlighted in yellow:

Agricultural Training Courses Offered to Purus Project Communities (March 10-12, 2012)

Courses Highlighted in Yellow are the Courses with the Top-10 Interest among Communities Inside Project

	NOME DO CURSO (Name of Course)	Quero este (I Want This)	Total Percentage (Inside and Outside)	Inside Project (Total of Yes)	Inside Project (Percentage of Yes)	Outside Project (Total of Yes)	Outside Project (Percentage of Yes)
1	Banana - Produção de Bananas - Do Plantio a Pós-Venda (Banana - Production of Bananas - From Planting to After Sales)	11	78.57%	10	90.91%	1	33.33%
2	Galinha Caipira - Como Produzir Galinha e Frango Caipira (Redneck Chicken - How to Produce Chicken and Chicken Caipira	10	71.43%	8	72.73%	2	66.67%
3	Banana - Receitas com Bananas (Bananas - Recipes with Bananas)	8	57.14%	8	72.73%	0	0.00%
4	Sítio - Como Tornar sua Colônia Lucrativa (Site - How to Make Your Community Profitable)	10	71.43%	8	72.73%	2	66.67%
5	Milho - Produção em Pequenas Propriedades (Corn - Production on Small Areas)	9	64.29%	7	63.64%	2	66.67%
6	Peixes - Processamento Artesanal de Peixes (Fish - Artisanal Processing of Fish)	7	50.00%	7	63.64%	0	0.00%
7	Suinos - Criação Orgânica de Suínos (Swine - Creation of Organic Pigs)	7	50.00%	6	54.55%	1	33.33%
8	Pastejo Rotacionado (Rotational Cattle Pastures)	9	64.29%	6	54.55%	3	100.00%
9	Mandioca - Como Produzir Polvilho Azedo, Fécula, Farinha e Raspa (Cassava - How to Produce Sour, Starch, Flour and Zest)	6	42.86%	5	45.45%	1	33.33%
10	Horta Caseira - Implantação e Cultivo (Household Garden - Deployment and Cultivation)	6	42.86%	5	45.45%	1	33.33%
11	Coco - Produção Orgânica de Coco (Coconut - Organic Production of Coconut)	5	35.71%	4	36.36%	1	33.33%
12	Frutas - Produção Comercial em Pequenas Áreas (Fruits - Commercial Production in Small Areas)	4	28.57%	4	36.36%	0	0.00%
13	Pimenta - Produção e Processamento de Pimenta (malagueta, etc.) (Pepper - Pepper Production and Processing (chili, etc.))	4	28.57%	4	36.36%	0	0.00%
14	Educação Ambiental Infantil (Children's Environmental Education)	4	28.57%	4	36.36%	0	0.00%
15	Apiário - Planejamento e Implantação de Apiário (criação de abelhas) (Apiary - Apiary Planning and Implementation (Beekeeping))	3	21.43%	3	27.27%	0	0.00%
16	Mandioca - Cultivo de Mandioca (Cassava - Cultivation of Cassava)	2	14.29%	2	18.18%	0	0.00%
17	Manga - Produção de Manga (Mango - Production of Mangoes)	2	14.29%	2	18.18%	0	0.00%
18	Floresta - Reposição Florestal (Forestry - Forestry Replacement)	2	14.29%	2	18.18%	0	0.00%
19	Floresta - Restauração Florestal (Forestry - Forestry Restoration)	2	14.29%	2	18.18%	0	0.00%
20	Peixes - Técnicas de Processamento de Peixes (Fish - Fish Processing Techniques)	2	14.29%	2	18.18%	0	0.00%
21	Rapadura, Melado e Açucar Mascavo - Como Produzir... (Brown Sugar and Molasses - How to Produce...)	2	14.29%	2	18.18%	0	0.00%
22	Farmácia Viva - Utilização de Plantas Medicinais (Living Pharmacy - Use of Medicinal Plants)	2	14.29%	2	18.18%	0	0.00%
23	Nascentes - Recuperação e Conservação de Nascentes (Headwaters - Headwaters Conservation and Recovery)	2	14.29%	2	18.18%	0	0.00%
24	Pimenta do Reino - Produção e Processamento (Pepper - Production and Processing)	1	7.14%	1	9.09%	0	0.00%
25	Plantas Medicinais - Cultivo Orgânico de Plantas Medicinais (Medicinal Plants - Cultivating Organic Medicinal Plants)	1	7.14%	1	9.09%	0	0.00%
26	Produção de Embutidos (Production of Embedded)	1	7.14%	1	9.09%	0	0.00%
27	Graviola - Produção de Graviola (Soursop - Production of Soursop)	0	0.00%	0	0.00%	0	0.00%
28	Limão - Produção de Limão Taiti (Production of Limes)	0	0.00%	0	0.00%	0	0.00%
29	Pinhão Manso - Como Cultivar Pinhão Manso (biodiesel) (Jatropha - How To Grow Jatropha (biodiesel))	0	0.00%	0	0.00%	0	0.00%
30	Serpentes - Criação de Serpentes (Snakes - Creation of Snakes (for venom))	0	0.00%	0	0.00%	0	0.00%
31	Produção de Defumados (Smoked / Cured Production)	0	0.00%	0	0.00%	0	0.00%
32	Brigada de Incêndio Florestal - Formação e Treinamento de... (Forest Fire Brigade - Education and Training...)	0	0.00%	0	0.00%	0	0.00%

Moura & Rosa then purchased these top-ten courses on March 30, 2012 from the Center for Technical Production (CPT). Equipment, such as a projector with a sound system, was purchased by Moura & Rosa in July 2012 to assist with the teaching of these courses. Moura & Rosa's intention was to begin teaching these courses in order of importance starting November 2012; however, this initial timing was delayed because SENAR was not available until 2013.

Moura & Rosa ordered another boat (i.e., in addition to the aforementioned fast boat) in late September or early October 2012 and its construction should be completed in 2013. This particular boat will be used to increase the local communities' market access by transporting the communities' crops to Manoel Urbano.

Agricultural extension trainings and increased market access will assist the Project Proponents achieve both the climate and community objectives of the Purus Project. These activities will result in both net GHG emission reductions by reducing the communities' dependence on forest resources through intensifying agriculture and livestock, while also providing the communities with alternative incomes.

Help Communities Obtain Land Rights / Delineate Family Areas

As previously mentioned, community members that have been living on the land and who made the land productive (e.g., by growing agriculture or raising animals) for ten years have the right to be titled to land. Moura & Rosa will voluntarily recognize whatever area is currently deforested and under productive use by each family. The minimum area to be titled to each family is one hundred hectares which is the minimum size that INCRA says a family in the State of Acre needs for a sustainable livelihood. Those communities who have deforested and put under productive use over one hundred hectares will receive the full area that has been deforested. All communities, whether they join the Purus Project or not, will be titled the land they have put under productive use.

Helping communities obtain land rights and delineating family areas will assist the Project Proponents with facilitating the communities' sustainable economic opportunities. This formal recognition of the community's land tenure and the ability of communities to access credit (i.e., due to their property collateral) will reduce GHG emissions as communities will have greater responsibility and ownership over their land.

To help the communities obtain land rights and to delineate family areas, the first step took place in 2010 when Willian Figueiredo Bittencourt from the company PLANTEC did a geo-reference of the property and also went to the Purus Project to geo-reference the communities.

During the first semester of 2012, the process continued. PLANTEC was contracted to start the process of legalizing the land for the communities. Satellite imagery was purchased twice in 2012 from Mr. Adalberto, an independent contractor to Moura & Rosa, to determine the land-use and how long settlements were cleared to define the communities' areas.

In addition, Brazilian Federal law was also reviewed by Moura & Rosa from 2010 to 2012 to determine the appropriate authorities with respect to titling local communities, what exactly needs to be done in order to title local communities, and the rights of such rural communities. The institutions INCRA, the Public Ministry, FETACRE, and Sindicato dos Trabalha dores Rurais de Manoel Urbano (STR – Manoel Urbano; in English: Rural Union of Manoel Urbano) were contacted by Moura & Rosa.

During the second semester of 2012, the President of STR – Manoel Urbano visited the communities of the Purus Project to better explain the goals of the Project and clarify to the community how land tenure regularization will work.

STR – Manoel Urbano and the Public Ministry have been identified as the intermediaries to assist Moura & Rosa and the communities with titling land to the communities.

Social Assistance
Because there are a high volume of trees in the bed of the Purus River during the dry season, the trees cause serious harm to navigation and consequently, disrupt the flow of production and supply of coastal communities. Moura & Rosa will facilitate the removal of these trees from the Purus River as part of the Social Project.

This social assistance of removing trees from the bed of the Purus River was discussed with the fire department of Sena Madureira in May 2012 and is scheduled for September 2013.

The removal of trees can only be done in September and October of each year, because that is when the Purus River is at its lowest water level and the removal of trees is the least dangerous.

In 2012, Moura & Rosa's conversation with the fire department of Sena Madureira focused on making logistical arrangements (i.e., what needs to be provided from Moura & Rosa such as housing and transportation) and tentative scheduling. Moura & Rosa were then put on a waiting list and were pre-scheduled for September 2013.

Social assistance is relevant to achieving the community objective of the Purus Project because social assistance is one of the main social programs that Moura & Rosa seek to establish. Furthermore, removing trees from the bed of the Purus River will increase the communities' market access due to better transportation on the Purus River and this should increase the incomes of the local communities.

Profit-Sharing of Carbon Credits
Moura & Rosa will participate in profit-sharing of carbon credits with the local communities. Although this is a longer-term activity, the Purus Project was designed and the community was consulted about this activity between May 2011 and December 2012. Furthermore, the Purus Project was validated to the VCS and CCB with Gold Distinction in January 2013 which is a very important milestone towards profit-sharing of carbon credits.

For more information on the future profit-sharing of carbon credits, please see the CCBS PDD.

Carbon revenue will primarily enable Moura & Rosa to implement social projects and programs, while the small portion of revenue shared with the communities will contribute both to slightly increased and diversified income for communities.

Build an Office
Moura & Rosa built an office at the Purus Project to serve as the Project's headquarters. The headquarters' initial construction began in May 2012. The contractor hired by Moura & Rosa worked in May and June 2012 to install a toilet, shower, kitchen, and a Purus Project sign at the headquarters.

The Purus Project Headquarters (Photo Credit: Brian McFarland)

Building an office contributes to the community objective because the office will serve as a centralized headquarters and will facilitate Moura & Rosa's social projects and programs.

Improve School and Create a School Bus Boat

In the future, Moura & Rosa will build a local primary school, with separate rooms for each grade. The establishment of a library will emphasize environmental studies and a cafeteria for students will also support the development of students. This school will aim at a differentiated learning, including field courses, digital inclusion, and programs for medical and dental care.

Building a local primary school is a longer-term project activity. There used to be no school bus boat for the school on the Purus Project; however, Moura & Rosa were able to secure one school bus boat for the school. While Normando Sales was getting letters of support, Normando presented the Purus Project to the then-mayor of Manoel Urbano. At that time, the mayor said he would help Normando to acquire a bus boat for the school located within the Purus Project. This school bus boat was delivered during the second semester of 2012, around June 2012.

Example of School Bus Boat (Photo Credit: Soudaquimanga)[17]

Improving the local school and securing school bus boats is relevant to the community objective because this is one of the main social projects that Moura & Rosa would like to facilitate. Many

[17] Soudaquimanga, "Barco Escolar," Available: http://soudaquimanga.wordpress.com/2011/11/20/barco-escolar-mais-uma-novidade-para-subsidiar-a-educacao-publica-de-manga/

people move to cities in search of better schools; instead, children can remain with their families in rural areas and will be able to obtain a better education. Trade between families might increase due to more community cohesion. Furthermore, the local school will eventually offer employment opportunities.

Develop Community Monitoring Plan and Monitor Community Impacts
The community monitoring plan will essentially help the Project Proponents better understand if the social projects and programs for the communities were able to generate sustainable economic opportunities and overall positive outputs, outcomes and impacts. The initial and full community monitoring plans were designed between May 2011 and December 2012 and the full community monitoring plan was publicly posted on May 15, 2013.

Major Biodiversity Objective
To preserve the Project's rich biodiversity, the Project Proponents will generate sustainable economic opportunities for the local communities and implement local social projects with the goal of addressing the underlying causes of deforestation and reducing the release of GHGs. In addition, the Project Proponents will rapidly assess biodiversity on the Project and develop a biodiversity monitoring plan.

Rapidly Assess Biodiversity on Project
A rapid assessment was conducted in August and September 2009 of the Project's biodiversity. This rapid assessment of biodiversity contributes to the objective of preserving the Project's rich biodiversity by providing an understanding of what flora and fauna exist within the Project.

Develop Biodiversity Monitoring Plan and Monitor Biodiversity Impacts
The biodiversity monitoring plan essentially helps the Project Proponents better understand if the climate and community objectives are aligned with preserving the Project's rich biodiversity.

The initial and full biodiversity monitoring plans were designed between May 2011 and December 2012 and the full biodiversity monitoring plan was publicly posted to the CCBS on May 15, 2013.

3. Project Timeframe
This initial project implementation report covers the monitoring and reporting period from May 23, 2011 to December 31, 2012.

Project Lifetime and GHG Accounting Period
The Project State Date, which can be demonstrated via several signed Declarations and Memorandum of Understandings (MOUs) between Carbonfund.org, CarbonCo, (i.e., the wholly-owned subsidiary of Carbonfund.org), Carbon Securities (the doing-business-as name of Freitas International Group), Moura & Rosa and the communities, is May 23, 2011.

The GHG Accounting Period – otherwise known as the Project Crediting Period – also began on May 23, 2011. The Tri-Party Agreement between Carbonfund.org, Carbon Securities and Moura & Rosa stipulates a 60-year Project Lifetime, followed by two renewable terms of 25-years each. Thus, the Project Lifetime is 60 years but the Project Proponents may decide in the future to extend the Project Lifetime to 110 years.

The initial Project Crediting Period – otherwise known as the GHG Accounting Period - will be for 30 years which started on May 23, 2011 and ends on May 22, 2041. The Project's deforestation baseline will be reassessed no later than 10 years after the Project Start Date (i.e., by no later than May 22, 2021). This Project Crediting Period and reassessment of the Project's deforestation baseline is also in conformance with the Verified Carbon Standard.

Implementation Schedule
The approximate implementation schedule for the Purus Project, with key accomplishments between May 23, 2011 and December 31, 2012, is as follows:

Pre- and Post-Validation: Years 1 and 2

- Signing of Tri-Party Agreement between Project Proponents
    - The Tri-Party Agreement was signed on March 17, 2011.
- Stakeholder Consultations, Community Visits by PAV
    - Stakeholder consultations have continuously taken place. For example, the Project Proponents visited the Project together and met the local communities in March 2011, August 2011, March 2012 and June 2012. CarbonCo also hired the independent group PAV to visit the communities in October 2012.
- Forest Carbon Inventory
    - TECMAN was contracted in July 2011, participated in classroom and field training in August 2011, and then TECMAN conducted the Purus Project's forest carbon inventory from August to November 2011.
- Land-use and Deforestation Modeling
    - Professor Flores was contracted in October 2011 and assisted with the Purus Project's modelling from approximately August 2011 to September 2012.
- Project Design Documents Written
    - The Project Design Documents (PDDs) were written, reviewed and revised between May 23, 2011 and December 31, 2012. The PDDs were submitted for validation on April 29, 2012 and were officially validated in January 2013.
- Hire Project Manager
    - Moura & Rosa hired Miguel and Miguel's spouse Socorro in March 2012. In April 2012, Miguel and Socorro were officially registered as the initial full-time, onsite project managers for the Purus Project. Kidney was also contracted under a probationary training period by Moura & Rosa which began in November 2012.
- Initiate Patrols of Deforestation
    - Wanderley Cesario Rosa participated in training classes in São Paulo on how to operate a trike in April 2012. Moura & Rosa then purchased a trike in May 2012 and in June 2012, the trike was delivered to Rio Branco. Aerial monitoring of deforestation began in August 2012. In September 2012, another flight of the trike took place over the Purus Project. In October 2012, Wanderley did his first solo flight of the trike but was unable to fly over the Purus Project due to inclement weather. The last trike flight of 2012 took place in November 2012.
- Initial Agricultural Extension Trainings
    - The communities in and around the Purus Project were surveyed from March 10-12, 2012 to better understand which agricultural extension training courses would

be of the most interest. Equipment, such as a projector with sound system, was purchased by Moura & Rosa in July 2012 to assist with the teaching the courses.

- Biodiversity and Community Impact Monitoring Plans Developed
    - The initial and full biodiversity and community monitoring plans were designed between May 2011 and December 2012 and the full plans were publicly posted to the CCBS in May 2013.
- Project Audited to CCBS and VCS Standards
    - CarbonCo hired SCS Global Services in November 2011 to validate the Purus Project to the CCBS and VCS standards. A validation site visit was conducted in June 2012 and the Purus Project was officially validated in January 2013.
- Help Communities Obtain Land Rights / Delineate Family Areas
    - In 2010, Willian Figueiredo Bittencourt from the company PLANTEC did a geo-reference of the property and also went to the Purus Project to geo-reference the communities. During the first semester of 2012, the process continued. From 2010 to 2012, PLANTEC was also contracted to start the process of legalizing the land for the communities, satellite imagery was purchased to determine the land-use and how long settlements were cleared to define the areas, and Brazilian Federal law was thoroughly reviewed.

Post-Validation: Years 3 to 5
Although intended to be medium-term activities, the following preliminary steps took place between May 23, 2011 and December 31, 2012:

- Social Assistance
    - A partnership was finalized with the fire department of Sena Madureira in 2012 to assist Moura & Rosa with the removal of trees from the Purus River in 2013.
- Build an Office
    - The headquarters' initial construction began in May 2012. The contractor hired by Moura & Rosa worked in May and June 2012 to install a toilet, shower, kitchen, and a Purus Project sign at the headquarters.
- Improve School and Acquire School Bus Boat
    - A school bus boat was delivered to the Purus Project during the second semester of 2012, around June 2012.

Post-Validation: Years 5 to 10
Although intended to be long-term activities, the following preliminary steps took place between May 23, 2011 and December 31, 2012:

- Profit Sharing of Carbon Credits
    - The Purus Project was designed and the community was consulted about profit sharing of carbon credits between May 2011 and December 2012.
- Build a Health Center and Dental Clinic
- Build New Houses
- Ecotourism
- Reassessment of Baseline

For more details on the social projects and projects, please see Section *G3.2. Major Activities*.

4. Risks to Climate, Community and Biodiversity Benefits

Between May 2011 and December 2012, the Project Proponents conducted an extensive risk analysis and identified the potential natural, anthropogenic and project risks to the climate, community and biodiversity benefits of the Purus Project. The overall risks associated with the Purus Project are considered low and justified a low Verified Carbon Standard buffer reserve established for any verified emission reductions.

Natural Risks

Although no natural risks are known to have significantly impacted the Purus Project between May 2011 and December 2012, the following are some potential future natural risks that could impact the Purus Project:

- Seedling, sapling and tree survival
- Drought and flooding
- Severe weather
- Forest fire
- Disease, invasive species, and pest infestations

Due to the fact that the Purus Project is primarily a conservation project, there is limited risk of seedling, sapling and tree survival because reforestation is not the major climate objective. While there will be some reforestation activities, the carbon sequestration of these activities will not be counted towards the generation of verified emission reductions.

With respect to drought and flooding, the Purus River basin is a wetland ecosystem where the native habitat thrives under periodically flooded conditions. Being a tropical climate, the Purus Project is not prone to snowstorms and there are no volcanoes in the general vicinity. Furthermore, the State of Acre historically has not experienced hurricanes, monsoons, or tornadoes with only minimal effects from Chilean earthquakes.[18]

Another risk to the Purus Project is a forest fire. Forest fire historically has not been a problem in the Project Area. Most of the Project Area is un-fragmented forest, with few areas of bordering pasture/non-forest. Most forest fires that occur in the region are anthropogenic, and thus sources of fire outbreaks in the Project Area are limited.

Incidence of fire in the Amazon has increased with recent severe droughts of 1998, 2005 and 2010, all of which preceded the Purus Project's validation date and informed the risk assessment. While drought conditions facilitate forest fire, fire still requires sufficient fuel loads (typically produced from previous disturbance) and an ignition source, both of which can reasonably be assumed to be less (and by extension, fire incidence should be less) in the large, intact block of forest at the Purus Project (and maintained through project-funded protection activities) than in the surrounding land use matrix. Aragao and Shimbukuro (2010) show that the state of Acre, which has large blocks of intact forest, has no observed increase in fire incidence from 1998 to

[18] Center for Weather Prediction and Climate Studies, "Home," Available: http://www1.cptec.inpe.br/
National Observatory, "Seismic Data," mhttp://www.on.br/conteudo/modelo.php?endereco=servicos/servicos.html

2006, as compared with more developed and impacted areas of the Eastern and Central Amazon (e.g. Para, Mato Grosso, Rondonia and Maranhao).[19] Consequently, the rates of fire incidence referenced in the Purus Project's VCS risk report (Cochrane and Laurance 2002), based on data from Para state, should be considered overestimates of expected incidence in Acre, and therefore conservative.

Aragao and Shimbukuro (2010) further observe that "fire-free land-management can substantially reduce fire incidence by as much as 69%." The state of Acre, as part of its State System of Incentives for Environmental Services (SISA), has instituted state-wide fire control and monitoring activities since 2010, and should be expected to show results similar to those areas of fire-free land-management witnessed (between 1998 and 2006) by Aragao and Shimbukuro. The Purus Project Area should be expected to benefit in terms of reduced fire risk from decreased fire incidence and proximal ignition sources in the surrounding land use matrix. The original validated severity score for forest fire (Minor; < 25% loss of carbon stocks) is consistent with expected severity with increased incidence of droughts (and likely conservative). A severe burn (subsequent to initial lighter burns) can result in up to 40% mortality of stems. Assuming this represents ~40% of aboveground biomass (often mortality will be mostly in smaller, less resilient stems), equivalent to ~33% reduction of total above- and belowground biomass (assuming an average belowground component equal to 20% of aboveground biomass), a 25% loss of project carbon stocks would require a severe burn on ~3/4 of the entire project area (26,289 ha = 34,702 ha * 0.25 * (1/0.33)). A fire covering this extent of the project area would be highly unlikely – not only would it be an exceptionally large area for a single burn, but it would have to cross the Purus River to affect 26,289 hectares of the Project Area.

Furthermore in a study[20] of fires in the Amazon, Cochrane and Laurance documented a relationship between fire incidence and distance from forest edge, with decreasing fire return intervals with increasing distance from edge.

They also found that effects of forest fires depend on the extent and condition of fuel sources. In general, drought conditions need to be present prior to the initiation of rainforest fires. While initial fires can have a significant effect on the smaller diameter (<40 cm dbh) trees, it is only with subsequent burns, that significant losses (mortality of up to 40% of trees) of forest biomass can be expected[21]. Despite fire induced tree mortality, tree mortality itself is unlikely to result in the loss of substantial biomass due to incomplete combustion of live aboveground biomass. Biomass is merely transferred from the live biomass to dead biomass pool, which is also accounted for in this project.

Further as fire is unlikely to affect the whole Project Area, the significance of any single fire event is likely to be minor and result in less than 25% loss in carbon stocks in the project area.

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[19] Luiz E. O. C. Aragão and Yosio E. Shimabukuro, "The Incidence of Fire in Amazonian Forests with Implications for REDD." *Science* 328, 1275 (2010); DOI: 10.1126/science.1186925

[20] Cochrane M.A.& Laurance W.F., 2002. Fire as a large-scale edge effect in Amazonian forests, Journal Of Tropical Ecology, 18:311-325.

[21] Cochrane M.A., Alencar A., Schulze M.D., Souza C.M., Nepstad D.C., Lefebvre P. & Davidson E.A., 1999. Positive feedbacks in the fire dynamic of closed canopy tropical forests, Science, 284(5421):1832-1835. Cochrane M.A.& Schulze M.D., 1999. Fire as a recurrent event in tropical forests of the eastern Amazon: Effects on forest structure, biomass, and species composition, Biotropica, 31(1):2-16.

The Cochrane and Laurance study[22] mentioned above, calculated a fire return intervals in another part of the Amazon as 10 to 15 years. While the agents of deforestation (and fire) are similar between region of the study (Para) and the project region (Acre), deforestation rates and likely incidences of fire are greater in Para. This fire return interval therefore is likely to represent a conservative estimate of the fire return interval in the project region with the actual interval likely being longer than 15 years.

The Project Proponents spoke to the former commander Cel QOBM Flavio Ferreira Pires of the Military Fire Department of Rio Branco who employed trained professionals in fire monitoring, control and prevention. If the risk of forest fire at the Purus Project increases, Moura & Rosa will work with the Fire Department to form a fire fighting brigade. Upon notice, the Fire Department is ready to meet again with Moura & Rosa to formalize the brigade and Moura & Rosa would provide transportation, food, and lodging at the Purus Project for the brigade.

It is also important to note that the State of Acre has some of the highest precipitation levels in the world with annual rainfall ranges from 1,600 – 2,750 millimeters (i.e., approximately 63 – 108 inches).[23]

With regard to disease, invasive species and insect infestation, Brazil's Department of the Environment has approved a permanent technical committee known as the National Biodiversity Commission (CONABIO) which carefully monitors these developments.[24] The Project Proponents will carefully monitor any invasive species know to exist in Acre and will not extract any known species from the Project that are considered native species but which are invasive species elsewhere. For more information on the risk of invasive species, please see the VCS Appendix A *Non-Permanence Risk Report*.

Anthropogenic Risks

Although no anthropogenic risks are known to have significantly impacted the Purus Project between May 2011 and December 2012, the following are some potential future anthropogenic risks that could impact the Purus Project:

- Illegal logging
- Illegal hunting of endangered fauna
- Illegal collection of endangered flora
- Human-induced fires

The Project Proponents will regularly monitor the climate, community and biodiversity objectives of the Project and thus, will be able to identify early on if there are illegal logging or hunting activities taking place. Furthermore to participate in the benefits of the Purus Project, the communities have agreed to stop using fire as a means of clearing forest.

[22] Cochrane M.A.& Laurance W.F., 2002. Fire as a large-scale edge effect in Amazonian forests, Journal of Tropical Ecology, 18:311-325.
[23] State Government of Acre Portal, "Geographic Data,"
[24] National Biodiversity Commission, "Technical Committee," Available: http://www.mma.gov.br/sitio/index.php?ido=conteudo.monta&idEstrutura=15&idConteudo=7474&idMenu=368

Project Risks
Although no project risks are known to have significantly impacted the Purus Project between May 2011 and December 2012, the following are a few of the potential future project risks identified by the Project Proponents:

- Communities with greater than one hundred hectares see reduction in land
- A fixed plot of land per family is given, but an increasing family population results in less land per capita
- As incomes increase, the use of illicit drugs, alcoholism and violence might increase
- "An influx of relatively large cash sums in areas with weak governance or where local organizations lack appropriate systems runs the risks of mismanagement, corruption, and 'elite capture."[25]
- "Increased land speculation or in-migration, thus creating conditions for increased competition and social conflict within and between communities."[26]
- Restriction of cattle, results in lower wages, less assets and lower food security; similarly, crops could be less profitable than cattle
- EMBRAPA, S.O.S. Amazônia, and the Center for Technical Production (CPT) classes might not be effective at providing agricultural extension to communities
- If many communities throughout the Project Area start producing the same crop, the price might fall due to supply-demand mismatch; similarly, the price of carbon could fall
- Project Proponents build new school, but children do not go; similarly, health and dental clinic gets established, but no staff nor medicine available

To address these aforementioned risks, the Project Proponents originally met in March 2012 to develop mitigation plans and periodically review the Project's risks.

As previously discussed, community members that have been living on the land and who made the land productive (e.g., by growing agriculture or raising animals) for ten years, have the right to be titled. Moura & Rosa will voluntarily recognize whatever area is currently deforested and under productive use by each family. The minimum area to be titled to each family is one hundred hectares which is the minimum size that INCRA says a family in the State of Acre needs for a sustainable livelihood. Those communities who have deforested and put under productive use over one hundred hectares will receive the full area that has been deforested. All communities, whether they join the Purus Project or not, will be titled the land they have put under productive use. This process will be facilitated by an independent group including the Public Ministry of Acre. Thus, this titling of land to local communities should prevent conflicts over local landownership because communities will receive at least the full amount of area recommended by INCRA and those communities with over 100 hectares will not see a reduction in their land.

[25] Richards, M. 2011. Social and Biodiversity Impact Assessment (SBIA) Manual for REDD+ Projects: Part 2 – Social Impact Assessment Toolbox. Climate, Community & Biodiversity Alliance and Forest Trends with Rainforest Alliance and Fauna & Flora International. Washington, DC. Page 6.
[26] Richards, M. 2011. Social and Biodiversity Impact Assessment (SBIA) Manual for REDD+ Projects: Part 2 – Social Impact Assessment Toolbox. Climate, Community & Biodiversity Alliance and Forest Trends with Rainforest Alliance and Fauna & Flora International. Washington, DC. Page 6.

In addition, the one hundred hectares is a relatively large parcel of land for a community and combined with improved agricultural techniques, this size of land should be sufficient to take care of the families for the lifetime of the Project. Furthermore, job creation should allow for less dependency on the land.

The design of the Project's health clinic will educate the communities about the social problems surrounding illicit drugs, alcoholism and family violence. If worse comes to worse, there are federal and civil police who will take care of illicit drug use and violence.

To minimize corruption and 'elite capture,' the first rule acknowledged by Moura & Rosa is to treat everyone fairly and equally. For example, a minimum of one hundred hectares will be given to everyone. In addition, everyone was given an equal opportunity to choose agricultural classes and all benefits (e.g., access to health clinic and school) will be offered to everyone. The Basic Necessities Survey, which was initially designed and implemented in March 2012, will also monitor the distribution of assets, inequality and poverty.

Agricultural training courses will be offered to surrounding communities as one method to counteract potential in-migration. Some of the Project's benefits (for example, access to health clinic) will be offered to surrounding communities. Ultimately, the Purus Project is privately-owned land and in-migration is not allowed. The deforestation monitoring plan will ensure the rapid identification and resolution of in-migration.

Carbon finance will ideally supplement the reduction in income that may result from fewer cattle. Agricultural trainings will also help diversify crops and increase food security. One course of interest among the communities is rotational pasture management which would allow for cattle using less land. Protein can also be supplemented via chicken, fish and pigs. Ultimately, the goal is to not increase the overall number of cattle expanding into primary forest.

EMBRAPA, S.O.S. Amazônia, and the Center for Technical Production are leading institutions and are experts at providing agricultural extension trainings and researching cutting-edge sustainable agriculture and pasture management. Thus, the risk of their efforts failing is minimal.

The overall crop production among communities is relatively small and should not create a downward pressure on prices of a given crop throughout the Project Zone. Diversity of crop production should act as an insurance mechanism against the price drop of a given crop. If carbon prices fall, the Project Proponents will seek alternative sources of funding to continue the Project and compliment the then-reduced funding from carbon finance.

Brazilian law requires children to go to school and the Landowners will make the school a very good environment for children; thus, increasing their desire to attend school. This improvement includes division of classrooms for different grades. The Landowners will establish the physical infrastructure of a health and dental clinic, while the government is responsible for staffing the facilities. If for some reason the clinic is unable to be staffed or sourced with medicine by the government, the Landowners will assume this responsibility.

5. Enhancement of Climate, Community and Biodiversity Benefits

Specific Measures to Ensure the Maintenance or Enhancement of the High Conservation Value Attributes

The precautionary principal – as defined in the Preamble to the Convention on Biological Diversity – is "that where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat."[27]

As previously mentioned, the Purus Project has several qualifying attributes of High Conservation Values and this includes threatened species, threatened or rare ecosystems, critical ecosystem services, and a direct importance to the local communities living within the Project.

The Purus Project, with a primary objective of mitigating deforestation, has at the very least maintained – if not enhanced – these high conservation value attributes. Although "only" a rapid biodiversity assessment was conducted at the Purus Project, the Project Proponents are acting in accordance with the precautionary principal because despite the lack of a robust localized biodiversity study, the Project still has a core objective of preserving the Project's rich biodiversity and particularly the High Conservation Value (HCV) attributes.

Specific measures to ensure the maintenance or enhancement of HCV attributes include the integration of HCVs into the Purus Project, along with training programs and monitoring plans which incorporate HCVs.[28] For example, the Purus Project proponents have:

- Integrated HCVs into the Purus Project's main objectives. This includes preserving the Project's biodiversity and mitigating deforestation despite limited understanding of the Project's threatened and rare species, along with potential endemic species.
- Eventually train the communities to assist with monitoring biodiversity with wildlife camera traps. This training took place in June 2013. In addition, the Project Proponents will focus additional conservation measures in areas where threatened and/or endemic species are identified.
- Monitored deforestation and community impacts and undertaken actions to mitigate deforestation of the Project's threatened and rare ecosystems.

By maintaining forest cover and mitigating deforestation, this will facilitate water cycling, filtration and storage along with oxygen production. In addition, maintaining forest cover will maintain habitat for biodiversity and promote wildlife activities such as pollination.

Describe Measures to Maintain and Enhance the Benefits beyond the Project Lifetime

There are a variety of measures, both in place and planned, to ensure the Purus Project's climate, community and biodiversity benefits are maintained and enhanced beyond the Project Lifetime. This includes:

- The Tri-Party Agreement's Longevity
- Creation of Moura e Rosa Empreendimentos Imobiliários LTDA

[27] Convention on Biological Diversity, "Preamble," Available: http://www.cbd.int/convention/articles/?a=cbd-00
[28] HCV Resource Network, "Part 3: Identifying and managing High Conservation Values Forests, a guide for forest managers," Available: http://www.hcvnetwork.org/resources/global-hcv-toolkits/hcvf-toolkit-part-3.pdf

- Social Projects
- Education and Outreach

Tri-Party Agreement's Longevity
The Tri-Party Agreement between Carbonfund.org, Carbon Securities and Moura & Rosa stipulates a minimum 60-year Project Lifetime, followed by two renewable terms of 25-years each. Within these contractual time periods, the initial Project Crediting Period will be for 30-years which started on May 23, 2011 and ends on May 22, 2041. The Project Proponents are committed to maintaining forest cover within the Purus Project beyond both the Project Crediting Period and the initial Project Lifetime.

Furthermore, the Project and its PDDs (both VCS and CCBS) are registered with the State of Acre's Climate Change Institute (IMC).

Creation of Moura e Rosa Empreendimentos Imobiliários LTDA
Normando Sales and Wanderley Rosa created the legal entity Moura & Rosa to specifically ensure the Purus Project is managed beyond their lifetime by their children, particularly Felipe Moura Sales and Paulo Silva Cesário Rosa.

Social Projects
The social projects, as outlined in section *G3. Project Design and Goals, subsection 2. Major Activities*, are designed to provide long-lasting climate, community and biodiversity benefits beyond the Project Lifetime.

Education and Outreach
There are a variety of education and outreach activities which will both maintain and enhance the climate, community and biodiversity benefits beyond the Project Lifetime. In addition, it is the Project Proponents' hope that such benefits will not only extend temporally (i.e., beyond the Project Lifetime), but also in a spatial manner (i.e., beyond Project Zone, across State of Acre, across the country of Brazil and internationally). For example, two additional REDD+ projects in Acre known as the Valparaiso Project and the Russas Project became implementation as a result of the Purus Project.

6. Stakeholder Identification and Involvement

Document and Defend how Communities and other Stakeholders Potentially Affected by the Project Activities have been Identified and have been Involved in Project Design
Between May 2011 and December 2012, the Project Proponents conducted an extensive stakeholder identification and stakeholder engagement or involvement process. For a comprehensive list of the Purus Project's stakeholders, please refer *to Appendix A, Stakeholder Identification* of the CCBS PDD.

Stakeholders were primarily analyzed based off their influence and importance and then categorized according to: Project Proponents, Community and Primary Stakeholders; Secondary Stakeholders; and Other Stakeholders.

These following stakeholders, considered primary and secondary stakeholders, were involved in project design to optimize climate, community and biodiversity benefits while ensuring the Purus

Project was properly aligned with the State of Acre. Consultations with all stakeholders, but especially these following stakeholders, shall continue throughout the Project Lifetime:

- Moura e Rosa Empreendimentos Imobiliários LTDA
- Communities living within the Purus Project
- Carbonfund.org Foundation, Inc. and CarbonCo, LLC
- Freitas Group International LLC and Carbon Securities
- TerraCarbon
- Chico Mendes Foundation
- TECMAN LTDA
- Professor Antonio Willian Flores de Melo of UFAC
- PAV Comércio e Serviços Ltda ("PAV"), particularly Ayri Saraiva Rando
- Landowners and Communities living around the Purus Project
- Maria José Miranda de Souza Noquelli Tenóryo Dias e Alternativa Ambiental
- State of Acre, particularly the:
    - Climate Change Institute of Acre (IMC)
    - EMBRAPA
- State of California
    - California Air Resources Board (ARB)
    - REDD Offset Working Group (ROW)
    - Governors' Climate and Forest Task Force
- Verified Carbon Standard Association
- Climate, Community and Biodiversity Alliance

It is important to note that the Project Proponents used socially and culturally appropriate methods for stakeholder consultations and these stakeholder consultations were inclusive of gender, inter-generations, and language. High conservation values were also respected, along with local customs and values. In addition, meetings often took place at the most convenient locations (for example, both at the Purus Project and in Rio Branco).

Furthermore, CarbonCo hired the independent firm PAV in October 2012 to ensure local communities were fully aware of the Purus Project, were able to contribute to the Project design, able to openly express desired outcomes and concerns, understood the third-party grievance procedure, and were able to voluntarily give free, prior and informed consent (i.e., for example, a written MOU is not always culturally appropriate because some community members are illiterate). PAV also made sure to meet with both men and women, along with inter-generations of community members.

A brief summary of project meetings and stakeholder comments have been provided below which took place during the initial monitoring and reporting period from May 23, 2011 to December 31, 2012.

January 21, 2011 - Normando Sales initially met Pedro Freitas in Brasilia, Brazil. Normando Sales was familiar with the process of developing a REDD+ project and was interested in developing this project. Pedro Freitas later presented a draft Tri-Party Agreement to Normando Sales for review, while Normando offered his Project Identification Note for the Purus Project.

The Tri-Party Agreement, which is a cornerstone document of the Purus Project, was revised and mutually accepted based off discussions among Moura & Rosa, Carbon Securities and CarbonCo.

March 9-18, 2011 - CarbonCo, Carbon Securities and TerraCarbon traveled to Acre, Brazil to conduct a preliminary assessment of the Purus Project. A few key milestones included:

- CarbonCo, Carbon Securities and TerraCarbon held initial meetings with PESACRE (Grupo de Pesquisa e Extensão em Sistemas Agroflorestais do Acre), IPAM (Instituto de Pesquisa Ambiental da Amazônia), FUNTAC (Fundacao de Tecnologia do Estado do Acre), and SISA (System of Incentives for Environmental Services) to gain an understanding of the agents and drivers of deforestation in Acre state, how forest biomass stocks vary across the state, and local REDD+ and forest conservation initiatives;
- CarbonCo and TerraCarbon then visited the Purus Project property for an initial assessment on Wednesday, March 16th. This visit included firsthand observations of the forest and local drivers of deforestation, along with some initial casual conversations with a few local community members in the Project Area;
- CarbonCo, Carbon Securities, and TerraCarbon met with Moura & Rosa and the Chico Mendes Foundation on Thursday, March 17th to discuss forest conservation and payment for ecosystem services schemes, such as REDD+; and
- Carbon Securities and TerraCarbon met with Acre State Officials, including Monica Julissa De Los Rios de Leal and Eufran Amaral, on Friday, March 18th.
- The Project was revised based off this initial site visit in March 2011. For example, the Project Proponents: began to design the Project around the identified drivers and agents of deforestation (i.e., selection of appropriate VCS methodology); chose the source of satellite imagery (i.e., FUNTAC/Climate Change Institute); incorporated the Chico Mendes Foundation into the Project; and began a close relationship with the State of Acre.

March 17, 2011 - Tri-Party Agreement was executed by CarbonCo, Carbon Securities, and Moura & Rosa on March 17th, 2011.

May 9, 2011 – Moura & Rosa met with the State of Acre's General Prosecutor Patricia Rego to discuss the Purus Project. This included a general introductory discussion of the Project, the expectations of the State for the Project's area of permanent preserve (APP) being destroyed by the local coomunities and how to legalize the destruction, how to improve quality of the communities' livelihoods, how the State can help the Purus Project, how the State can offer protection for this sort of Project, and the outcomes of a successful Project.

May 13-14, 2011 - CarbonCo and Carbon Securities met with Moura & Rosa in Goiânia, Goiás, Brazil to discuss elements of the VCS Project Description and the CCBS Project Design Document.

August 9-18, 2011 - CarbonCo, Carbon Securities, and TerraCarbon visited Rio Branco and the Purus Project site during a project implementation trip. A few key milestones included:

- TerraCarbon led a classroom forest carbon inventory training for TECMAN field crew;
- CarbonCo, Carbon Securities, Moura & Rosa, TerraCarbon, and TECMAN met with Acre State officials, including Monica Julissa De Los Rios de Leal and Lucio Flavio, on Wednesday, August 3rd to discuss how to best design the forest carbon inventory to align with the State of Acre's goals and future forest inventory plans. The Project's forest carbon inventory design (for example, the size of each plot and the plot design) was revised based off the State of Acre and TECMAN's input;
- CarbonCo, Carbon Securities, TerraCarbon, and Moura & Rosa visited the Purus Project area from Thursday, August 4th through Monday, August 8th.
    - TerraCarbon trained TECMAN field crew members in forest inventory practices and standard operating procedures
    - Moura & Rosa, CarbonCo and Carbon Securities met with the local community to discuss the project and get feedback on how to best implement measures to reduce deforestation. The communities were overall receptive of reducing deforestation in exchange for alternative income and assistance, but were nervous about monitoring for local deforestation because it appeared as a local police force. Based off this input, the monitoring plan was revised so that Moura & Rosa would undertake the initial monitoring via a trike instead of having the initial monitoring conducted by local community members.

Community Meeting (Photo Credit: Brian McFarland)

- CarbonCo, Carbon Securities, and TerraCarbon met with Willian Flores to discuss the VCS methodology, VM0007 the REDD Methodology Modules, applicable to modeling regional deforestation
- CarbonCo, Carbon Securities, Moura & Rosa, TerraCarbon, and Willian Flores met with Acre State officials, including Monica Julissa De Los Rios de Leal, Eufran Amaral and Lucio Flavio on Tuesday, August 9th to discuss how to best develop the project-level

baseline; how private projects will nest with a forthcoming state level baseline; and the type of GIS data available from the State of Acre.

October 17, 2011 - Moura & Rosa and Professor Flores met EMBRAPA in Rio Branco, Acre. During this meeting Moura & Rosa introduced the Purus Project via a PowerPoint Presentation, discussed the local communities' needs and presented ideas for mitigating deforestation pressures. Additionally, Moura & Rosa discussed the possibility of EMBRAPA sending two technicians, one a specialist in reforestation and the minimization of degradation and the other a specialist in agriculture and livestock, to the Purus Project.

November 21, 2011 – CarbonCo spoke with Shaina Brown, Project Director at the Green Technology Leadership Group and Tony Brunello, the REDD Offset Working (ROW) Group's facilitator to better understand the developments in the State of California and how they relate to the State of Acre.

November 30, 2011 – Carbon Securities and CarbonCo held a call with Maria José Miranda de Souza Noquelli from Tenóryo Dias e Alternativa Ambiental to learn more about the rapid biodiversity assessment that was conducted at the Purus Project, the specific species which were identified on the Purus Project site, whether there were occurrences of globally threatened species, along with the available methodologies and approximate costs to perform regular biodiversity monitoring plans.

Early December 2011 – Moura & Rosa met with EMBRAPA to discuss what EMBRAPA needs from Moura & Rosa and EMBRAPA gave a general presentation on how they could assist Moura & Rosa. This included free-range, rotational cattle pastures and intensified agriculture. EMBRAPA also requested an official letter from the Project Proponents.

Late December 2011 - Moura & Rosa again met with EMBRAPA. This discussion focused on the timing of when EMBRAPA could help, costs of EMBRAPA's assistance, and how EMBRPA could officially sponsor the project.

February 6, 2012 – Brian McFarland spoke to Dan Bisaccio, Director of Science Education at Brown University, to better understand wildlife camera traps and biodiversity monitoring plans. The biodiversity monitoring plan - particularly the specific types of cameras, duration of the biodiversity plan, and the number of cameras to be used – was revised.

February 10, 2012 – CarbonCo spoke with Natalie Unterstell, the focal point for REDD+ at Brazil's Federal Ministry of Environment. Discussions were based around:

- The role of Brazil's Federal Government in the REDD+ context; Progress of the Amazon Fund; How States, particularly Acre, might nest into National Government; How Brazil's domestic cap-and-trade market is shaping up; Market mechanisms and REDD+ as potentially eligible offset; Where to go for REDD+ information on Federal government updates and how to inform Government of our Project.

March 9-15th, 2012 – CarbonCo, Carbon Securities and Moura & Rosa visited the Purus Project for the following tasks:

- Met with 16 communities who participated in a Participatory Rural Assessment (PRA) to better understand the activities which contribute to deforestation, the cycle of deforestation, and how far communities enter the forest to collect wood;
- These same 16 communities also participated in a Basic Necessities Survey (BNS) which shall serve as a baseline for the community impact monitoring plan to ensure the communities' poverty scores, poverty index, average owned assets, and average owned assets per capita are positively impacted as a result of the Project;
- The Project proponents also surveyed these 16 communities on which agricultural extension training courses would be of most interest and thus, which proper crops and agricultural techniques that EMBRAPA should focus upon;
- The onsite project managers Sebastião Marques da Silva and Maria Souza de Moura were officially hired;
- CarbonCo, Carbon Securities and Moura & Rosa also met with Prof. Dr. Armando Muniz Calouro, Professor at UFAC, about biodiversity monitoring plans using wildlife camera traps to assess the population and distribution of medium-to-large mammals;
- CarbonCo, Carbon Securities and Moura & Rosa also with the Vice Governor of Acre, Mr. César Correia Messias to explain the Purus Project and to ask for a Letter of Support
- The community impact monitoring plan was revised based off the PRAs, BNS and agricultural survey. In addition it was decided that instead of eliminating all cattle from the Project, it would be better to allow the communities to keep their cattle and instead to encourage the communities to not increase the overall number of cattle.

March 26, 2012 – CarbonCo and TerraCarbon held a follow up call with Monica Julissa De Los Rios de Leal to discuss a variety of topics, including:

- How the State of Acre's baseline is coming along?
- How should we register the Purus Project with the State of Acre?

May 2012 – Moura & Rosa met with SENAR. During this visit, Moura & Rosa: presented the draft CCBS PDD; discussed the Purus Project; explained what is needed in regards to technical, education, and training support and specifically talked about the agricultural extension training courses; and discussed timelines.

June 2012 – CarbonCo and Moura & Rosa met with André Luis Botelho de Moura, a former graduate student of Dr. Armando Muniz Calouro, to begin refining the full biodiversity plan. Such discussions included: the proper locations of cameras; a short, Standard Operating Procedures (SOPs) guidance document needs to be developed that will be used as a training manual for the communities; wildlife camera traps need to be brought to the Purus Project, the communities need to be trained on the proper placement and preventative maintenance of such cameras, and the cameras need to be setup in the field; periodic movement of cameras to different strata; assistance for one year to periodically identify species that the Purus Project team is unable to identify.

July to December 2012 – CarbonCo identified an independent firm to visit the communities twice to ensure the local communities were fully aware of the Purus Project, were able to contribute to the Project design, able to openly express desired outcomes and concerns, understood the third-party grievance procedure, were able to give free, prior and informed

consent. The Purus Project was revised by: giving all communities at least 100 hectares and communities with over 100 hectares are allowed to keep the land they put under productive use; identifying an independent group (i.e., the Public Ministry of Acre) during the titling process as desired by some communities; making sure to address the communities general concerns about no longer being able to use fire which could reduce crop production by incorporating this discussion into the agricultural extension training courses; ensuring the local project managers (instead of via radio announcements) are the primary means of conveying information about the project to the local communities; and scheduling community-wide discussions on the weekends as requested by most local communities.

CarbonCo, Carbon Securities, Moura & Rosa and TerraCarbon held weekly meetings during the development phase of the project. Post-validation, CarbonCo, Carbon Securities and Moura & Rosa hold monthly check-in calls and will hold calls more regularly if necessary.

Historically, Moura & Rosa visit the Purus Project over ten times per year to help implement the Project including showing project staff, contractors, and visitors the Project Area, meet with and engage the surrounding communities, and to further establish a local project base.

CarbonCo, Carbon Securities, and Moura & Rosa are committed to meet in person at least once per year at the Purus Project property with the local community to discuss project activities, project management, and meet with the local community to get their feedback, ideas, and provide a platform for discussion. This yearly visit will also include meetings with other stakeholders such as: the Climate Change Institute (IMC); FETACRE; IMAC (Institute of Environmental Affairs for Acre); the Mayor of Manoel Urbano and the Mayor of Sena Madureira; the State Department of Acre; and EMBRAPA.

The Project Proponents have discussed a process and specific milestones to enable the continued, effective communications with the local communities with the goal of establishing a long term relationship between the Project Proponents and the communities. It is important to note that communication with the local communities has steadily improved over time. This improved communication resulted, in part, from the hiring of the independent community specialist PAV to better explain the Project to the communities and with the hiring of the local project manager Kidney. As part of the communication process, Kidney will regularly visit the communities which will help build trust, confidence and establish a long term relationship between Moura & Rosa and the community. The key to this successful, long term relationship between Moura & Rosa and the community is the continuous demonstration of tangible, net positive community benefits. For example, the regularization of the communities' land tenure will end the fear the communities have of being forced out of the Project Area. Although the communities were never to be removed from the Project, this regularalization of land title, which will be a major milestone, will greatly improve communication with the communities. Another short term, major milestone will be the teaching of agricultural extension training courses by the staff of S.O.S Amazônia and this staff will also listen to the communities to understand new areas of interest for new courses.

The Project Proponents also discussed the actions needed to confirm with the communities that the project activities being implemented are leading to net positive community benefits and that

the project activities are targeting the explicit, local needs of the community. This said, the Project Proponents, particularly the local project manager Kidney, are in regular communication with the local communities. Collectively these community meetings, the Basic Necessity Survey and the Participatory Rural Assessment provided an initial understanding of the most desired benefits the communities would like to obtain from the Project. While these benefits – such as titling land to the communities, building a health clinic, and providing agricultural extension training courses – will continue on the agreed-upon schedule, the Project Proponents will attempt to expedite some of the most desired benefits such as titling land. In addition, community meetings specifically discussing benefits from the Project will be implemented and the Basic Necessity Survey will be administered again in 2014 which will reveal if there are changes in the communities' local needs.

In addition the local communities, there is a Ramal (which translates into "small road" in English) that is nearing the Project Zone from the Northeast boundary of the Purus Project. This Ramal will encourage new communities to settle near the Project Zone and the Project Proponents discussed the following action items to engage these communities living along the Ramal. The Ramal was planned and funded by the municipality of Manuel Urbano and Moura & Rosa will meet with the mayor of Manuel Urbano to re-explain the Project and specifically educate the mayor about the impact the Ramal could have on the Project with respect to increased deforestation. This meeting took place on November 28, 2013. Next, the local project manager Kidney visited the communities living along the Ramal on November 27th and 28th, 2013 to inform the communities of the Project and that forest conservation is the cornerstone of the Project. Lastly, a Purus Project sign will be installed to provide a visual reminder of the Purus Project and the importance of preserving the Project's forests.

The Project Proponents will continue communication throughout the Project Lifetime with the goal of monitoring the success of Project activities in achieving the climate, community and biodiversity objectives. As the Project unfolds, the Project Proponents will practice adaptive management techniques to constantly assess the Project's ongoing successes and shortcomings.

Adaptive management is necessary for the Purus Project in part because many aspects of REDD+ are still unfolding and being decided. This said, as country-specific indicators of the REDD+ Social and Environmental Standards are developed by the State of Acre, the Purus Project shall attempt to harmonize its biodiversity and community monitoring plans.

Describe Methods to Publicize CCBA Public Comment Period and to Facilitate Submission of Comments
A variety of communication methods were utilized to publicize the CCBA Project Design Documents' (PDDs) public comment period to stakeholders of the Purus Project, including the local communities. In addition, the Project Proponents played an active role in distributing the Purus Project's CCBS PDDs. Such specific steps, which were also followed for the Purus Project's full monitoring plans and this Project Implementation Report, include:

- First and foremost, the project documents (i.e., PDDs, Full Monitoring Plans, Project Implementation Report, etc.) were made available in both English and Portuguese. This allowed for a wider-range of stakeholder participation including local communities and government officials in Acre, Brazil.

- Secondly, the project documents were communicated to community members in an appropriate manner to overcome the fact that some community members might be illiterate. For example, PAV visited the communities during the CCBA Public Comment Period to explain the Project's Public Comment Period and solicit their comments. A copy of the Portuguese CCBS PDD was also left at Purus Project's headquarters. In addition, a summary document of the Project Implementation Report was also made.
- The CCBS PDD and Project Implementation Report were publicly posted for a minimum of 30 days on the CCBA website and comments were solicited. The CCBS PDD 30-day Public Comment Period officially ran from October 20th through November 19th, 2012 and the CCBS PIR 30-day Public Comment Period officially ran from July 12th and August 11th, 2013.
- CarbonCo's parent company Carbonfund.org Foundation publicized the project documents on its website and solicited comments on the Project via a newsletter announcement to Carbonfund.org's 20,000+ members. Carbonfund.org's newsletter for the CCBS PDD Public Comment Period announcement was sent October 25, 2012 and Carbonfund.org's newsletter for the CCBS PIR Public Comment Period announcement was sent on July 22, 2013.
- Furthermore, the project documents were sent to a variety of specific stakeholders including Acre State Government officials, TECMAN and Professor Flores to ensure accuracy of statements and encourage their submission of comments to the CCBS.

With respect to other stakeholders, Moura & Rosa announced the public comment period of the Project Implementation Report on the Rádio Difusora Acreana radio station of Rio Branco. This radio station is widely listened to throughout the State of Acre, including the municipalities of Manoel Urbano and Sena Madureira. Such an announcement informed listeners about the Purus Project and about the CCBS, encouraged listeners to review the Project, and asked for comments to be submitted.

Formalize Clear Process for Handling Unresolved Conflicts and Grievances
Between May 2011 and December 2012, the Purus Project's grievances procedure was designed and communicated to the local communities.

Essentially if conflicts or grievances are unable to be resolved by the Project Proponents (particularly Moura & Rosa), the State of Acre's Climate Change Institute – acting as a third party to prevent any conflict of interest - will hear, respond to, and help resolve all reasonable grievances with the Purus Project through an impartial and accessible process.

More specifically, the State of Acre's Climate Change Institute is in the process of establishing an Ombudsman who will be the specific person to receive and refer any grievances about the Purus Project. Before such an Ombudsman is officially hired, any stakeholder is free to contact or visit the Climate Change Institute with any unresolved conflicts or grievances. Below is the physical address, phone numbers, fax numbers and email address:

Instituto de Mudanças Climáticas e Regulação de Serviços Ambientais
Address: Rua Floriano Peixoto, nº 460, Primeiro Andar, Centro, Acre, Brazil
Telephone: +55 (68) 3223-1933 / +55 (68) 3223 9962 / +55 (68) 3223 1903

Fax: +55 (68) 3223 9962
Email Address: gabinete.imc@ac.gov.br

The Climate Change Institute's process for hearing, responding to, and resolving reasonable grievances is as follows:

- Receiving: Any person may visit or contact the Climate Change Institute. Any person who makes contact with the Ombudsman over the internet will receive a notification of receipt by email.
- Verification and Acceptance: The Ombudsman will decide whether a complaint is considered reasonable and whether the complaint should be accepted by the Climate Change Institute.
- Referral to Internal Areas: When deciding to accept a demand, the Ombudsman records the compliant and informs the person raising the complaint of the protocol number and the deadline for a response. If the demand is accepted, the demand will be internally referred to the appropriate specialist. If the demand is rejected, the Ombudsman will inform the person of the reason for the rejection.
- Monitoring: The Ombudsman will monitor the protocol and will monitor the internal areas responsible for collecting the answers to the compliant.
- Resolution: When the settlement is decided, the Ombudsman will make contact with the person who raised the complaint and the Ombudsman will close the protocol. All complaints received by the Ombudsman are usually answered within five working days and the person can call to know the progress of their protocol.

Each month the Ombudsman shall prepare a report and forward it to Board and President of the Climate Change Institute. In this report, the Ombudsman will: summarize actions taken to address complaints; quantify complaints and provide graphics to compare number of complaints against previous months; report amount of open and closed protocols; and provide relevant suggestions for process improvements and final considerations of the Ombudsman.

Furthermore, all conflicts or grievances will be addressed within a reasonable timeframe, the resolutions will be documented, and this process has been publicized to all stakeholders and especially to the local communities.

There are a few specific processes being developed in order to address particular conflicts.

The Landowners are creating a plan of arbitration or mediation in case any rule is broken within the community (for example: illegal logging). The Landowners acknowledge that they must maintain the peace in the community while also protecting the Project rules.
Upon learning of any deforestation within the Project Area, the Project Manager - residing at the Headquarters of the Project - shall adopt the following procedures:

- A.1 - Notify the fact immediately, by telephone, via email or in-person, to the Board of Moura & Rosa (i.e., the Landowners of the Project)

- A.2 - Trigger field team to conduct an immediate inspection of the site by land or by air via trike in order to identify the exact location of deforestation (i.e., using GPS), its extent, and its agent. The field team shall make photographic record of everything and every operation, and whether the agent has the legal authority from an environmental agency (IBAMA or IMAC) to deforest.

- A.3 - If the agent did not receive the legal authority for such deforestation, the Project Manager informs the agent to immediately stop deforestation, under threat of legal repercussions;

- A.4 - If there is resistance to stop the deforestation, the Project Manager should report it immediately to the officer on duty or the Chief of Forestry Police in Manoel Urbano and IMAC, requesting to move a team to the site immediately, providing all necessary means; for example, a motorboat to the city of Manoel Urbano, food, a guide to the deforested site, and to provide the necessary evidence to register the occurrence with the police and IMAC.

- A.5 - The Director of Moura & Rosa, upon learning of deforestation, should report it immediately to the Legal Advisor to the Project who moves to the city of Manoel Urbano and take appropriate legal steps, following the case, and personally taking the knowledge to the prosecutor, thereby initiating the due process of law.

- A.6 - The Director of Moura & Rosa must report such fact to Carbon Securities and CarbonCo in writing, sending them a copy of all actions taken

Moura & Rosa spoke with the former commander Cel QOBM Flavio Ferreira Pires of the Military Fire Department in Rio Branco. In the future upon learning of any fire that exceeds the allowable limit for rural communities within the Project Area, the Project Manager would take the following steps:

- B.1 - The Project Manager shall first notify the fact by telephone, via e-mail or in-person, to the Board of Moura & Rosa.

- B.2 – If help is needed, the Project Manager will ask for support from the Fire Department of the State of Acre and the Forestry Police of Manoel Urbano, by phone, providing the means of transport to the location of fire.

- B.3 - After fire is under control, the Project Manager will ask the resident to submit the legal authority to carry out the burning and if this authorization is not presented, the Project Manager should make an immediate notice ordering the residents to refrain from making new burning, under threat of legal repercussion.

- B.4 - If there is recurrence of fire from the same resident, the Project Manager should immediately report it to the Fire Department of the State of Acre and the Forestry Police of Manuel Urbano requesting the immediate movement of a team to the site, for any legal proceedings, providing all necessary means; for example, a motorboat to the city of

Manoel Urbano, food, a guide to the deforested site, and to provide the necessary evidence to register the occurrence with the police.

- B.5 - The Director of Moura & Rosa, upon learning of the fire, should report it immediately to the Legal Advisor of the Project who moves to the city of Manoel Urbano and take appropriate legal steps, following the case and personally taking the knowledge to IMAC, in writing, thus initiating the due process of law and criminal fine against the violator.

- B.6 - The Director of Moura & Rosa must report such fact to Carbon Securities and CarbonCo in writing, sending them a copy of all actions taken.

Upon learning of any in-migration of Project Area, the Project Manager should adopt the following procedures:

- C.1 - Shall report the fact immediately, by telephone, via e-mail or in-person, to the Board of Moura & Rosa.

- C.2 - Trigger field team to conduct an immediate inspection of the site by land or by air (via trike) in order to identify the person, the exact location of the invasion (i.e., GPS points), the extent of the invaded area, the improvements already made on site, the goal of the invasion, making detailed photographic record of everything and using the means necessary to stop the in-migration; for example, to notify the Public Ministry and presenting them with all the necessary evidence for the formation of the police investigation (e.g., the instruments used in the invasion such as chainsaws, photos, exact location, witnesses, etc).

- C.3 - The Director of Moura & Rosa, upon learning of the in-migration, should report it immediately to the Legal Advisor of the Project who moves to the city of Manoel Urbano and take appropriate legal steps, following the case personally by the Public Ministry and bringing it to the prosecutor, in writing, thereby initiating the due process of law.

- C.4 - The Director of Moura & Rosa must report such fact to Carbon Securities and CarbonCo in writing, sending them a copy of all actions taken.

Upon learning of the occurrence of illegal logging or poaching in the Purus Project, the Project Manager should adopt the following procedures:

- D.1 - Notify the fact immediately by telephone, via e-mail or in-person, to the Board of Moura & Rosa.

- D.2 - Trigger field team to conduct a site survey by land or by air via trike in order to identify its agent, the exact location of the illegal occurrence (i.e., using GPS), the extracted or hunted species, the purpose of such extraction or hunting, performing detailed photographic record of everything and to use the necessary and proper means to prevent the continuation of illegal logging or poaching. All necessary evidence will be

provided to IMAC and the District Police of Manoel Urbano for the formation of the police investigation; for example tools used in logging or poaching (i.e., chainsaw, machete, rifle, etc.), photos, exact location, witnesses, etc.

- D.3 - The Director of Moura & Rosa, taking note of the illegal logging or poaching, should report it immediately to the Legal Advisor of the Project who moves to the city of Manoel Urban and take appropriate legal steps, following the case personally by IMAC or the Police and bringing it to the prosecutor, in writing, thereby initiating the due process of law.

- D.4 - The Director of Moura & Rosa must report such fact to Carbon Securities and CarbonCo in writing, sending them a copy of all actions taken.

7. Project Transparency

The Purus Project seeks to promote the highest level of transparency, while protecting proprietary information and respecting intellectual property rights. To achieve this goal, these actions took place between May 2011 and December 2012 to promote the Project's transparency:

- The Purus Project was independently audited by Scientific Certification Systems to the CCBS and VCS, two leading certification standards.
- The CCBS PDD was publicly posted for 30 days.
- Carbonfund.org and CarbonCo LLC's financial statements were annually audited by an independent, certified public accountant.
- The Project Proponents presented the Project to a wide-range of officials, including but not limited to: Acre's Vice-Governor César Correia Messias, the Climate Change Institute of the State of Acre, Acre's General Prosecutor Patricia Rego and EMBRAPA.
- CarbonCo hired the independent firm PAV to meet with the local communities to ensure an open and transparent discussion with the communities about the Purus Project

Furthermore, the Purus Project undertook an extensive stakeholder consultation, the project documents were both translated into Portuguese and widely publicized, and the VCS-approved registry Markit was selected to further ensure the Project's transparency.

There was also a participatory process of drafting the Tri-Party Agreement, outlining the overall roles and responsibilities of the Project Proponents, clarity about funding, and appropriate risk sharing of costs and benefits. Furthermore, the transparency of benefit sharing will be enhanced through verification and VCS-registry distribution of VERs.

8. Financial Mechanisms and Project Implementation

Demonstrate that Financial Mechanisms Adopted are Adequate

Carbonfund.org has funded 70+ carbon reduction and tree-planting projects including the co-development and co-financing of several forest carbon projects. Thus, Carbonfund.org's wholly-owned subsidiary CarbonCo is well aware of the financial mechanisms required for successful project implementation. A detailed pro forma for the Project's minimum 30-year crediting period was also developed. Furthermore, Carbonfund.org's Internal Revenue Service (IRS) Form 990 – which demonstrates the organization's financial health - is publicly available.

The primary source of financing for the Purus Project will come from Carbonfund.org's existing unrestricted funding, potential in-kind donations and grants, along with the eventual sale of verified carbon units (VCUs).

G4. Management Capacity and Best Practices

The Purus Project includes a highly-skilled core management team and there is ongoing capacity-building. The Project shall also employ best practices, including local employment, awareness of worker rights, ensuring worker safety, and establishing a clear process for properly handling grievances.

1. Roles and Responsibilities of Project Proponents

The three primary Project Proponents responsible for the Purus Project's design and implementation are Moura & Rosa, CarbonCo and Freitas International Group. CarbonCo, the wholly-owned subsidiary of Carbonfund.org, is responsible for getting the Project certified and for early-stage Project finance. Carbon Securities acts as a liaison between CarbonCo and Moura & Rosa, along with acting as a translator and assisting with logistics for site visits. Moura & Rosa is an Acre, Brazil-based organization created by the Landowners and is primarily responsible for day-to-day management of the Project and the implementation of activities to mitigate deforestation.

The following shall provide the overall governance structure, along with specific roles and responsibilities.

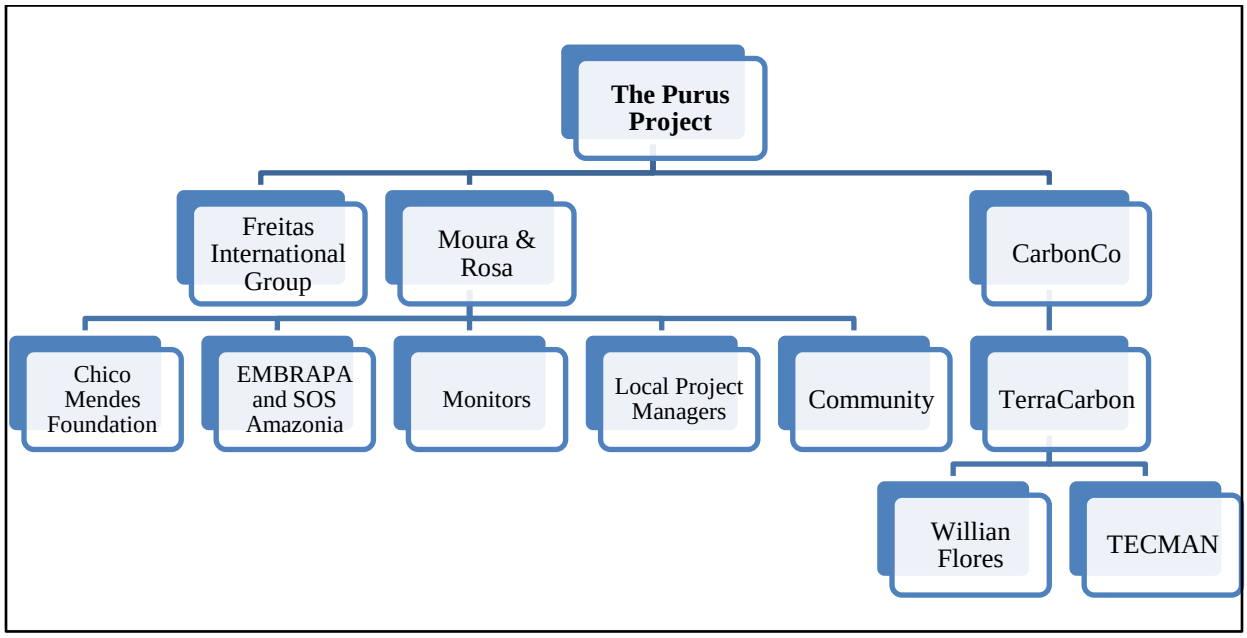

Figure 3: Governance Structure / Organizational Chart of the Purus Project

CarbonCo LLC

CarbonCo, LLC ("CarbonCo") is a limited liability company based in Bethesda, Maryland and is the wholly-owned subsidiary of Carbonfund.org Foundation, Inc.

CarbonCo develops carbon reduction projects by working with landowners on the documentation and programs needed to ensure large tracts of land are protected from deforestation, attain international certification, and create value for all Project Proponents.

CarbonCo is managing the project development portion of Carbonfund.org's work but is not in the business of climate change education and outreach, small scale carbon offset retail sales, nor corporate sustainability programs. CarbonCo instead is focusing on a number of project opportunities and the advisory services necessary to help these conservation projects reach certification. To learn more about CarbonCo, please see the validated CCBS PDD and visit: www.CarbonCoLLC.com.

More specifically, CarbonCo's contractual obligations and specific responsibilities include:

- Performing due diligence to determine the feasibility of the Project
- Selecting an international certification standard and appropriate REDD methodology
- Acquiring satellite images and/or remote sensing
- Determining an appropriate deforestation rate, reference region and leakage belt
- Measuring the Project's carbon stock via a forest carbon inventory
- Developing the VCS Project Description and CCBS Project Design Document
- Posting the CCBS Project Design Document for a 30-day Public Comment Period
- Contracting an independent and approved auditor to validate and verify the Project
- Addressing all Corrective Action Requests raised by the audit team
- Registering the verified emission reductions (VERs) on a VCS-approved registry
- Providing advice on the marketing, sale and transfer of VERs

Contact: Brian McFarland - BMcFarland@CarbonCoLLC.com or (240) 595-6883
Contact: Eric Carlson – ECarlson@CarbonCoLLC.com or (240) 247-0630

Freitas International Group, LLC and Carbon Securities
Freitas International Group, LLC is a Florida limited liability company, doing business as Carbon Securities, with a main office located in Miami, Florida and associates in the Brazilian cities of Goiânia, Brasília, Rio Branco, Belém, and São Paulo. Carbon Securities, through its operations in the US and Brazil, links international and local partners to identify, develop, certify and finance high quality carbon reduction projects, especially REDD+ projects in the Amazon Basin. To learn more about Carbon Securities, please see the validated CCBS PDD and visit: http://www.carbonsecurities.org.

More specifically, Carbon Securities' contractual obligations and specific responsibilities include:

- Promoting, encouraging and facilitating the participation and cooperation of Landowners
- Facilitating due diligence on the Project
- Serving as a liaison and translator for the Landowners and CarbonCo
- Assisting CarbonCo which includes establishing meetings with Landowners and relevant stakeholders, arranging site visits, providing information and documentation such as previous studies, photographs, and satellite images related to the Project

Contact: Pedro Freitas - PedroFreitas@CarbonSecurities.org or +55 (62) 9999-2113
Contact: Marco Aurélio Freitas - MarcoFreitas@CarbonSecurities.org or +55 (62) 9969-2022
Contact: Elizabeth Guimarães - ElizabethGuimarães@CarbonSecurities.org or +55 (62) 3642-6837

Moura e Rosa Empreendimentos Imobiliários LTDA
The creation of Moura e Rosa Empreendimentos Imobiliários LTDA ("Moura & Rosa" or "M&R") was a dream nurtured by the Landowners since 2001/2002 when the first study of carbon sequestered in the Purus Project area was conducted.

Moura & Rosa was later founded on February 27, 2009 to promote the preservation of tropical rainforests situated on the banks of the Purus River in the municipality of Manoel Urbano, Acre State, Brazil (i.e., the Purus Project).

Moura & Rosa was created by Normando Rodrigues Sales and Wanderley Cesário Rosa to ensure the contiunity of ongoing projects and investments targeting the preservation of the Purus Project. Felipe Moura Sales (Normando's son) and Paulo Silva Cesário Rosa (Wanderley's son) own Moura & Rosa which owns the Purus Project property, while Normando and Wanderley are currently the managing directors of Moura & Rosa.

Furthermore, contractual obligations and specific responsibilities of the Moura & Rosa include:

- Providing all evidence of ownership of the Property such as deeds, titles and maps which clearly define the Property's boundaries and registered with government authorities
- Eliminating the drivers and causes of deforestation
- Acknowledging and agreeing to not execute any activity that otherwise might interfere with the implementation during the term of the Project and with the VER generation and certification at the Property, including, but not limited to (i) clearing the forest for livestock; (ii) clearing the forest for agriculture; (iii) expanding old roads or constructing new roads; (iv) expansion into new forests on Property for community use or infrastructure facilities (i.e., bridges, housing, electricity, etc.); (v) expanding logging operations; and (vi) deforestation for new mining or mineral extraction.
- Taking all actions necessary to avoid any risks associated with the Project, notably the spread of invasive species, forest fires and pests
- Demonstrating legal ownership of any and all pre-existing carbon credit rights
- Paying any and all pending liens, taxes, fines and/or any other debts against the Property
- Cooperating with CarbonCo and Carbon Securities in any manner and whenever required in order to obtain the VERs which includes interviews aiming to gather additional information on the Project, verifying information written in the project documents, granting access to the Project site, attending meetings with the authorities and community to explain the Project
- Elaborating a community impact monitoring plan
- Meeting with community to inform and explain the proposed Project along with providing a means for the community to express, and be available to address, reasonable grievances

- Incorporating community comments into the development of the Project and resolve any reasonable grievances with the Project
- Landowner acknowledges and agrees that all conservation/preservation measures to be taken in connection with the Project will be carried out by Landowner voluntarily
- Making the project documentation publicly available at the Landowner's office and at the Property

Contact: Normando Sales - normandosales@hotmail.com or 55-68-3224-0562
Contact: Wanderley Rosa - wanderleyrosa@uol.com.br or 55-68-3224-0562

TerraCarbon LLC
Neither Carbonfund.org nor CarbonCo directly employ staff with the technical skills to perform and execute some of the requisite activities and hired TerraCarbon.

TerraCarbon LLC is an advisory firm specialized in the forestry and land-use sector of the carbon markets. TerraCarbon provides a range of technical, transaction, and strategic services to clients that implement market oriented programs or projects to restore and protect the world's forests. To learn more, visit: http://terracarbon.com/

Antonio Willian Flores de Melo
CarbonCo, with the guidance of TerraCarbon, hired Professor Antonio Willian Flores de Melo ("Professor Willian Flores") to perform the Project's regional deforestation and land-use modeling. Willian Flores is a Professor at the Federal University of Acre (UFAC) within UFAC's Center for Biological Science and Nature. Willian received a degree in Agronomy from the Federal University of Acre and a Masters' of Science from the University of Sao Paulo in Ecological Studies and Agronomy.

Contact: Antonio Willian Flores de Melo - willianflores@gmail.com or +55 (68) 3901-2611

Local Communities
The local communities on the banks of the Purus River and within the Purus Project Property consist of eighteen families and approximately 100 people.

As of March 2012 within the Seringal Itatinga parcel, there were thirteen communities:

- 1. Noé Claudio da Silva
- 2. Aguinelo Nunes da Silva
- 3. Antonio Nunes Sales Cardinal
- 4. Manoel Guita
- 5. Cardinal Antonio Leite
- 6. Benedito Nunes da Silva
- 7. Antonio Cardinal Newman Messiah
- 8. Sebastião Marques da Silva (Miguel)
- 9. Antonio Marques da Silva
- 10. Hélio de Oliveira and Manoel de Oliveira
- 11. Manoel Nazarene Pereira da Silva
- 12. Raimundo and Essilia Carneiro

- 13. Adriano Moura da Silva

As of March 2012 within the Porto Central parcel, there were five communities:

- 1. Celina Pereira de Mello
- 2. Francisco Marques Vieira (Chico Brabo)
- 3. José Marilson Leite da Silva
- 4. Raimundo de Oliveira
- 5. José Mariano Nunes Frota

Chico Mendes Foundation
Although the Chico Mendes Foundation does not have any formal role in the Purus Project, the Project Proponents have pledged a portion of the Project's revenue to further the mission of the Chico Mendes Foundation and the Foundation has provided informal guidance to Moura & Rosa. To learn more, visit: http://www.chicomendes.org.br/index_english.html.

PAV Comércio e Serviços Ltda
PAV Comércio e Serviços Ltda ("PAV") started its activities in the area of environmental services and incentive mechanisms to environmental services in 2008, the year following the completion of the Environmental Engineering course by Mr. Ayri Saraiva Rando. From April 2012 until March 2013, PAV is providing support services to CARE Brazil for: the institutionalization of environmental standards related to REDD+ in the Acre State System of Incentives for Environmental Services (SISA); running this organization via a partnership with Acre's Institute of Climate Change Environmental and Regulatory Services Acre (IMC).

2. Key Technical Skills and Staff
The key technical skills required to successfully implement the Purus Project, include:

- Stakeholder identification and community engagement
- Biodiversity assessment and monitoring
- Carbon stock measurement and monitoring
- Regional deforestation and land-use modelling
- Project management
- Local knowledge and fluency in Portuguese

The Project's management team and advisors have both the expertise and prior experience with implementing forest carbon projects. For detailed staff biographies, please see the Purus Project's CCBS PDD, section G4. Management Capacity and Best Practices, subsection 2. Key Technical Skills and Staff.

3. Orientation and Training
Plan to Provide Orientation and Training for Project's Employees and Relevant Community Members
The Purus Project Proponents provided orientation and training for the Project's employees and relevant community members. Between May 2011 and December 2012, orientation and trainings included:

- Normando and Wanderley met with the local communities for over five years to provide orientation to the Purus Project and conservation activities
- CarbonCo, Carbon Securities and TerraCarbon had a kick-off meeting and orientation in August 2011 with Moura & Rosa, TECMAN, and Professor Flores prior to initiating the forest carbon inventory and regional deforestation modelling.
- TerraCarbon provided both classroom and field training, along with a standard operating procedure (i.e., in Portuguese and English) for TECMAN's forest carbon inventory
- CarbonCo, Carbon Securities and Moura & Rosa met with Dr. Armando Muniz Calouro (Biology Professor at UFAC) to discuss his ability, or his graduate students' ability, to offer trainings to the local community on the Project's biodiversity monitoring plan
- Wanderley was trained and licensed in April 2012 by the organization Aeroclub de Campinas on how to operate/pilot a trike.
- PAV provided additional orientation to the community about the Purus Project throughout October 2012.
- Kidney, the local Project Manager, was trained about the Project during three trips to the Purus Project from October through December 2012 to discuss what happens if deforestation is identified, the goals of the Project, to show Kidney the headquarters, and to explain the needs of the community, etc.

Additional trainings - including training on the use of wildlife cameras and biodiversity monitoring, along with agricultural extension trainings – are scheduled for 2013. Furthermore, Moura & Rosa will train new workers when there is staff turnover.

4. Community Involvement

Show Communities will be given an Equal Opportunity to fill all Employment Positions

The Purus Project Proponents recognize the communities are a central element to the Purus Project's success and to achieve the Project's objective, the communities will be given an equal opportunity to fill all employment positions.

Between May 2011 and December 2012, the communities were involved in the Purus Project by:

- Acting as guides
- Providing lodging, food and transportation services
- Choosing the particular crops and techniques they would like to learn more about from the Centro de Produções Técnicas (Center for Technical Production)
- Engaging in solving land tenure arrangements
- Discussing the Project design, benefits of the project, how they would like to participate
- Hired as local project managers

5. Relevant Laws and Regulations

Submit List of all Relevant Laws and Regulations Covering Worker's Rights in the Host Country

Between May 2011 and December 2012, the Project Proponents identified all relevant laws and discussed the laws impacts on the Purus Project. For example the Purus Project meets, or exceeds, all applicable laws and regulations covering worker rights in Brazil and the Project Proponents will inform all workers about their rights.

The following is a list of Brazil's relevant laws and regulations covering worker's rights:

- The Brazilian Constitution, Chapter II-Social Rights, Articles 7- 11 which addressed[29]

In addition to the Constitution, there are two additional decrees related to Brazilian labor laws.

- Consolidação das Leis do Trabalho (CLT): DECRETO-LEI N.º 5.452, DE 1º DE MAIO DE 1943 (Consolidate of Working Laws).[30]
- Estatui normas reguladoras do trabalho rural: LEI Nº 5.889, DE 8 DE JUNHO DE 1973 (Establishes Regular Norms for Rural Workers).[31]

Compliance with Law
Agreements between the Project Proponents as well as Agreements between CarbonCo and its contractors stipulate firms to abide by labor laws (for example, wages above Brazil's federal minimum wage) and an assurance that all Brazilian employment taxes and insurance are paid.

In addition, CarbonCo has an employee handbook to ensure proper guidelines are followed by its employees. Moura & Rosa have an explanatory letter on labor rights that will be presented to all of their employees to ensure workers are informed about their rights.

CarbonCo undergoes a financial audit by an independent accountant to ensure all taxes, including employment, social and corporate, are paid. Furthermore, Moura & Rosa have provided "Certificado de Regularidade do FGTS – CRF" and the "CERTIDÃO NEGATIVA DE DÉBITOS RELATIVOS ÀS CONTRIBUIÇÕES PREVIDENCIÁRIAS E ÀS DE TERCEIROS" which certify that all taxes (including employee and business) and insurance (including social) are paid.

The Project Proponents will forever continue to work with the well-being of the communities in mind. This shall differ from historical employment arrangements where there were indentured servant arrangements of extractive reserves. In contrast, the communities will be offered meaningful employment, have the ability to directly shape the Project, and an ability to express any and all grievances.

6. Worker Safety Assurance

Comprehensively Assess Situations and Occupations that Pose a Substantial Risk to Worker Safety
Between May 2011 and December 2012, the Purus Project Proponents comprehensively assessed the situations and particular occupations that could pose risks to worker safety. The Project Proponents will continue to inform workers of such risks, explain how to minimize such risks, and the Project Proponents will use best work practices.

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[29] Massachusetts Institute of Technology, "Brazilian Constitution," Available: http://web.mit.edu/12.000/www/m2006/teams/willr3/const.htm
[30] Presidency of the Republic, "DECRETO-LEI N.º 5.452, DE 1º DE MAIO DE 1943, Available: http://www.planalto.gov.br/ccivil_03/decreto-lei/Del5452.htm
[31] Presidency of the Republic. "LEI Nº 5.889, DE 8 DE JUNHO DE 1973," Available: http://www.planalto.gov.br/ccivil_03/leis/L5889.htm

The main potential risks to workers identified by the Project Proponents include:

- Drowning
- Heat Exhaustion and Dehydration
- Getting lost in Remote Forest
- Venomous Snake Bites

Drowning
It is important to note, that all boats travel relatively slow on the Purus River, many participants know how to swim, and life preservers are always onboard in case a boat does capsize.

Heat Exhaustion and Dehydration
Workers and Project Proponents are familiar with tropical rainforests (for example, high levels of humidity and tropical temperatures) and prepare for each trip with sufficient food and water.

Getting Lost
Global positioning systems (GPS) are used during trips into the deep forest to minimize the risk of getting lost. Local guides from the community and the Purus Project Landowners' familiarity with the area also helps to minimize the chances of getting lost.

Venomous Snake Bites
The most substantial risk to workers, particularly TECMAN's employees during the forest carbon inventory, was the potential encounter with venomous snake bites. Snake bites are relatively common in South America[32] and specifically within the State of Acre.[33] The snake species of greatest concern among riverside communities of the lower Purus River in Amazonas, Brazil were the fer-de-lance (*Bothrops atrox*) and the South American bushmaster (*Lachesis muta*).[34] To mitigate such risk, all TECMAN's employees were equipped with and required to wear protective snake chaps.

[32] J.-P. Chippaux. "Reviews/Analyses," Available: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2305789/pdf/bullwho00388-0084.pdf
[33] Pierini SV et al., "High incidence of bites and stings by snakes and other animals among rubber tappers and Amazonian Indians of the Juruá Valley, Acre State, Brazil,"
[34] Fabiano Waldez and Richard C. Vogt, "Ecological and epidemiological aspects of snakebites in riverside communities of the lower Purus River, Amazonas, Brazil," Available: http://piagacu.org.br/?attachment_id=416

TECMAN's Employees with Snake Chaps (Photo Credit: Brian McFarland)

Worker safety is of the highest importance. For TECMAN's forest carbon inventory work, there was a discussion of safety procedures and TECMAN has a safety manual entitled, *Procedimentos de Segurança em Campo* (Field Safety Procedures).

Other Potential Risks to Worker Safety
An additional situation that could pose a substantial risk to worker safety is the social assistance project activity related to removing trees from the bed of the Purus River. However, any workers from the community who voluntarily assist with the tree removal will be limited to providing assistance with transportation and providing food. Any activities involving substantial risk - such as diving into the Purus River or operating the on-shore, heavy-duty winch - will be performed by trained, experienced professionals employed by the State of Acre.

To mitigate potential risks to these workers, there are state requirements which include having the necessary equipment (e.g., boat and heavy-duty winch), safety equipment (e.g., life preservers), and proper training. For example to become a firefighter in the State of Acre, all personnel need to pass both a health inspection and take a specialized course. Furthermore, the firefighters who will assist with the removal of trees from the bed of the Purus River are informed about the risks and are specifically trained in emergency response and specifically trained to safely dive into rivers and remove wood.

7. Financial Status of Organizations
Document the Financial Health of the Implementing Organization(s)
As discussed in section *G3. Project Design and Goals*, subsection *9. Financial Mechanisms and Project Implementation*, Carbonfund.org provided financial resources to its wholly-owned subsidiary CarbonCo to implement REDD+ projects and particularly the Purus Project. Carbonfund.org's independently audited IRS Form 990s are publicly available and document Carbonfund.org's financial health. See here for access to Carbonfund.org's 2009 to 2012 IRS Form 990s. See here for Carbonfund.org's website and see here for CarbonCo's website.

Furthermore, contractual agreements outlining the financial arrangement between the Project Proponents, along with detailed pro formas, were provided to the Project's independent validation and verification firms.

G5. Legal Status and Property Rights

The Purus Project is compliant will all relevant laws (i.e., including worker rights and laws described in section *G4. Management Capacity and Best Practices*, subsection *5. Relevant Laws and Regulations*) and the Project is founded on a solid legal framework. In addition, the Project Proponents are constantly communicating with local, regional and national authorities, there will be no involuntary relocations, and the Project Proponents have discussed actions to take in case illegal activities are discovered.

1. Compliance with Laws

List of all Relevant International, National and Local Laws, Regulation, Treaties and Agreements

The following is a list of all the international, national and state-level laws and regulatory frameworks identified by the Project Proponents between May 2011 and December 2012 which are relevant to the Purus Project.

International Laws and Regulatory Frameworks

Brazil is a party to numerous international conventions and treaties such as the:

- Convention on Biological Diversity
- United Nations Framework Convention on Climate Change
- Convention on International Trade in Endangered Species of Wild Fauna and Flora International Tropical Timber Organization (i.e., Brazil is a Producing Member)
- Ramsar Convention on Wetlands
- Universal Declaration of Human Rights
- Convention on the Elimination of All Forms of Discrimination Against Women
- International Labor Organization Convention

There was also a Memorandum of Understanding (MOU) signed on March 3, 2010 between Brazil and the United States of America on "cooperation regarding climate change."[35]

Furthermore, there was an international MOU between California (United States), Chiapas (Mexico) and Acre (Brazil) signed on November 16, 2010.[36]

The State of Acre is also an active member in the Governors' Climate and Forest Task Force.[37]

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[35] The Government of Brazil and the Government of the United States of America, "Memorandum of Understanding Between the Government of the Federative Republic of Brazil and the Government of the United States of America on Cooperation Regarding Climate Change," http://www.brazilcouncil.org/sites/default/files/ MOUonCooperationRegardingClimateChange-Mar032010.pdf

[36] The State of Acre, the State of Chiapas, and the State of California, "Memorandum of Understanding on Environmental Cooperation between the State of Acre of the Federative Republic of Brazil, the State of Chiapas of the United Mexican States, and the State of California of the United States of America," http://www.gcftaskforce.org/documents/MOU_Acre_California_and_Chiapas.pdf

[37] Governors' Climate and Forest Task Force, "About GCF," http://www.gcftaskforce.org/about.php

National Laws and Regulatory Frameworks
The Purus Project will continue to abide by Brazilian national laws and especially the Brazilian Constitution. This includes Chapter 6 of the Brazilian Constitution which specifically discusses environmental issues in Article 225.[38]

Compliance with Law
Although the Purus Project is privately-owned and Paragraph 1 of Article 225 specifically states "it is incumbent upon the Government," the Project Proponents will nevertheless seek to preserve the Project's ecosystems, preserve the diversity of fauna and flora, and promote environmental education. This preservation can be documented via satellite imagery, firsthand observations, and via the Project's biodiversity monitoring plan, while the local schools within the Purus Project will incorporate environmental education.

The Brazilian Forest Code, which as of March 2012 was currently being reviewed, is of particular importance to the Purus Project. This includes:

- The original Brazil Forest Code entitled, Law No. 4771, September 15, 1965.[39]
- Revision of Brazil Forest Code under Law No. 7803, July 18, 1989.[40]
- Provisional Measure entitled 2166-67, August 24, 2001.[41]

Title of Law
Law Number 4771 of September 15, 1965, entitled "Establishing the new Forest Code."

Summary of Law
Law Number 4771 of September 15, 1965 was the original Brazil Forest Code. A few major provisions of the Forest Code were the establishment of permanent preservation areas (APP), establishment of legal reserves of 50% on properties in the Legal Amazon, and designation of Acre State (among others) as within the Legal Amazon territory.[42] Many of these provisions have been revised since 1965.

Compliance with Law
The Purus Project, as can be documented via satellite imagery or firsthand observations, has respected the Project's permanent preservation areas and legal reserves.

Title of Law
Law Number 7803 of July 18, 1989 entitled, "Change the wording of Law No. 4771 of September 15, 1965, and repealing Laws Nos. 6535 of June 15, 1978, and 7511 of 7 July 1986."

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[38] Georgetown University, "1988 Constitution, with 1996 reforms in English," Available: http://pdba.georgetown.edu/Constitutions/Brazil/english96.html#mozTocId920049
[39] Presidency of the Republic, "Law No. 4771, September 15, 1965," Available: http://www.planalto.gov.br/ccivil_03/Leis/L4771.htm
[40] Presidency of the Republic, "Law No. 7803, July 18, 1989," Available: http://www.planalto.gov.br/ccivil_03/leis/L7803.htm
[41] Presidency of the Republic, "Provisional Measure 2166-67, August 24, 2001," Available: https://www.planalto.gov.br/ccivil_03/MPV/2166-67.htm
[42] Presidency of the Republic, "Law No. 4771, September 15, 1965," Available: http://www.planalto.gov.br/ccivil_03/Leis/L4771.htm

Summary of Law
Law Number 7803 was the first significant amendment to the original 1965 Forest Code. For example, the permanent preserve areas were reclassified. The Law also stipulated that "the exploitation of forests and succeeding formations, both public domain and private domain, will depend on approval from the Brazilian Institute of Environment and Renewable Natural Resources - IBAMA, and the adoption of techniques of driving, exploitation, reforestation and management compatible with the varied ecosystems that form the tree cover.[43]

Compliance with Law
The Purus Project will abide by the new guidance on permanent preserve areas such as to not clear forests on steep slopes or within one hundred meters proximity to rivers. Any such clearing that has taken place in the past, will be reforested by Moura & Rosa.

Title of Law
The Provisional Measure Number 2166-67 of August 24, 2001 entitled, "Changes the arts. 1, 4, 14, 16 and 44, and adds provisions to Law No. 4771 of September 15, 1965, establishing the Forest Code and amending art. 10 of Law No. 9393 of December 19, 1996, which provides for the Property Tax Territorial Rural - ITR, and other measures."

Summary of Law
The Provisional Measure Number 2166-67 of August 24, 2001 was one of the latest revisions to the original 1965 Forest Code and to the amendments of Law Number 7803. The most relevant change to the Purus Project was the revision of the legal reserve requirement in the Legal Amazon (i.e., including the State of Acre) from 50% to 80% which shall be conserved.[44]

Compliance with Law
As mentioned previously, the Purus Project - as can be documented via remote sensing or firsthand observations - has respected both the Project's permanent preservation areas and the recently revised legal reserve requirement.

In addition to the Forest Code, Brazil's National Environmental Policy is also relevant to the Purus Project.[45]

Title of Law
Law Number 6.938 of August 31, 1981 entitled, "Provides for the National Environmental Policy, its aims and mechanisms for the formulation and implementation, and other measures."

Summary of Law
Law Number 4771 of August 21, 1981 is based off Brazil's constitution and established Brazil's National Environmental Policy. Essentially, the "National Policy on the Environment is aimed at the preservation, improvement and restoration of environmental quality conducive to life, to

[43] Presidency of the Republic, "Law No. 7803, July 18, 1989," Available: http://www.planalto.gov.br/ccivil_03/leis/L7803.htm
[44] Presidency of the Republic, "Provisional Measure 2166-67, August 24, 2001," Available: https://www.planalto.gov.br/ccivil_03/MPV/2166-67.htm
[45] Presidency of the Republic, "Law No. 6.938, August 31, 1981," Available: http://www.planalto.gov.br/ccivil_03/leis/L6938.htm

ensure, in the country, conditions for the socio-economic development, the interests of national security and protecting the dignity of life human." Agencies were also established to carry out the National Environmental Policy.[46]

Compliance with Law
The Purus Project have identified, consulted and shall continue to work with the relevant agencies responsible for environmental protection, particularly with respect to REDD+ projects. Furthermore, the Purus Project will seek to conserve soil and water resources, protect rare and threatened ecosystems, and promote the recovery of degraded areas and encourage environmental education.

Another important national Brazilian law that is relevant to the Purus Project is the National Climate Change Policy (NCCP).[47]

Compliance with Law
A key component of Brazil's National Climate Change Policy is the voluntary reduction in greenhouse gas emissions. The Purus Project will be in compliance with this voluntary target because the Purus Project is a Reducing Emissions from Deforestation and Degradation (REDD+) project. Furthermore, this compliance will be demonstrated via periodic verifications of the Purus Project.

State Laws and Regulatory Frameworks
The Project Proponents of the Purus Project will abide by Acre's state laws and regulatory frameworks. The two most relevant laws are Acre's State Forestry Law (Bill Number 1.426 of December 27, 2001) and Bill Number 2.308 of October 22, 2010 entitled, The State System of Incentive for Environmental Services (SISA). SISA was "created, with the aim of promoting the maintenance and expansion of supply of the following ecosystem products and services:

> I - sequestration, conservation and maintenance of carbon stock, increase in carbon stock and decrease in carbon flow;
> II - conservation of natural scenic beauty;
> III - socio-biodiversity conservation;
> IV - conservation of waters and water services;
> V - climate regulation;
> VI - increase in the value placed on culture and on traditional ecosystem knowledge;
> VII - soil conservation and improvement."[48]

Compliance with Law
As a tropical forest ecosystem services project, otherwise known as REDD+, the Purus Project shall seek to conserve the forests' carbon stock, while also conserving the natural scenic beauty, biodiversity, water and soil resources, along with working alongside the local communities. Such

[46] Presidency of the Republic, "Law No. 6.938, August 31, 1981," Available: http://www.planalto.gov.br/ccivil_03/leis/L6938.htm
[47] World Bank, "State and Trends of the Carbon Market 2010," Available: http://siteresources.worldbank.org/INTCARBONFINANCE/Resources/StateAndTrend_LowRes.pdf.
[48] State of Acre, "Unofficial Translation, State of Acre, Bill No. 2.308 of October 22, 2010," Available: http://www.gcftaskforce.org/documents/Unofficial%20English%20Translation%20of%20Acre%20State%20Law%20on%20Environmental%20Services.pdf

compliance can be demonstrated via remote sensing, firsthand observations, and via the periodic verifications of the Project.

Acre's State Forestry Law (Bill Number 1.426 of December 27, 2001) essentially, "provides for the preservation and conservation of State forests, establishing the State System of Natural Areas, creates the State Forest Fund and other measures."[49] The Law also established the institutional responsibility for the management of State Forests, defines forests, and outlines the administrative penalties for non-compliance.

Compliance with Law
The Purus Project is on private property and thus, this law is not relevant. Nevertheless, the Project Proponents shall contribute to the sustainable use of forest resources, preserve biodiversity, and also "promote ecotourism, recreation, forestry research and education."[50]

2. Approval from Appropriate Authorities
Document that the Project has Approval from the Appropriate Authorities
Between May 2011 and December 2012, the Purus Project received approval from Moura & Rosa who privately own the Purus Project property and the Project Proponents also received approval from the local communities. Such approvals are evidenced by the Tri-Party Agreement between the Project Proponents, along with the initial Declarations and Memorandum of Understandings with the local communities.

Furthermore, to ensure the local communities were fully aware of the Purus Project, were able to contribute to the Project design, able to openly express desired outcomes and concerns, understood the third-party grievance procedure, and were able to voluntarily give free, prior and informed consent (i.e., for example, a written MOU is not always culturally appropriate because some community members are illiterate), CarbonCo hired the independent group PAV to visit the communities in October 2012. During this visit, communities were asked by PAV whether they would like to voluntarily join the Project.

The Project Proponents were also in active communication with the State of Acre between May 2011 and December 2012. An official, information approval letter from the Climate Change Institute for the Project Proponents to use the State's data was received on February 13, 2012. The Project Proponents also received letters of support from the Public Department of the State of Acre and the Vice-Governor of the State of Acre during this time period.

Demonstrate Project will not Encroach Uninvited on Private, Community or Government Property
In addition to approval from appropriate authorities, the Purus Project - as a forest conservation project - will not encroach uninvited on private, community or government property.

The Purus Project has been delineated and will specifically target the conservation of Moura & Rosa's private property within the Purus Project.

[49] The Governor of the State of Acre, "Acre Forestry Law, December, 27, 2001," Available: http://webserver.mp.ac.gov.br/?dl_id=800
[50] The Governor of the State of Acre, "Acre Forestry Law, December, 27, 20 01," Available: http://webserver.mp.ac.gov.br/?dl_id=800

The areas where communities have traditionally lived on the Purus Project will also not be encroached upon as communities are voluntarily allowed to join the Project. The Project Proponents were given free, prior and informed consent from the communities interested in joining the Project and this is demonstrated via Declarations, Memorandum of Understandings, and verbal expressions to the independent firm PAV. In addition, Moura & Rosa will voluntarily recognize whatever area is currently deforested and under productive use by each family. The minimum area to be titled to each family is one hundred hectares which is the minimum size that INCRA says a family in the State of Acre needs for a sustainable livelihood. Those communities who have deforested and put under productive use over one hundred hectares will receive the full area that has been deforested. All communities, whether they join the Purus Project or not, will be titled the land they have put under productive use. Furthermore, the Project Proponents have engaged surrounding communities outside of the Purus Project Area.

As opposed to encroach, Purus Project will contribute and enhance surrounding areas' climate, community and biodiversity benefits

3. Non-Involuntary Relocation

Demonstrate Project does not Require Involuntary Relocation of People or of Important Activities

The Purus Project does not require the involuntary relocation of people nor important activities related to the communities' livelihoods and culture. Community houses, which are illegally too close to the banks of the Purus River, will be voluntarily moved and rebuilt further away from the river banks.

4. Identification of Illegal Activities and Mitigation Strategy

Identify any Illegal Activities that could affect the Project's Climate, Community or Biodiversity Impacts

The following are the illegal activities that could affect the Project's climate, community and biodiversity benefits.

- Hunting, fishing or collecting endangered flora and fauna
- Illegal logging
- Cultivation, transportation or distribution of illegal drugs

While conducting deforestation monitoring along with community and biodiversity impact monitoring, the Project Proponents will also keep their eyes open for illegal activities. Ultimately, illegal activities of any kind will not be allowed in the Purus Project and the appropriate authorities will be contacted. No such illegal activities were identified at the Purus Project between May 2011 and December 2012.

5. Property Rights and Carbon Rights

The Project Proponents have clear, uncontested title to both property rights and the carbon rights. A review of the Landowners and the Purus Project property was conducted between May 2011 and December 2012 to ensure full title validity and accuracy. Such documentation satisfies the VCS Standard as rights of use "arising by virtue of a statutory, property or contractual right"[51] and a letter of support attesting to these rights of use has been developed.

[51] VCS. 2012 VCS Standard. Version 3.2, 01 February 2012. Verified Carbon Standard, Washington, DC.

Carbon Securities conducted an initial search for any pending cases, lawsuits, or other problems associated with the Landowners, their CPF numbers (i.e., Cadastro de Pessoas Físicas which is equivalent to a social security number in the US), their property, or their company's CNPJ number. Federal tax issues and liens associated with the Landowners and the project property, were assessed using the Cadastro de Pessoas Físicas[52] and INCRA[53] websites. INCRA, or Instituto Nacional de Colonização e Reforma Agrária, is a Brazilian Federal Institute and their website states what types of certifications are required to document appropriate landownership and who can ask for such certifications. Finally, Carbon Securities visited the IBAMA, or Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis, website[54] to ensure IBAMA has not blocked landownership titles due to noncompliance with environmental laws and regulation associated with a particular property. State and municipality level documentation[55] further demonstrated authentic land ownership. These local authorities in Acre are able to provide up to a 100-year history of landownership for the properties.

With respect to private ownership of carbon rights in Brazil, a Presidential Decree on July 7, 1999 by the Brazilian Government established the Inter-ministerial Commission on Global Climate Change as the Designated National Authority for approval of projects under the UNFCCC Kyoto Protocol's Clean Development Mechanism (CDM).[56]

José D.G. Miguez, Executive Secretary of the Brazilian Interministerial Commission on Global Climate Change, presented on March 18, 2003 at the Organisation for Economic Co-operation and Development (OECD) Global Forum on Sustainable Development: Emissions Trading Concerted Action on Tradeable Emissions Permits (CATEP) Country Forum. Within in presentation, Mr. Miguez specifically indicated the private sectors ability "to design, develop and implement CDM project activities" in Brazil.[57] This said, there are currently numerous private sector CDM and voluntary carbon market projects in Brazil including projects within the Agricultural, Forestry and Other Land-use (AFOLU) sector.

The Tri-Party Agreement documents the transfer of some portion of these carbon rights from Moura & Rosa to CarbonCo and Carbon Securities.

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[52] Secretariat of the Federal Revenue of Brazil, "CPF - Cadastro de Pessoas Físicas," Available: http://www.receita.fazenda.gov.br/PessoaFisica/CPF/ CadastroPF.htm
[53] Secretariat of the Federal Revenue of Brazil, "Certidão Negativa - Imóvel Rural," Available: http://www.receita.fazenda.gov.br/guiacontribuinte/cnd_%20itr.htm
[54] IBAMA, "Certidão Negativa de Débito," Available: http://www.ibama.gov.br/sicafiext/sistema.php
[55] Ministry of Justice of Brazil, "Cadastro de Cartório do Brasil," Available: http://portal.mj.gov.br/CartorioInterConsulta/consulta.do?action=prepararConsulta&uf=AC
[56] Ministry of Science, Technology and Innovation, "Designated National Authority (Interministerial Commission on Global Climate Change)," Available: http://www.mct.gov.br/index.php/content/view/14666.html
[57] José D.G. Miguez, "CDM in Brazil," Available: www.oecd.org/dataoecd/9/6/2790262.pdf

CLIMATE SECTION

CL1. Net Positive Climate Impacts

The Purus Project generated net positive climate impacts between May 23, 2011 and December 31, 2012 by mitigating deforestation within the Purus Project boundaries which would have resulted in the release of greenhouse gas emissions.

1. Estimation of Net Changes in Carbon Stocks

Estimate the Net Change in Carbon Stocks due to the Project Activities

To review the estimated net changes in carbon stocks between May 23, 2011 and December 31, 2012, please see the Purus Project's VCS Monitoring Report.

2. Other non-CO_2 Greenhouse Gases

Estimate the Net Change in the Emissions of Non-CO_2 GHG Emissions

To review the estimated net change in other non-CO2 GHGs of the Purus Project between May 23, 2011 and December 31, 2012, please see the Purus Project's VCS Monitoring Report.

3. Project Activities' GHG Emissions

Estimate any Other GHG Emissions Resulting from Project Activities

Please see the Purus Project's VCS Monitoring Report for an estimate of the Project activities' GHG emissions.

4. Net Climate Impact

Demonstrate that the Net Climate Impact of the Project is Positive

The Purus Project had a net positive climate impact between May 23, 2011 and December 31, 2012 by mitigating deforestation and the subsequent release of greenhouse gas emissions. For the detailed methodology and calculations of this net positive impact, please see the VCS Monitoring Report.

5. Avoidance of Double Counting

Specify how Double Counting of GHG emissions Reductions or Removals will be Avoided

In addition to the CCBS, the Purus Project was validated to the Verified Carbon Standard (VCS) and shall be also verified to the VCS. The issuance of Verified Carbon Units (VCUs) onto a VCS-approved registry will ensure the avoidance of GHG emissions being double counted.

CL2. Offsite Climate Impacts ("Leakage")

The Project Proponents have quantified and mitigated greenhouse gas emissions which occur due to offsite climate impacts (i.e., leakage).

1. Types of Leakage

Determine the Types of Leakage that are Expected and Estimate Potential Offsite Increase in GHGs

The Purus Project's total baseline GHG emissions are estimated to be 1,709,253 $mtCO_2e$ from unplanned deforestation in the Project Area, yet only 18% (i.e., 308,406 $mtCO_2e$) of these GHG emissions are estimated to be displaced due to the Project from the Project Area to the leakage belt or from the Project Area to outside the leakage belt. Thus, the Purus Project's deforestation mitigation activities and the leakage mitigation activities, along with the fact that many communities within the Purus Project have been residents for over five years, are estimated to

reduce leakage from a potential 100% displacement (i.e., all baseline GHG emissions displaced from Project Area to the leakage belt and outside the leakage belt) down to an estimated 18% displacement. The Project Proponents will implement leakage mitigation activities and also monitor leakage in hopes of further reducing the GHG emissions associated with such leakage.

Please see the VCS Monitoring Report for a discussion of the Project's leakage.

2. Mitigation of Leakage

Document how Leakage will be Mitigated and Estimate Extent Which such Impacts will be Reduced

There were a variety of leakage mitigation activities designed between May 2011 and December 2012 which were undertaken. This includes:

- Alignment with the State of Acre's Payment for Ecosystem Services Scheme
- Landowners monitored the leakage belt and will report illegal deforestation to the authorities, if identified

From May 2011 to December 2012, the Project Proponents monitored the leakage belt via a trike and via boat. To mitigate the leakage attributed to communities moving from within the Project Zone to outside the Project Zone, the Project Proponents consulted communities throughout the Project Zone and will extend project activities (such as agricultural extension training courses) to communities throughout the Project Zone and not just to those living within Moura & Rosa's property. Furthermore, satellite imagery was also used to quantify the amount of deforestation that took place as a result of leakage from May 2011 to December 2012.

The State of Acre's Payment for Ecosystem Services Scheme (known as *Sistema de Incentivo a Serviços Ambientais* or "SISA" in Portuguese) is also relevant to the mitigation of leakage; particularly the leakage attributed to communities moving from outside the Project Zone to within the Project Zone. This is because the SISA is focusing on improving rural livelihoods through a Certification Program of Rural Production Units which shall "provide for the gradual abandonment of burning; priority access to labor-saving technologies; access to incentives and financing; and inclusion in sustainable production chains to encourage the production and protection of environmental services."[58] Thus by improving rural livelihoods, communities will have less incentive to migrate.

3. Subtraction of Unmitigated Negative Offsite Climate Impacts

Subtract Any Likely Project-Related Unmitigated Negative Offsite Climate Impacts

The Project subtracted any likely project-related and unmitigated negative offsite climate impacts.

Non-CO_2 Gases

The Project accounted for any non-CO_2 GHG gasses (e.g., methane or nitrous oxides) if they were likely to account for more than a 5% increase or decrease (in terms of CO_2e) of the net change calculations. In all cases, non-CO_2 emissions from methane and nitrous oxides as a result of biomass burning, fossil fuel combustion (e.g., due to airplane flights, as well as vehicle and

[58] Environmental Defense Fund, "Ready for REDD: Acre's State Programs for Sustainable Development and Deforestation Control," Page 8.

boat usage to access the Project), and leakage are less than 5% of the Purus Project's overall GHG emissions reductions and removals.

CL3. Climate Impact Monitoring

Between May 2011 and December 2012, the Purus Project Proponents developed a climate impact monitoring plan which identifies the types of measurements, sampling method, and frequency of measurements.

1. Initial Monitoring Plan

The Purus Project has a complete and detailed climate impact monitoring plan which accounts for leakage and the required carbon pools. Leakage monitoring, which will be done via aerial monitoring from a trike, by conducting participatory rural assessments, as well as from reviewing satellite imagery, will continue for at least five years after all activity displacement or other leakage causing activities have taken place.

2. Full Monitoring Plan

For the Purus Project's full climate impact monitoring plan, which also addressed the initial monitoring plan requirements, please see the VCS Project Description section 4 *Monitoring*. This full climate impact monitoring plan, and its ongoing monitoring results, was made publicly available on the internet and will also be made available to the communities and the Purus Project's other stakeholders.

COMMUNITY SECTION

CM1. Net Positive Community Impacts

The Purus Project generated net positive community impacts between May 23, 2011 and December 31, 2012 and the Project will also maintain, or enhance, high conservation values important to the communities.

1. Community Impacts

Use Appropriate Methodologies to Estimate the Impacts on Communities

The Project Proponents utilized stakeholder identification and consultation, along with a Participatory Rural Assessment (PRAs) and the Basic Necessities Survey (BNS) methodology to develop a Theory of Change for estimating the community impacts of the Project for the with-project scenario vis-à-vis the without-project scenario. The activities, outputs, outcomes and community impacts of the Project shall also be regularly monitored to ensure positive net benefits for all communities.

The general process between May 23, 2011 and December 31, 2012 of identifying community impacts was:

- Moura & Rosa met with Community to Discuss Project
- Rapid Community Assessment conducted by Moura & Rosa
- Project Proponents met Community to Further Discuss Project

- CarbonCo Reviewed Background Studies on Appropriate Methodologies, Particularly the Social and Biodiversity Impact Assessment (SBIA) Manual for REDD+ Projects
- PRAs and BNS Assessment Conducted by Project Proponents
- Casual Analysis to Develop a Theory of Change
- Theory of Change Modified, as Necessary, After PAV Meeting with Community

Participatory Rural Assessment
A Participatory Rural Assessment (PRA, also known as a Participatory Rural Appraisal) was conducted by CarbonCo, Carbon Securities, and Moura & Rosa from March 10-12, 2012. The Project Proponents attempted to sample each community living within the Purus Project Area, along with all adjacent communities living along the Purus River and within the Project Zone. A total of 16 communities - 13 communities within the Purus Project Area and three communities living alongside the Purus River and in the Project Zone - were interviewed as part of the PRA.

The aggregated results of this initial PRA, which serves as a baseline, were as follows:

Grand Totals (Inside Project and Outside Project)	How Many Years Have You Lived Here?	Do You Participate in Agriculture?	Do You Participate in Cattle Ranching?	Do You Participate in Fuel Wood Collection?	Do You Participate in Charcoal Production?	Do You Participate in Timber Extraction / Logging?	
Total of Yes Responses	N/A	16	10	5	14	12	
Total of No Responses	N/A	0	6	11	2	4	
Percentage of Yes Responses	N/A	100.00%	62.50%	31.25%	87.50%	75.00%	
Percentage of No Responses	N/A	0.00%	37.50%	68.75%	12.50%	25.00%	
Average	17.83	N/A	N/A	N/A	N/A	N/A	
Number Over 5 Years	13	N/A	N/A	N/A	N/A	N/A	
Percentage Over 5 Years	81.25%	N/A	N/A	N/A	N/A	N/A	
Grand Totals (Inside Project and Outside Project)	Do You Sell Crops or Cattle Outside Property?	Do You Use Fuel Wood for Cooking?	Do You Have a Sustainable Fuel Wood Lot?	Do You Make Charcoal?	Do You Sell Charcoal?	Do You Sell Timber?	How Far into Forest to Collect Wood (In Meters)
Total of Yes Responses	14	4	0	14	0	0	N/A
Total of No Responses	2	12	16	2	16	16	N/A
Percentage of Yes Responses	87.50%	25.00%	0.00%	87.50%	0.00%	0.00%	N/A
Percentage of No Responses	12.50%	75.00%	100.00%	12.50%	100.00%	100.00%	N/A
Average	N/A	N/A	N/A	N/A	N/A	N/A	631.33
Number Over 5 Years	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Percentage Over 5 Years	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Figure 4: Aggregated Results of Participatory Rural Assessment (Credit: Brian McFarland)

As one can observe, all community members practice agriculture and nearly two-thirds participate in cattle-ranching. It is also important to note that although no communities sell timber or charcoal outside of the community, a significant majority of the communities sell either crops or cattle and a significant majority also makes charcoal.

This PRA helps to establish a baseline of economic activities and land-use practices that the communities practice, along with a mechanism to assess leakage.

Basic Necessities Survey
CarbonCo, Carbon Securities, and Moura & Rosa also conducted a Basic Necessities Survey (BNS) from March 10-12, 2012 among the aforementioned sixteen communities. Essentially, a

focus group was created among the Project Proponents and the community to identify the top 25 assets or services which were believed to be basic necessities or things that no one should have to live without. The Project Proponents then individually surveyed each of the 16 communities and only those assets or services which at least 50% of the communities deemed a basic necessity were included in the final calculations of a poverty index and poverty score.

The aggregated results of this initial BNS among the thirteen communities living inside the Purus Project, which serves as a baseline, were as follows:

Aggregated Data from Basic Necessities Survey (Communities Inside Project)

Total Surveys: 13

	Asset or Service	Item	Are Basic Necessities? (Total Number of No Responses)	Are Basic Necessities? (Total Percentage of No Responses)	Are Basic Necessities? (Total Number of Yes Responses)	Are Basic Necessities? (Total Percentage of Yes Responses)	Weighting (Fraction)
1	Service	Access to Enough Food	0	0.0%	13	100.0%	1.000
2	Asset	House	0	0.0%	13	100.0%	1.000
3	Service	Access to School	2	12.5%	11	84.6%	0.846
4	Asset	Electricity (PV or Generator)	3	18.8%	10	76.9%	0.769
5	Service	Access to Clean, Drinking Water	0	0.0%	13	100.0%	1.000
6	Service	Access to Health Clinic	2	12.5%	11	84.6%	0.846
7A	Asset	Boat	2	12.5%	11	84.6%	0.846
7B	Asset	Engine for Boat	3	18.8%	10	76.9%	0.769
8	Asset	Machete	1	6.3%	12	92.3%	0.923
9	Asset	Planting Tool	3	18.8%	11	84.6%	0.846
10	Asset	Chain Saw	4	25.0%	9	69.2%	0.692
11	Asset	Diesel or Gasoline	2	12.5%	11	84.6%	0.846
12	Asset	Television	4	25.0%	9	69.2%	0.692
13	Asset	Refrigerator	3	18.8%	10	76.9%	0.769
14	Asset	Radio	3	18.8%	10	76.9%	0.769
15	Asset	Fishing Pole	5	31.3%	8	61.5%	0.615
16	Asset	Fishing Net	5	31.3%	8	61.5%	0.615
17	Asset	Chicken Coop	6	37.5%	7	53.8%	0.538
18	Asset	House for Pigs	8	50.0%	5	38.5%	0.385
19	Service	Access to Medicine	3	18.8%	10	76.9%	0.769
20	Asset	Cooking Stove	1	6.3%	12	92.3%	0.923
21	Asset	Clothes	0	0.0%	13	100.0%	1.000
22	Asset	Hammock	0	0.0%	13	100.0%	1.000
23	Asset	Furniture (Table, Chairs, Bench)	2	12.5%	11	84.6%	0.846
24	Asset	Bed	2	12.5%	11	84.6%	0.846
25A	Asset	Telephone	2	12.5%	11	84.6%	0.846
25B	Asset	Tower for Telephone	4	25.0%	9	69.2%	0.692

Yellow Highlighted Indicates Item is Not a Basic Necessity

Figure 5: Aggregated Results of Participatory Rural Assessment (Credit: Brian McFarland)

Rearranging the data from above, the top 15 Basic Necessities among the communities living within the Purus Project were as follows:

Top 15 Basic Necessities						
	Item	Are Basic Necessities? (Total Number of Yes Responses)	Are Basic Necessities? (Total Percentage of Yes Responses)	Weighting (Fraction)	Have Basic Necessities? (Total Number of Yes)	Have Basic Necessities? (Total Percentage of Yes)
1	Access to Enough Food	13	100.0%	1.000	12	92.31%
2	House	13	100.0%	1.000	13	100.00%
3	Access to Clean, Drinking Water	13	100.0%	1.000	9	69.23%
4	Clothes	13	100.0%	1.000	13	100.00%
5	Hammock	13	100.0%	1.000	13	100.00%
6	Machete	12	92.3%	0.923	13	100.00%
7	Cooking Stove	12	92.3%	0.923	13	100.00%
8	Access to School	11	84.6%	0.846	10	76.92%
9	Access to Health Clinic	11	84.6%	0.846	1	7.69%
10	Boat	11	84.6%	0.846	11	84.62%
11	Planting Tool	11	84.6%	0.846	9	69.23%
12	Diesel or Gasoline	11	84.6%	0.846	9	69.23%
13	Furniture (Table, Chairs, Bench)	11	84.6%	0.846	7	53.85%
14	Bed	11	84.6%	0.846	7	53.85%
15	Telephone	11	84.6%	0.846	5	38.46%

Figure 6: Top 15 Basic Necessities (Credit: Brian McFarland)

The assets or services which have a higher percentage of communities considering them a basic necessity than the number of communities actually possessing those assets or services shall be considered higher priority social projects or programs for Moura & Rosa. For example, this includes the access to a telephone (i.e., being installed at the Project's headquarters), access to school (i.e., a school bus boat was secured), and eventually access to a health clinic.

For analytical and comparative purposes, the summary statistics for both the communities within and adjacent to the Purus Project are as follows:

Summary Statistics for Inside Project			Summary Statistics for Inside Project	
Highest Total Value of Owned Assets	37,759.00		Highest Total Value of Owned Assets Per Capita	7,635.00
Lowest Total Value of Owned Assets	7,635.00		Lowest Total Value of Owned Assets Per Capita	1,133.97
Total Value of Owned Assets Range	30,124.00		Total Value of Owned Assets Per Capita Range	6,501.03
Average Total Value of Owned Assets	17,389.32		Average Total Value of Owned Assets Per Capita	4,202.39
% Above Total Value of Owned Assets Ave.	38.46%		% Above Total Vale of Assets Per Capita Average	53.85%
% Below Total Value of Owned Assets Ave.	61.54%		% Below Total Value of Assets Per Capita Average	46.15%

Figure 7: Summary Statistics of the Basic Necessities Survey (Credit: Brian McFarland)

A two-sample F-test of variance was performed by Dr. Frederic Lemieux of The George Washington University to test the hypothesis that the two independent samples (i.e., communities inside Purus Project versus communities outside Purus Project) come from normal distributions with the same variance, against the alternative hypothesis that they come from normal distributions with different variances. The results, which can be found in the CCBS PDD, are robust and clearly show that the two groups are comparable on poverty score, poverty index, total assets, and per capita assets.

Theory of Change

The PRA and BNS helped to shape the Project Proponent's Theory of Change. As noted in the Social Impact Assessment Toolbox, in simple terms, {the Theory of Change} is a roadmap drawn up by the Project Proponents and stakeholders of how the project plans to get from Point

A (project strategy and activities) to Point Z (project impacts)."[59] Likewise, the Purus Project strategies and activities will lead to outputs, followed by outcomes, and ultimately by net positive climate, community and biodiversity impacts.[60]

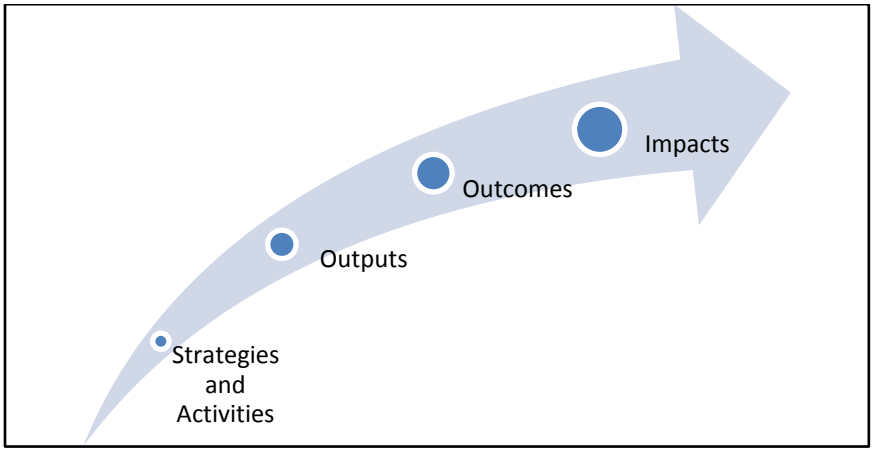

Figure 8: Progression from Project Strategies and Activities through Community Impacts

To clearly define activities, outputs, outcomes and impacts, the following definitions were utilized:

> Project *activities* are the physical or implemented activities of the projects.
>
> Project *outputs* are the tangible short-term results of project activities and normally take the form of products or services provided during the project lifetime and as a direct result of project funding.
>
> Project *outcomes* are the direct intended results stemming from the outputs. They are short- and medium term changes experienced by project stakeholders and/or by the physical environment, and are less tangible and easy to measure than outputs.
>
> Project *impacts* are the end results sought by the project, especially as regards net social changes. They may occur as a direct or indirect result of project outcomes.[61]

The following causal analysis has been conducted to demonstrate net positive community impacts from the Purus Project.[62]

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[59] Richards, M. and Panfil, S.N. 2011. Social and Biodiversity Impact Assessment (SBIA) Manual for REDD+ Projects: Part 1 – Core Guidance for Project Proponents. Climate, Community & Biodiversity Alliance, Forest Trends, Fauna & Flora International, and Rainforest Alliance. Washington, DC., Page 13.

[60] The linkages between the Purus Project's Strategies and Activities, Outputs, Outcomes, and Impacts were conceptualized with assistance from Brigitta Jozan, Independent Advisor

[61] Sources: Based on GEF Evaluation Office and Conservation Development Centre 2009; Schreckenberg et al. 2010.

[62] Richards, M. and Panfil, S.N. 2011. Social and Biodiversity Impact Assessment (SBIA) Manual for REDD+ Projects: Part 1 – Core Guidance for Project Proponents. Climate, Community & Biodiversity Alliance, Forest Trends, Fauna & Flora International, and Rainforest Alliance. Washington, DC., Page 32.

Carbon Finance

The following Theory of Change is for Carbon Finance.

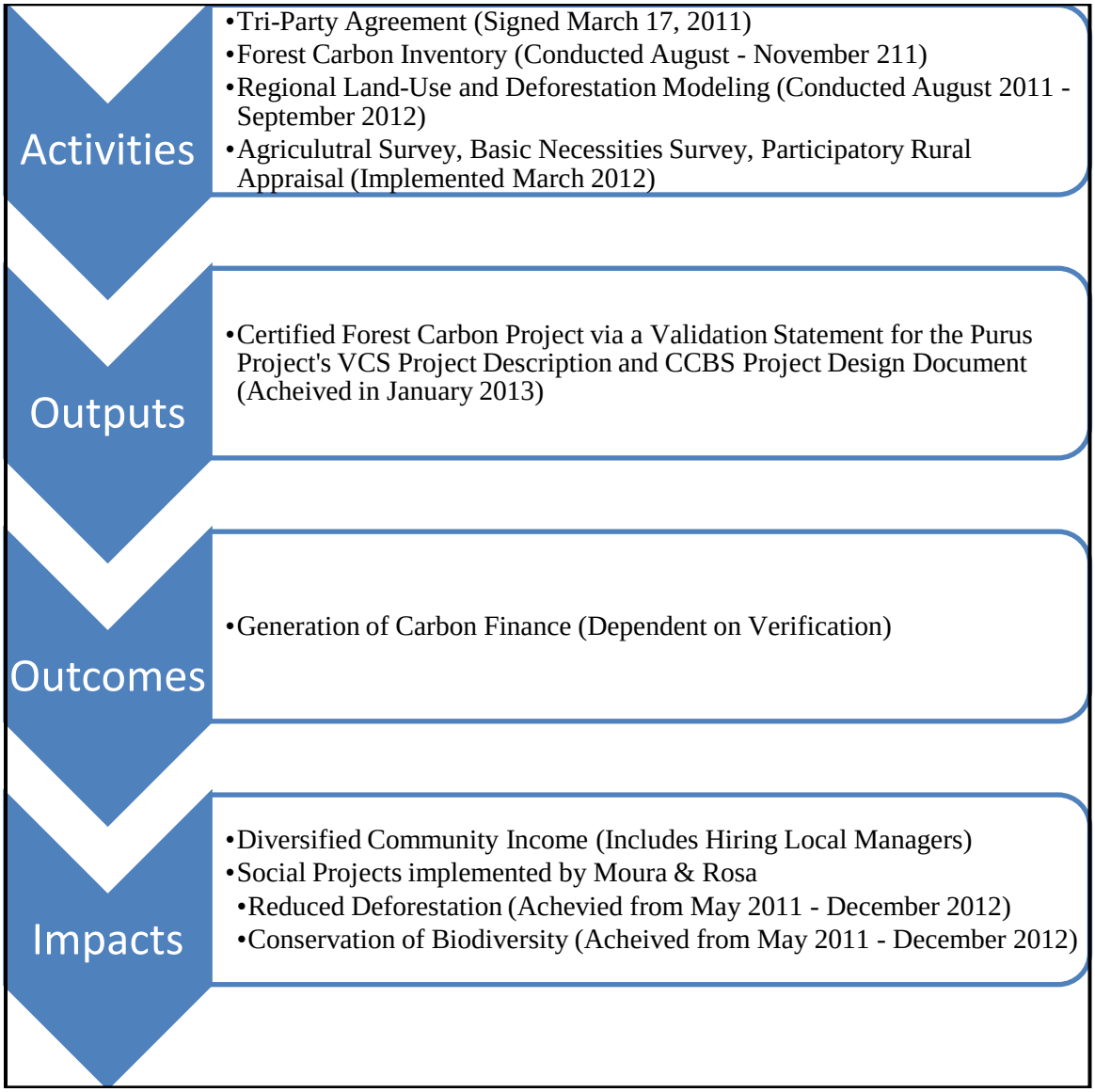


Figure 9: Activities, Outputs, Outcomes and Impacts of Carbon Finance

IF, THEN Statements

With a Tri-Party Agreement, forest carbon inventory, regional land-use and deforestation modeling, along with the agricultural survey, Basic Necessities Survey and Participatory Rural Appraisal activities successfully accomplished, the output was a certified forest carbon project with a VCS and CCBS validation statement. With validation statement received, then Project can be verified and carbon finance can be generated. When carbon finance is generated, the communities will diversify incomes and Moura & Rosa will be able to implement social projects and programs. If communities diversify incomes and Moura & Rosa can continue to implement social projects (e.g., agricultural extension trainings) and programs, then deforestation will be continuously reduced and biodiversity will be conserved.

Agricultural Surveys

The following Theory of Change is for Agricultural Surveys.

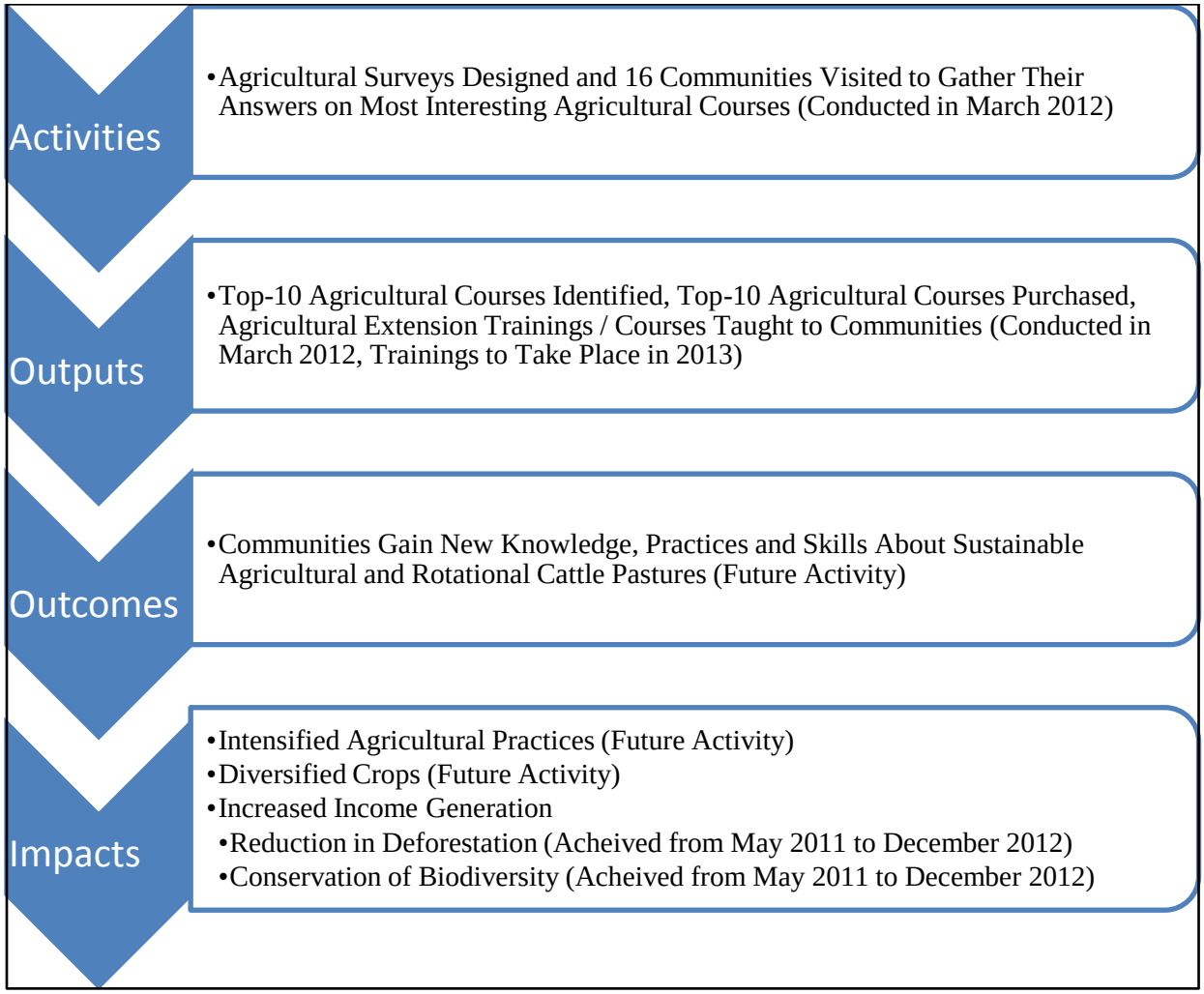


Figure 10: Activities, Outputs, Outcomes and Impacts of Agricultural Survey

IF, THEN Statements

With the agricultural surveys designed and communities asked about the most interesting agricultural courses, the Project Proponents identified the top-10 courses, the courses were purchased and the courses will soon be taught to the communities. If the most interesting courses are taught to the communities, then the communities will gain new knowledge, learn new practices and learn new skills about sustainable forms of agriculture and rotational cattle pastures. If the communities gain new knowledge, practices and skills, then the communities will intensify agricultural practices, diversify crops, and increase income generation. If communities intensify agricultural practices, diversify crops, and increase income generation, then deforestation will be continuously reduced and biodiversity will be conserved.

Basic Necessities Survey

The following Theory of Change is for the Basic Necessities Survey (BNS).

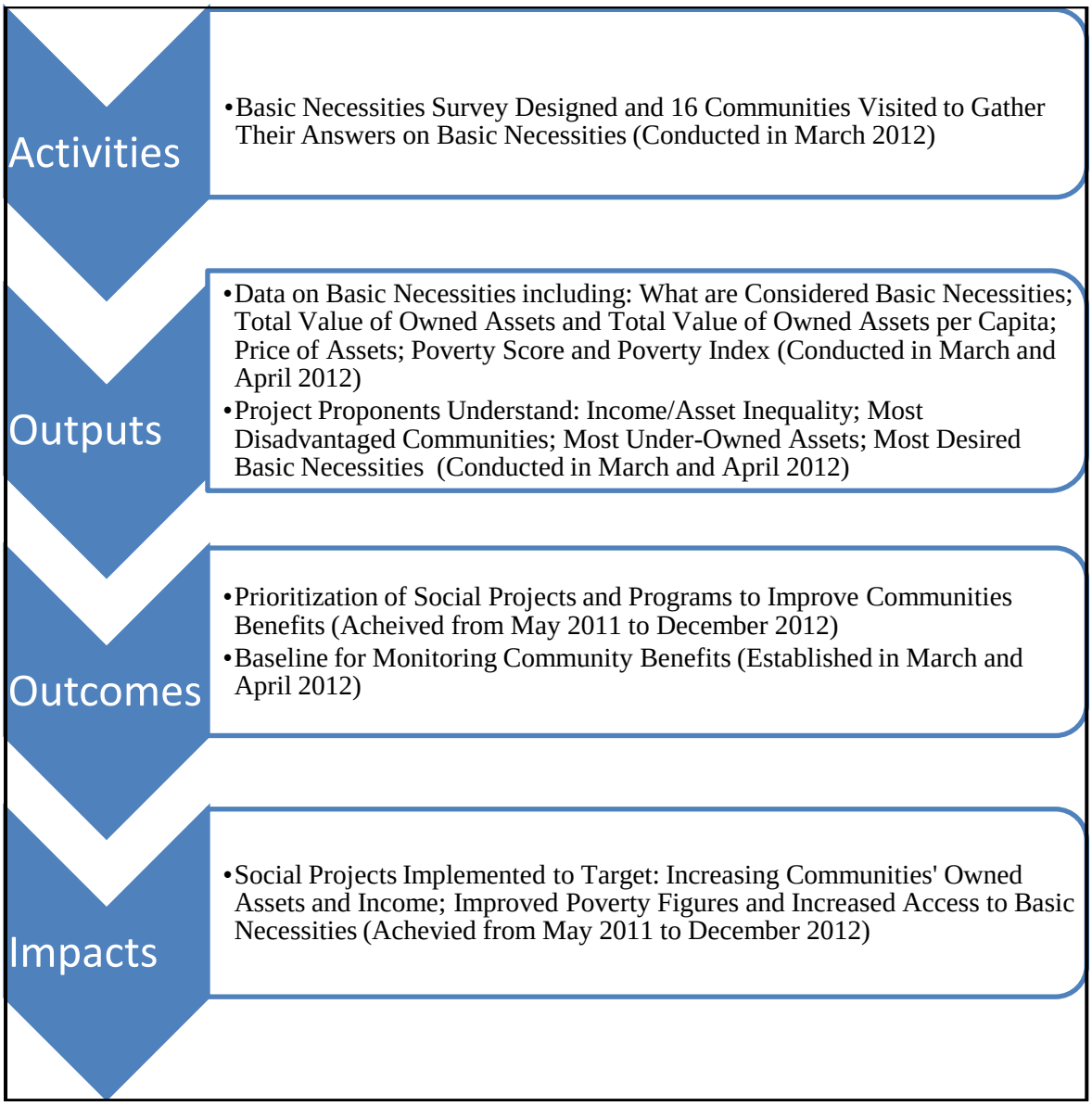


Figure 11: Activities, Outputs, Outcomes and Impacts of Basic Necessities Survey

IF, THEN Statements

With the BNS designed and communities surveyed, the Project Proponents generated data on basic necessities, community assets and poverty which enabled the Project Proponents to understand asset inequality, which communities are most disadvantaged, along with which are the most under-owned assets and which are the most desired basic necessities. With this data collected and understood by the Project Proponents, social projects and programs were prioritized for improving community benefits and a baseline for monitoring benefits was established. With social projects and programs prioritized, social projects can be implement which specifically target increasing communities owned assets and income, along with to improve poverty figures and access to basic necessities.

Participatory Rural Appraisals

The following Theory of Change is for Participatory Rural Appraisals (PRAs).

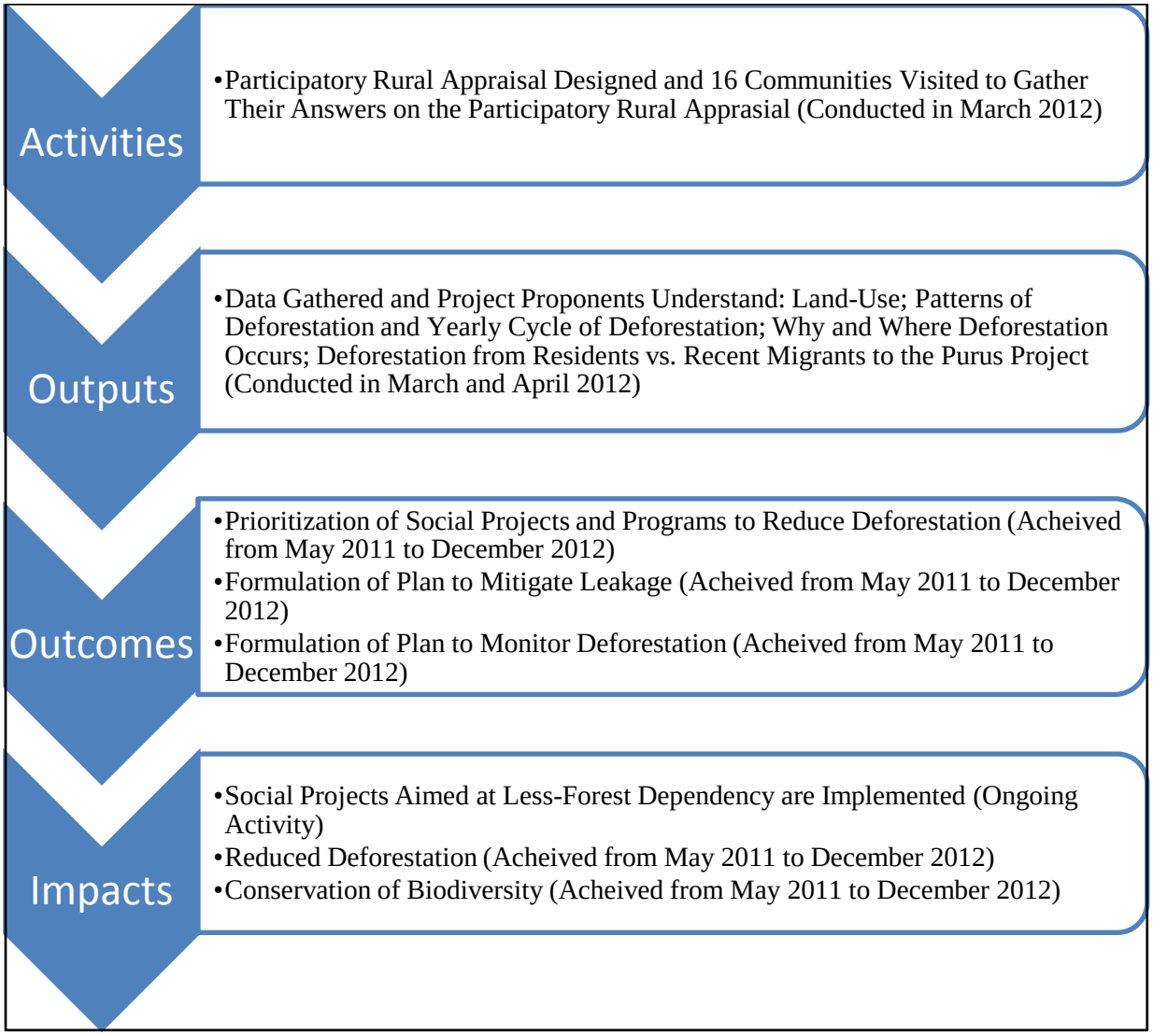


Figure 12: Activities, Outputs, Outcomes and Impacts of Participatory Rural Appraisal

IF, THEN Statements

With PRAs designed and communities surveyed, data was gathered and the Project Proponents now understand: Land-Use; Patterns of Deforestation and Yearly Cycle of Deforestation; Why and Where Deforestation Occurs; Deforestation from Residents vs. Recent Migrants to the Purus Project. With this data collected and deforestation patterns now understood by the Project Proponents, social projects and programs aimed at reducing deforestation were prioritized and plans for mitigating leakage and monitoring deforestation were formulated. If social projects and programs are prioritized, then deforestation will be continuously reduced and biodiversity will be conserved.

Comparison of 'With Project' Scenario and 'Without Project' Scenario
A comparison between community benefits in the 'with project' scenario and in the 'without project' scenarios resulted in net positive community benefits in the 'with project' scenario from May 2011 to December 2012. As demonstrated, the estimated impacts on all communities from the Purus Project are expected to be positive throughout the Project Lifetime and such positive benefits include socio-economic well-being and benefits for ecosystem services.

The 'without project' scenario, as described in section *G2. Baseline Projections*, is the continuation of unplanned, frontier deforestation. While it is believed that the communities would continue to practice subsistence agriculture and cattle-ranching and receive the associated benefits from these activities, the amount of land deforested would increase. Such increased deforestation would result in negative impacts on ecosystem services. This includes increased erosion, increased flooding due to fewer trees storing water, increased GHG emissions, and less habitat area for both wildlife and for the game which communities hunt.

The Purus Project, which seeks to provide alternative economic opportunities to communities and mitigate deforestation, provided net positive socio-economic benefits for communities in the 'with project' scenario from May 2011 to December 2012 by: enabling communities to identify the most desired agriculture and rotational cattle pasture techniques to be taught; the purchase of these agriculture and rotational cattle pasture courses; increased local incomes (i.e., two local project managers hired from community, along with several local contractors and local project manager from Rio Branco); acquisition of a school bus boat for the local school at the Purus Project; diversified incomes (i.e., through learning and gaining access to new crops, along with employment through Moura & Rosa); purchase of two boats (one fast boat for access to the Project and one larger boat to increase market access for the communities' crops); initiation of the eventual removal of trees from the Purus River; and via the establishment of the Project headquarters. These activities would not have resulted in the 'without project' scenario.

2. Impact on High Conservation Values
Demonstrate that no High Conservation Values Identified will be Negatively Affected
As identified in section *G1. Original Conditions in the Project Area*, the communities place high conservation values on the Purus Project due to food, fuel and fodder, medicines, building materials, and traditional cultural significance.

Food
With respect to food, the community places a high conservation value especially on fishing and hunting. The Project did not disrupt the communities' access to fishing and by maintaining the Purus Project's primary forests, the Project shall also assist with maintaining a healthy population of game.

Fuel and Fodder
Although the Project seeks to eliminate deforestation – which might negatively impact the communities' access to fuelwood and charcoal – there will be sustainable woodlots established. Furthermore, many of the communities collect fuelwood or make charcoal out of deadwood and thus, do not require the cutting down of primary forests.

Medicines
Being a forest conservation project, the Project shall preserve the primary forest's medicinal plants. In addition, Moura & Rosa will also establish a health clinic at the Purus Project.

Building Materials
Although the Project seeks to eliminate deforestation – which might negatively impact the communities' access to building materials – the recent trend has been for the communities to acquire building materials (e.g., bricks) from the city as opposed to the forest.

Traditional Cultural Significance
The with-project scenario will not involuntarily relocate communities and thus, the Project shall help maintain the traditional cultural significance of the Purus property.

CM2. Offsite Stakeholder Impacts

The Purus Project Proponents undertook an extensive stakeholder identification and consultation, including with offsite stakeholders from May 2011 through December 2012.

The following is a list of the adjacent communities and landowners to the Purus Project:

- Manuel Pedro Neto - Seringal Victoria
- Reserva Agroextrativista Cazumba-Iracema INCRA - Settlement
- Seringal Mamueiro - INCRA
- Seringal Veneza - Privately Owned
- Seringal Escondido
- Seringal Samauma Velha
- Settlement Project Alegria - INCRA
- Settlement Project Liberdade – INCRA
- Raimundo Silva Araujo
- Antonio Marazona Dias do Nacimento
- Osmir da Silva e Silva

1. Potential Negative Offsite Stakeholder Impacts
Although no negative offsite stakeholder impacts took place between May 2011 and December 2012, the Project Proponents identified the following potential future negative offsite stakeholder impacts:

- Increased cost of land; for example, if forest carbon projects increase property values for future land purchases
- Decreased value of land; for example, if Purus Project prevents adjacent properties from accessing markets
- In-migration to areas adjacent to the Project Zone
- If communities migrate out of the Project Zone (i.e., due to forced relocation or lack of Project success) and into primary forests adjacent to the Project Zone
- If the Project Proponents are unable to eliminate deforestation and the community continues to expand into the forest, including forests outside the Project Zone

- Wealth in Project Zone creates conflict in surrounding areas due to jealousy, a rise in illicit activities, alcoholism, elite capture, etc.

2. Mitigation Plans

Describe how Project Plans to Mitigate these Negative Offsite Social and Economic Impacts

It is important to note that the communities in and near the Purus Project have good relationships and no conflicts with main stakeholders living outside the Project Zone were identified through stakeholder consultations between May 2011 and December 2012.

Regarding the increased cost of land, the Purus Project did not have a noticeable impact on rising costs of land especially if compared to the completion of BR-364's paving. In contrast, the Purus Project might decrease the value of surrounding land. The Purus Project is a conservation project and might prevent surrounding properties from having access to markets because the Project will not allow road construction through the property. Nevertheless, Moura & Rosa will discuss the Purus Project with adjacent landowners to offer expanding forest conservation projects beyond the boundaries of the Purus Project. Maintaining forest cover, at the expense of road construction or the establishment of large-scale cattle-ranches, has positive climate, community and biodiversity benefits.

In-migration to areas adjacent to the Project Zone could occur, but was not identified as a result of the Purus Project between May 2011 and December 2012. Acre's State System of Incentive for Environmental Services (SISA) seeks to improve rural livelihoods which should continue to reduce in-migration into the both the Project Zone and areas adjacent to the Project Zone. Furthermore, the Project Proponents monitored deforestation throughout the Project Zone and will seek to minimize deforestation within the Project Zone. Similarly, there is a possibility of out-migration from the Purus Project and into the surrounding non-Purus Project property forests. To mitigate out-migration, the Project Proponents have held numerous community meetings and seek to implement a variety of social projects and programs.

With respect to increased conflict, illicit activities, alcoholism, and elite capture, the Project Proponents will continue to monitor community benefits throughout the Project Zone. Children from surrounding communities will be allowed to attend school in Purus Project, while surrounding communities will be allowed to visit the dental and health clinic which will be eventually established at the Purus Project.

3. Net Effect of Project on Stakeholders

The Purus Project had a net positive impact from May 23, 2011 to December 31, 2012 on the well-being of stakeholders including the Project Proponents, local communities, offsite stakeholders, and the Acre State Government. Furthermore, ongoing consultations will take place to assure the Project does not result in a net negative impact.

Such positive offsite stakeholder impacts include:

- Increased learning curve for future REDD+ projects amongst private landowners in Acre. This includes the initiation of two additional REDD+ projects in Acre by Carbon Securities and CarbonCo.

- Sharing of knowledge, best practices, and lessons learned with stakeholders including the State of Acre. This included numerous meetings between May 2011 and December 2012 with the Climate Change Institute.

CM3. Community Impact Monitoring

Between May 2011 and December 2012, the Project Proponents designed an initial community impact monitoring plan and committed to developing a full community impact monitoring plan within one year of project validation. This full community monitoring plan was submitted to the CCBS on May 15, 2013. The Project Proponents will disseminate this full community impact monitoring plan and the results of the monitoring plan specifically to the local communities and other stakeholders, along with making the plan and results publicly available via the internet to the general public. The next Brazilian census is scheduled for 2014 and the Project Proponents will conduct another BNS and PRA in March 2014.

1. Initial Community Monitoring Plan

The initial community monitoring plan involved regular communication between Moura & Rosa and the communities. With respect to outside stakeholders, the initial monitoring plan involved informal conversations with outside stakeholders and reviewing the Brazilian Census' socio-economic variables for the municipalities of Manoel Urbano and Sena Madureira.

2. Initial High Conservation Values Plan

The PRA and BNS were designed to measure the communities' high conservation values (HCVs) and the Project Proponents will continue to monitor these HCVs.

3. Full Monitoring Plan

While Moura & Rosa will continue to be in regular communication with the communities, the Purus Project's full community monitoring plan is to monitor the indicators derived from the PRA, BNS and Theory of Change's activities, outputs, outcomes and community impacts. The frequency of monitoring and reporting to ensure that these indicators are directly linked to the Purus Project's major community objectives and are leading to the anticipated net positive impacts will take place every two years.

The Project's community impact monitoring baseline was established in March 2012, when the PRA and BNS were conducted by the Project Proponents with the local communities.

The following are the Purus Project's indicators of activities, outputs, outcomes and community impacts which demonstrate net positive community impacts:

Indicators of Activities

- Signed Tri-Party Agreement between Project Proponents
    - The Tri-Party Agreement was signed on March 17, 2011.
- Completion of Forest Carbon Inventory
    - TECMAN was contracted in July 2011, participated in classroom and field training in August 2011, and then TECMAN conducted the Purus Project's forest carbon inventory from August to November 2011.
- Completion of Regional Deforestation and Land-Use Modeling

    - Professor Flores was contracted in October 2011 and assisted with the Purus Project's modelling from approximately August 2011 to September 2012.
- Completion of VCS Project Description and CCBS Project Design Document
    - The Project Design Documents (PDDs) were written, reviewed and revised between May 23, 2011 and December 31, 2012. The PDDs were submitted for validation on April 29, 2012 and were officially validated in January 2013.
- Completion of the Agricultural Survey, Basic Necessities Survey and Participatory Rural Appraisal
    - These aforementioned surveys were conducted in March 2012.

Indicators of Outputs

- Validation Statement for VCS Project Description and CCBS Project Design Document
    - Validation Statement was received in January 2013.
- Spreadsheet with Top-10 Agricultural Courses Identified
    - Conducted March to April 2012
- Invoice for Top-10 Agricultural Courses Purchased
    - Courses Purchased in March 2012
- Agricultural Extension Trainings / Courses Conducted
    - Future Activity
- Spreadsheet Compiling Data on Basic Necessities including: What are Considered Basic Necessities; Total Value of Owned Assets and Total Value of Owned Assets per Capita; Price of Assets; Poverty Score and Poverty Index
    - Conducted in March and April 2012
- Summary Statistics on: Income/Asset Inequality; Most Disadvantaged Communities; Most Under-Owned Assets; Most Desired Basic Necessities
    - Conducted in March and April 2012
- Qualitative Surveys and Spreadsheet Compiling Data on: Land-Use; Patterns of Deforestation and Yearly Cycle of Deforestation; Why and Where Deforestation Occurs; Deforestation from Residents vs. Recent Migrants
    - Conducted in March and April 2012

Indicators of Outcomes

- Value of Carbon Finance Generated
    - Future Activity, Dependent on Verification
- Communities Gain New Knowledge, Practices and Skills About Sustainable Agricultural and Rotational Cattle Pastures
    - Future Activity
- Prioritization and Implementation Plan for Social Projects and Programs to Reduce Deforestation and Improve Community Benefits
    - Achieved between May 2011 and December 2012
- Baseline for Monitoring Community Benefits
    - Achieved in March and April 2012
- Formulation of Plan to Mitigate Leakage
    - Achieved between May 2011 and December 2012
- Formulation of Plan to Monitor Deforestation
    - Achieved between May 2011 and December 2012

Indicators of Impacts

- Community Income Diversified
    - Local project managers hired from community in March 2012
- Increased Income Generation
    - Local project managers hired from community in March 2012
- Reduced Deforestation
    - Achieved between May 2011 and December 2012
- Intensified Agricultural Practices
    - Future activity
- Rotational Cattle Pastures Implemented
    - Future activity
- Diversified Crops
    - Future activity
- Increasing Communities' Owned Assets and Owned Assets per Capita
    - To be assessed at next verification
- Improved Poverty Figures and Poverty Scores
    - To be assessed at next verification
- Increased Access to Basic Necessities
    - To be assessed at next verification
- Increased in School Attendance
    - Future activity
- Increased Rural Electrification
    - Future activity
- Increased Access to Health and Dental Clinic
    - Future activity

Although very limited leakage is predicted outside of the Project Zone due to the project activities of the Purus Project, the other stakeholders who might be negatively impacted due to the Purus Project are the communities and landowners living adjacent to the Project Zone and within the municipalities of Sena Madureira and Manoel Urbano.

To quantify and document changes in the social and economic well-being of these outside stakeholders which result from the project activities, the Project Proponents will review the Brazilian Census every four years to document the socio-economic variables in the municipalities of Sena Madureira and Manoel Urbano. These specific socio-economic variables to be monitored include:

- Total employed personnel
- Resident population
- Gross Domestic Product (GDP) per capita at current prices
- Value of average nominal monthly income of permanent private households with household income, by status of the housing unit – Rural
- Value of average nominal monthly income of permanent private households with household income, by status of the housing unit – Urban
- Resident population – literate

- Enrollment - Elementary school
- Enrollment - High school
- Number of Health institutions
- Percentage of Permanent private housing units, by existence of piped water and type of water supply - With water supply
- Percentage of Permanent private housing units - with energy supply[63]

The Project Proponents will then interview the outside stakeholders adjacent to the Project Zone every four years to quantify their socio-economic variables (i.e., the same socio-economic variables described above). Next, the Project Proponents will conduct a statistical analysis to determine whether the outside stakeholders' socio-economic variables are significantly worse off than the residents throughout the municipalities of Sena Madureira and Manoel Urbano due the project activities of the Purus Project.

The Brazilian 2010 census was used to establish a baseline of these socio-economic variables for outside stakeholders living in Sena Madureira and Manoel Urbano and the results can be found below. The next Brazilian census is scheduled for 2014 and such outside stakeholders will be interviewed after the 2014 census results are available.

Select Socio-Economic Variables from Brazil's 2010 Census for Sena Madureira and Manoel Urbano

	Variable	Sena Madureira	Manoel Urbano
1	Total employed personnel	1,996	508
2	Resident population	38,029	7,981
3	Gross Domestic Product (GDP) per capita at current prices	10,356.72	8,453.30
4	Value of average nominal monthly income of permanent private households with household income, by status of the housing unit – Rural	864.22	668.51
5	Value of average nominal monthly income of permanent private households with household income, by status of the housing unit – Urban	1,651.25	1,689.40
6	Resident population – literate	24,980	4,392
7	Enrollment - Elementary (2009)	8,777	2,048
8	Enrollment - High school (2009)	1,514	216
9	Number of Health institutions	14	5
10	Percentage of Permanent private housing units, by existence of piped water and type of water supply - With water supply	58.26%	64.44%
11	Percentage of Permanent private housing units - with energy supply	85.54%	79.44%

BIODIVERSITY SECTION

B1. Net Positive Biodiversity Impacts

The Purus Project generated net positive biodiversity impacts while maintaining high conservation values from May 2011 to December 2012. In order to contribute to net positive

[63] IBGE, "Click here to get information about municipalities at Cities@," Available: http://www.ibge.gov.br/estadosat/perfil.php?sigla=ac#

biodiversity impacts, the Project shall not use invasive species nor genetically modified organisms (GMOs).

1. Biodiversity Impacts

Appropriate Methodologies to Estimate Changes in Biodiversity as a Result of Project

The Project Proponents used the Avoided Deforestation Partners VCS REDD Methodology, entitled, "VM0007: REDD Methodology Modules (REDD-MF), v1.3." and the VCS Monitoring Plan to estimate the changes in forest cover.

In conjunction with the VCS VM0007 methodology to monitor changes in forest cover, the Project Proponents utilized the island biogeography methodology to estimate changes in biodiversity as a result of the project. The biodiversity concept of island biogeography was originally developed by Robert MacArthur and E.O. Wilson and was extrapolated to theorize that habitat area is related to species diversity and species abundance.

Island biogeography in the Brazilian Amazon was demonstrated by the "Biological Dynamics of Forest Fragments Project (BDFFP, also known as the Minimum Critical Size of Ecosystems Project) {… which concluded that} censuses of beetles, birds, and primates in 1-, 10-, and 100-hectare reserves indicate that the number of species, and in some cases population sizes, in these groups varies with the size of the reserve."[64]

The 'without project' scenario involved the continued, unplanned frontier deforestation which would result in less forest cover, less habitat availability, and most likely a reduction in both species diversity and species abundance. In contrast the 'with project' scenario, which is a tropical forest conservation project, had positive biodiversity impacts such as:

- Maintaining forest cover and reforesting degraded areas, thus expanding forest cover
- Maintaining water cycling, filtration and storage
- Maintaining nutrient recycling and soil quality enhancement
- Providing foodstuffs for both local communities and wildlife
- Providing habitat for an extraordinary diversity of flora and fauna

With no negative biodiversity impacts estimated as a result of the Purus Project, these aforementioned positive biodiversity impacts result in a net positive impact on biodiversity in the 'with project' scenario throughout the Project Zone and Project Lifetime.

2. Impact on High Conservation Values

Demonstrate that no High Conservation Values will be Negatively Affected by the Project

No high conservation values – whether with respect to communities or biodiversity – were negatively affected by the Purus Project from May 2011 to December 2012. Regarding the biodiversity high conservation values (HCVs), the Purus Project has several qualifying attributes and this includes threatened species, threatened or rare ecosystems, and critical ecosystem services.

[64] Richard O. Bierregaard Jr. et. al., "The Biological Dynamics of Tropical Rainforest Fragments," pages 859-866.

To demonstrate that such HCVs were not negatively affected by the Project, one can observe via satellite imagery or firsthand observations that the Purus Project's tropical rainforest (i.e. a threatened or rare ecosystem), and its associated ecosystem services, were maintained as intact forest cover. In addition, the Purus Project committed to developing a full biodiversity monitoring plan which shall monitor medium-to-large mammals including any threatened species. This monitoring plan was publicly posted to the CCBS on May 15, 2013.

In addition, the Project's Participatory Rural Assessment and Basic Necessities Survey were designed to measure the communities' high conservation values and the Project Proponents will continue to monitor these HCVs to ensure they are not negatively affected by the Purus Project.

3. Identify All Species to be used by the Project
While the Purus Project is mainly a payment for ecosystem services conservation project, in the future there will be some reforestation activities within degraded areas of the Purus Project which shall not include any invasive species. Such locally-appropriate species include:

- Cedro
- Copaíba
- Cumaru Citim
- Cumaru Ferro (*Dipteryx micrantha* Harms)
- Ipê (*Eperua bijuga* Benth.)
- Jatobá
- Samaúma
- Seringueira

It is also important to note that the carbon sequestration associated with these reforestation activities will not be included in the GHG quantifications.

4. Possible Adverse Effects of Non-Native Species
Describe Possible Adverse Effects of Non-Native Species used by the Project
N/A – There will only be locally-appropriate, native species used in the Purus Project.

5. Non-Use of GMOs
Guarantee that no GMOs will be used to Generate GHG Emissions Reductions or Removals
The Project Proponents guarantee that no genetically-modified organisms (GMOs) will be used in the Purus Project to generate GHG emissions reductions or removals and no GMOs were used between May 2011 and December 2012.

B2. Offsite Biodiversity Impacts
The Project Proponents have evaluated and will mitigate the potential negative offsite biodiversity impacts which result from the Purus Project.

1. Potential Negative Offsite Biodiversity Impacts
Identify Potential Negative Offsite Biodiversity Impacts
Due to the fact that the Purus Project is a payment for ecosystem services forest conservation project, there is unlikely to be any negative offsite biodiversity impacts that the Project is likely

to cause. The major negative offsite biodiversity impacts would be a result of leakage. For example, this activity shifting leakage could include deforestation agents such as the communities and/or deforestation drivers such as cattle-ranching and road construction shifting from within the Project Zone to outside the Project Zone.[65] This activity shifting leakage would result in an increase in deforestation, increase in GHG emissions, reduction of habitat availability and more forest fragmentation – all of which would have a negative impact on offsite biodiversity. The Project Proponents are committed to monitoring deforestation within the Project Zone and there are activities planned to reduce leakage effects.

2. Mitigation Plans

Document how the Project Plans to Mitigate these Negative Offsite Biodiversity Impacts

The Purus Project has leakage mitigation plans to minimize the likelihood of communities moving from within the Project Zone to outside the Project Zone which would result in negative offsite biodiversity impacts. In addition, the Project Proponents shall practice adaptive management and will collectively address any additional negative offsite biodiversity impacts that are later identified.

As previously mentioned, there were a variety of leakage mitigation activities designed between May 2011 and December 2012 which were undertaken. This includes:

- Alignment with the State of Acre's Payment for Ecosystem Services Scheme
- Landowners monitored the leakage belt and will report illegal deforestation to the authorities, if identified

From May 2011 to December 2012, the Project Proponents monitored the leakage belt via a trike and via boat. To mitigate the leakage attributed to communities moving from within the Project Zone to outside the Project Zone, the Project Proponents consulted communities throughout the Project Zone and will extend project activities (such as agricultural extension training courses) to communities throughout the Project Zone and not just to those living within Moura & Rosa's property. Furthermore, satellite imagery was also used to quantify the amount of deforestation that took place as a result of leakage from May 2011 to December 2012. Deforestation during this time period was reduced beyond the "without project" scenario and thus, more forest cover and habitat availability were conserved due to the Purus Project.

In addition, the State of Acre's Payment for Ecosystem Services Scheme (known as *Sistema de Incentivo a Serviços Ambientais* or "SISA" in Portuguese) is also relevant to the mitigation of leakage; particularly the leakage attributed to communities moving from outside the Project Zone to within the Project Zone. This is because the SISA is focusing on improving rural livelihoods through a Certification Program of Rural Production Units which shall "provide for the gradual abandonment of burning; priority access to labor-saving technologies; access to incentives and financing; and inclusion in sustainable production chains to encourage the production and

[65] Pitman, N. 2011. Social and Biodiversity Impact Assessment Manual for REDD+ Projects: Part 3 – Biodiversity Impact Assessment Toolbox. Forest Trends, Climate, Community & Biodiversity Alliance, Rainforest Alliance and Fauna & Flora International. Washington, DC., Page 9

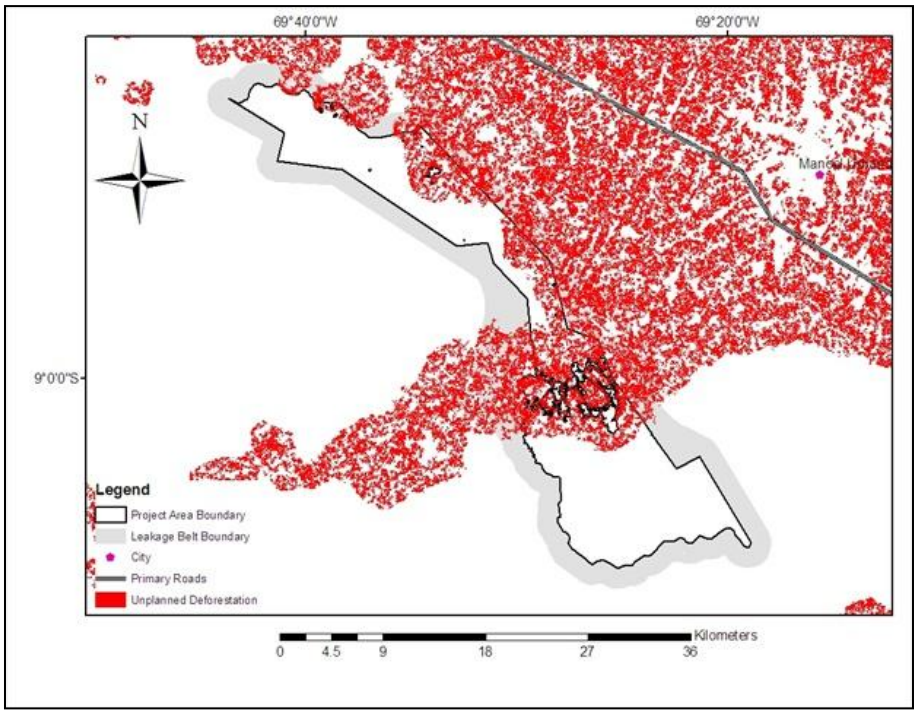
protection of environmental services."[66] Thus by improving rural livelihoods, communities will have less incentive to migrate, which shall reduce deforestation in the leakage belt while maintaining forest cover and habitat availability.

3. Net Effect of Project on Biodiversity

Evaluate Unmitigated Negative Offsite Biodiversity Impacts against Biodiversity Benefits within Project

The overall effect of the Purus Project on both offsite and onsite (i.e., within the Purus Project Zone and outside the Project Zone) biodiversity between May 2011 and December 2012 was overwhelmingly positive.

The 'with-project' scenario is a forest conservation project which will mitigate the deforestation of an estimated 6,037 hectares within the Project Area that would have occurred in the 'without-project' scenario from 2011 - 2020:



Map 4: Map of the Predicted Deforestation in the Baseline Period, 2011-2020
(Credit: TerraCarbon and Professor Antonio Flores)

This mitigation of deforestation and preservation of forest cover will have a significantly positive effect on biodiversity.

In contrast, the estimated amount of carbon dioxide equivalent emissions (CO_2e) predicted to occur outside of the Project Zone in the 'with-project' scenario is an estimated 52,019 metric tonnes of CO_2e. Using the weighted average of aboveground biomass in Amazonia forests of

[66] Environmental Defense Fund, "Ready for REDD: Acre's State Programs for Sustainable Development and Deforestation Control," Page 8.

approximately 372.3 metric tonnes of CO_2e per hectare,[67] this results in an estimated 139.7 hectares deforested (i.e., 52,019 metric tonnes of CO_2e divided by 372.3 metric tonnes of CO_2e per hectare) outside of the Project Zone as a result of the Purus Project. See the VCS Project Description section 3.3 *Leakage*.

Thus, the overall effect of the Purus Project on biodiversity was overwhelmingly positive because much more forest cover was preserved as opposed to deforested as a result of the project activities.

B3. Biodiversity Impact Monitoring

The Project Proponents have an initial biodiversity monitoring plan and a full biodiversity impact monitoring plan was implemented within a year of project validation. This full biodiversity monitoring plan was submitted to the CCBS on May 15, 2013. The Project Proponents will disseminate this full biodiversity impact monitoring plan and the results of the monitoring plan specifically to the local communities and other stakeholders, along with making the plan and results publicly available via the internet to the general public.

1. Initial Biodiversity Monitoring Plan

Develop an Initial Plan for Selecting Biodiversity Variables and Frequency of Monitoring and Reporting

The Project Proponents initial plan is to monitor forest loss (i.e., habitat availability) in the Project Area and Project Zone on a yearly basis using the State of Acre's remote sensing data. The Project Proponents also monitored deforestation using aerial surveillance via a trike approximately once per month.

2. Initial High Conservation Values Plan

Develop Initial Plan for Effectiveness of Measures to Maintain or Enhance High Conservation Values

The Project Proponents recognize the particular importance of the Project's high conservation values and will assess the effectiveness of the Project's conservation activities vis-à-vis the Project's high conservation values.

The measures to maintain or enhance the significant concentrations of biodiversity – particularly threatened species, endemic species and threatened ecosystems - within the Purus Project are the various deforestation mitigation activities as outlined in section *G3. Project Design and Goal,* subsection *2. Major Activities*.

The initial plan to assess the effectiveness of these various deforestation mitigation activities included:

- Review satellite imagery for deforestation and aerial monitoring via trike of deforestation to ensure effective conservation of forest cover (i.e., a threatened or rare ecosystem)
- Incorporate analysis of the population and distribution of threatened and endemic species identified with wildlife camera traps into full biodiversity monitoring plan
- Review ongoing Participatory Rural Assessments and Basic Necessity Surveys to ensure effectiveness of maintaining or enhancing community HCVs

[67] FAO, "Global Forest Resources Assessment 2010, Brazil Country Report," Available: http://www.fao.org/forestry/20288-0f6ee8584eea8bff0d20ad5cebcb071cf.pdf.

Additional mechanisms to ensure effective maintenance or enhancement of HCVs will be developed utilizing adaptive management and stakeholder consultation.

3. Full Monitoring Plan

Commit to Developing a Full Monitoring Plan

The Project Proponents' full biodiversity impact monitoring plan will continue to monitor forest cover and habitat availability on an annual basis via satellite imagery and monthly flights over the Purus Project with a trike. In addition, the Project Proponents will monitor the diversity, distribution, and populations of medium-to-large mammals with wildlife camera traps. Furthermore, a Theory of Change shall be used to link the Projects activities to outputs and outcomes, and to the overall biodiversity impacts.

From May 2011 to December 2012, the basic process of developing this full biodiversity impact monitoring plan was:

- 1. Review the Rapid Biodiversity Assessment Study done at Purus Project
- 2. Conducted background research
- 3. Identify local partners and community members to assist with monitoring plan

The first two steps informed the monitoring plan on which biodiversity variables to monitor. Likewise, the rapid biodiversity assessment identified threatened flora and fauna at the Purus Project site. Background research included: Reviewing the wildlife camera trap techniques deployed by other REDD project developers;[68] How to position cameras, sampling designs, and field crews;[69,70] Technical elements of mammalian diversity and populations using wildlife camera traps,[71,72] along with reviewing wildlife camera trap models.[73]

Brian McFarland also spoke to Dan Bisaccio, a Lecturer in Education and Director of Science Education at Brown University on February 6, 2012 who has frequently used wildlife camera traps in a variety of tropical ecosystems.

Within one year of project validation, the Project Proponents shall:

- Review vegetation maps of the Purus Project to identify general areas within the Project to set up wildlife camera traps

[68] Waldon, Jeff, Bruce W. Miller and Carolyn M. Miller, "A model biodiversity monitoring protocol for REDD projects," September 2011, Tropical Conservation Science Vol. 4(3):254-260.
[69] Grant Harris et. al, "Automatic Storage and Analysis of Camera Trap Data," Available: http://dx.doi.org/10.1890/0012-9623-91.3.352
[70] TEAM Network. 2011. Terrestrial Vertebrate Protocol Implementation Manual, v. 3.1. Tropical Ecology, Assessment and Monitoring Network, Center for Applied Biodiversity Science, Conservation International, Arlington, VA, USA.
[71] C. Carbone et. al, "The use of photographic rates to estimate densities of tigers and other cryptic animals," Available: nationalzoo.si.edu/.../024ebe33-5a96-49f6-9080-33bbdb0c92c0.pdf
[72] Tim O'Brien, "Wildlife Picture Index: Implementation Manual Version 1.0," Available: static.zsl.org/files/wcs-wpno39-wildlifepictureindex-928.pdf
[73] TrailCamPro, "Trail Camera Selection Guide," Available: http://www.trailcampro.com/trailcameraselectionguide.aspx

- Consult local communities and André Luis Botelho de Moura (the former graduate student of Dr. Armando Muniz Calouro) to identify the specific locations to set up wildlife camera traps
- Purchase and place wildlife cameras throughout the Project Area, rotating the cameras to different vegetation strata as necessary
- Work with André Luis Botelho de Moura to train community on wildlife cameras such as preventative maintenance, periodic movement of cameras between different locations, along with regular retrieval and replacement of camera memory and batteries.
- Photographic images will then be organized, identified and analyzed by specialists
- Disseminate the full biodiversity impact monitoring plan and the results of the monitoring plan specifically to the local communities and other stakeholders, along with making the plan and results publicly available to the general public.

Although outside the scope of the initial monitoring and reporting period of May 2011 to December 2012, the wildlife cameras were purchased in May 2013, André Luis Botelho de Moura was contracted in May 2013, the community was trained by André in June 2013 and the wildlife cameras were deployed throughout the Purus Project in June 2013.

Adaptive management will be incorporated into the biodiversity monitoring plan in order to allow for a change in the camera locations and camera models based off results.

Activities:
The main activities were identified above.

Outputs
The main outputs of the biodiversity monitoring plan will be photographs from the wildlife camera traps and deforestation monitoring reports to document forest cover and habitat availability. In addition, an analysis of the diversity, population and distribution of any threatened and endemic species identified by the wildlife camera traps will be conducted.

Outcomes
The outcomes based off the outputs will be an analysis of medium-to-large mammal diversity and populations and a better understanding of their distribution throughout the Purus Project.

Impacts
The ultimate impact will be the preservation of biodiversity and particularly, the preservation of the Project's high conservation values such as threatened species.

The Purus Project shall monitor biodiversity impacts both spatially throughout the Purus Project as well as temporally over the Purus Project Lifetime. The goal is to annually review satellite imagery and habitat availability, while conducting a biodiversity impact monitoring project with wildlife cameras every four years.

Offsite Impacts
The Project Proponents will monitor offsite biodiversity impacts, which were minimal, using satellite imagery to assess leakage.

GOLD LEVEL SECTION

GL3. Exceptional Biodiversity Benefits

The Purus Project not only demonstrated net positive biodiversity impacts on biodiversity within the Project Zone, but also has sites of global significance for biodiversity conservation. This global significance for biodiversity conservation was determined based off the Key Biodiversity Area (KBA) framework of vulnerability.

1. Project Zone's High Biodiversity Conservation Priority

A rapid assessment of the Purus Project's flora and fauna diversity was conducted by Maria José Miranda de Souza Noquelli of Tenóryo Dias and Alternativa Ambiental from August to September 2009. There were at least two endangered flora species identified at the Purus Project as classified on the International Union for Conservation of Nature (IUCN) Red List. These endangered flora species are Car-cara (common name in French, Portuguese name is Canela rosa, English translation is Cinnamon Rose, scientific name is *Aniba rosaeodora*)[74] and Baboonwood (Portuguese name is Virola Branca/Ucuuba Branca, scientific name is *Virola surinamensis*)[75].[76]

Although yet to be identified within the Purus Project Zone, the International Union for the Conservation of Nature's (IUCN) Red List of Threatened Species classifies the following seven species found in the State of Acre as either endangered or critically endangered:

- Black-faced, Black Spider Money (*Ateles chamek*)
- *Couratari prancei*
- Renaquinho (*Ficus ramiflora*) and Coajinguba (*Ficus ursine*)
- Geoffroy's Woolly Monkey (Lagothrix cana)
- Rollinia calcarata
- Trichilia elsae[77]

Thus, the KBA framework of vulnerability applies to the Purus Project and the Purus Project was validated to the CCBS with Gold Distinction in January 2013.

[74] IUCN, "Aniba rosaeodora," Available: http://www.iucnredlist.org/details/33958/0
[75] IUCN, "Virola surinamensis," Available: http://www.iucnredlist.org/details/33959/0
[76] Maria José Miranda de Souza Noquelli, "Diagnóstico Ecológico Rápido da Vegetação dos Seringais Porto Central e Itatinga, no Município Manuel Urbano – AC.," May 2012.
[77] IUCN 2012. IUCN Red List of Threatened Species. Version 2012.1. <www.iucnredlist.org>. Downloaded on 11 October 2012.

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